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ANALYSIS, DESIGN AND IMPLEMENTATION OF A
NEWS AND EVENT CONTENT MANAGEMENT SYSTEM (NECMS)
FOR THE UNIVERSITY OF NORTH CAROLINA WILMINGTON'S
CAMERON SCHOOL OF BUSINESS

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Abstract

This project introduces better means to manage news and event announcements published on the Cameron School of Business (CSB) website. Interviews and a competitive schools analysis were conducted to determine the main goal of the system: to develop a means to streamline communication of and centralize CSB news and event information. A web based system was developed that allow all CSB faculty and staff to create and initiate announcements of news items and calendar events. This content is organized separately from the appearance on the Cameron School of Business's website. The News and Event Content Management System (NECMS) leads each content piece through a process, including approvals where appropriate and automatically publishes to the CSB website once the content reaches all requirements in the process.

This paper includes an analysis of the implementation of NECMS. CSB's website design is briefly discussed in Section I. Section II suggests issues currently faced by CSB in providing news and event announcements to its audiences, and a competitive analysis of peer and aspiration schools is provided. System benefits are explored in section V. Section IV provides a NECMS system description, detailing key features. In Section V, development methodologies are compared and a single methodology adopted. Section VI gives technologies used and skills learned. Lastly, system limitations and future enhancements are provided in section VII.

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I. Introduction

This project introduces better means to manage and generate news and event announcements published on the public Cameron School of Business (CSB) website. Interviews and a competitive schools analysis were conducted to determine the main goal of the system. These are to develop a means to streamline communication of and centralize CSB news and event information. A web based system was developed that allow all CSB faculty and staff to create and initiate announcements of news items and calendar events. This content is organized separately from the appearance on the Cameron School of Business's website. NECMS leads each content piece through a process and automatically publishes to the CSB website once the content reaches all requirements in the process.

Currently, the process is manual and is dependent on the CSB Web manager to enter and modify any news or events for the school. NECMS allows faculty, and staff to take control of publishing content and empower them to contribute to the website.

The system shifts away from displaying static content that is manually entered by a single user toward a more dynamic, data-driven content. The system allows for multiple users to enter content and content to be displayed without requiring formatting, programming or aid from the Web manager as well archiving of historical news items. The content is stored external to the website in a database. The database is linked to the website and the data is published automatically through SQL and server side includes.

This paper includes an analysis of the issues currently faced by CSB in providing news and event announcements to its audiences. CSB's website design is briefly discussed, a competitive analysis of peer and aspiration schools is provided and system benefits are explored. Deliverables are presented along with an actual timeline for the development and implementation

of NECMS. In addition, development methodologies are compared and a single methodology adopted.

II. Understanding the Current Situation

The University of North Carolina Wilmington (UNCW) has had a well-established Web presence for many years. As the Web continues to evolve rapidly, expectations from users for currency and rapid change have increased. Today's Internet technologies present new specifications and practices. In order to adhere to evolving practices, CSB launched a new site design in January 2010 that follows more modern standards using XHTML and CSS.

The site, namely the home page (<http://www.csb.uncw.edu>), displays a combination of information that rarely changes (such as the navigational structure) and information that frequently changes (such as news and event announcements). Currently, content added to the website is added using only a static publishing system. The Adobe software products of Dreamweaver and Contribute are employed as CSB's content management system. Using these products entails that all elements of these pages are written into HTML pages regenerated by the publishing software, and stored as flat static files on the web server, ready to be served to client machines. As a result, dynamic generation for frequently updated content is ignored as an option. Using only a static system, the approach becomes less flexible and displaying the most up-to-date information becomes a difficult task. In addition, the pages become out-of-date if they project an upcoming event, when the event has already occurred and the page has not been updated. Information on the pages that rarely change is and should remain static information; however information that changes frequently needs to become dynamic.

Events and news information is constantly changing and needs regular attention. The sites continue to face challenges of meeting the users' expectations of displaying the most

accurate and most current information. One reason for not meeting this challenge is largely due to a highly decentralized environment. CSB includes many different departments and divisions that have needs to share information through the Web. For example, an event that appears on the Accounting and Business Law Department web page, might be of interest to the entire Cameron or external family and should also appear on the CSB home page.

Each department and division has access to content on their site using Adobe Contribute. Adobe Contribute is a Web content management application that is designed to facilitate collaborative editing of websites. It provides version control and workflow management features. Adobe claims that the software allows users to edit web pages without knowing HTML, and that the application can easily embed multimedia components.

Adobe Contribute uses an in-browser editing component that works as a plug-in for recent versions of Microsoft Internet Explorer and Mozilla Firefox. The Adobe Contribute editor is designed to integrate with Adobe's Dreamweaver software, and other Adobe products. Most departments delegate the responsibility to maintain their pages to their administrative assistants who have very little motivation to keep the sites fresh.

The problem with Adobe Contribute is that faculty lack knowledge of the software and very rarely makes updates to their own pages. The cost of the license involved, if every faculty and staff were given a license, could be prohibitive. In addition, most CSB professionals are prohibited editing access to the main home page where news and event announcements are primarily established.

Another reason that data is often scattered, is there is no official Web manager for the CSB website, and a single faculty member volunteers his time to maintain the site. In order to distribute information to the school's home page, departments, community centers, faculty or

staff must communicate information, usually through email or a phone call, to this Web manager. The Web manager is one of the individuals that has access to the home page code for their school. Access to the home page is restricted to maintain the design integrity of the main home page. There is a heavy reliance on the Web manager's schedule and interest to update the site. As a result, managing news and events updates becomes a time-consuming, difficult task, and information distributed to the website may not be in a timely manner. The current site's inflexible structure and constraint of not allowing for staff or users to participate create a need for a solution.

A. Cameron School of Business Design

The CSB's new design carefully takes into consideration several key design elements. Visual appearance, although important, is only one aspect of the design. The site also takes into consideration the utility or functionality and its usability to its users. The main page is targeted to different audiences, both internal and external. Although current students use the site frequently, "the main page is especially meant for users external to CSB such as prospective students, alumni, Cameron volunteers and Cameron donors. CSB (students, faculty, staff) users are familiar with the site and mostly know where they need to navigate" (*Janicki interview, March 2010*)

Visually, CSB home page is made up of various common graphic design elements in modern web design style. The graphics and text includes a standard style that flows throughout, showing consistency. The style is professional, appealing and relevant. In order to achieve a consistent look, the page combines current W3C web design standards such as use of cascading style sheet (CSS) and evolved layout content frameworks. Primarily, CSS is used to create a consistent presentation for the page. Fortunately, the use of CSS also allows for separation of

content from presentation. The CSS's enables multiple pages to share formatting while assigning style properties to different elements on particular pages. The use of javascripting and other tricks' is minimal to reduce the visual impact upon mobile devices.

The design layout on the main page is segmented into divisions or <div/>'s with each div having a specific purpose such as navigation, news, calendar, site map, or search. Every element on a web page generates a rectangular box. The initial element on the page is a scrollable flash header with seven informational image banners. Directly below the flash banner is a five column navigation panel separated for different stakeholders. Key stakeholders include: current students, future students, alumni, employers, donors and supporters and centers of excellence. Following the opening header rows is the main content of the page. The main content features "News and Event" announcement in the left column and a calendar in the right column.

1. CSB – "News and Events" on the home page

The "News and Events" announcements feature a few (typically three to seven) short blurbs, displaying recent and upcoming news concerning the CSB. Each announcement is entered into the site manually by the Web manager. The Web manager controls the priority of news stories and therefore whether or not a story is added to the page and in what order. The Web manager also controls when a story is added and removed from the main page.

To visually display each announcement, a standard format is applied. This includes a thumbnail image of an approximately standard size of 113 px wide (images are scaled in proportion so height is not typically assigned) displayed to the left of the story detail. The story detail, to the right of the thumbnail, usually begins with a bolded story headline followed by two or three short sentences of details, containing approximately 150 to 400 characters. Thumbnails and headlines may link to another page for further information regarding the story; however,

generally the headline is not linked and additional links are not provided. Since there are no standard for links in headlines and thumbnails, there are also no standards for how the details are displayed. The details may include links, formatted text, and a range of number of characters. Figure 1 depicts the CSB Home page's layout, including the "News and Events" component, Calendar and link to the Archive component.

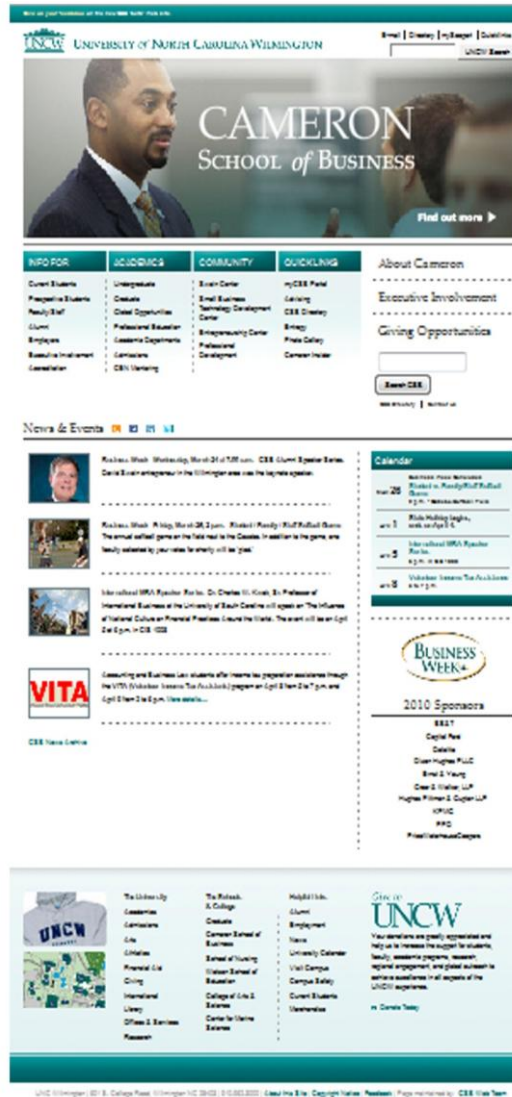


Figure 1: Screenshots: March 20, 2010 . Shown in this figure is the home page for CSB including the News & Events component, Calendar and link to the Archive

To separate each announcement, a singled dotted line (such as shown in Figure 2) is inserted (by the stylesheet as a border) between each “News and Event” item.

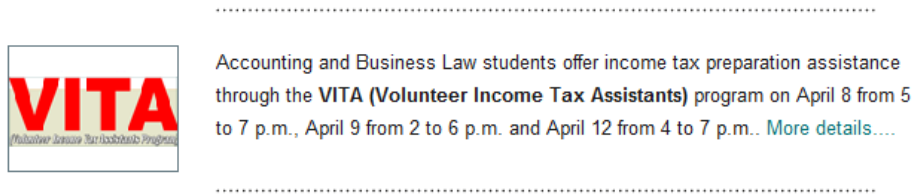


Figure 2: Shown in this figure is an example of a news item. It has a description that is three lines long. The amount of characters is typical for news items that appear on the CSB home page. It also has an image that is not linked. In addition, a link located within the description takes you to a PDF detailing more information. The item also includes formatting, such as bold text and blue text.

2. CSB – “News and Events Archive”

As each “News and Event” announcement is removed, it is usually, but not always, moved to the archive. There is no automation for this process. The archived stories are typically maintained by a student assistant who manually adds the story to the archive. There is no standard as to when stories get removed from the main page. Users navigate to the archive through a link on the main page below the “News and Events” section. The archive page is a very simple one column layout page. The current archive page is generated by an Active Server Page (ASP) application, which stores the news item, the source, the image link, and the description (see Figure 3). Each archived story uses a single bar with the headline of the story within followed by a few paragraphs detailing the story. There is no format to the details and an image may or may not be presented for the story. Following each story, three common details are provided: a link, the story source, and the date archived. Users are not able to search the archive because no search options are provided.

CSB in the News

Economic insider shows what's ahead



Former Federal Reserve official, Tom Simpson will give a talk on the U.S. economic recovery at the University of North Carolina in Wilmington on Nov. 3. His talk entitled, "Edging from the Abyss: Recovering from the Financial and Economic Crisis" will address what's ahead for the financial system.

Link: http://www.wilmingtonbiz.com/industry_news_details.php?id=824

Source: Greater Wilmington Business Journal

Date: 11/1/2009

Cameron school expands global business initiative

The Cameron School of Business at UNCW recently received a \$168,000 grant from the U.S. Department of Education to fund their new Global Business Initiative, a program in the Swain Center for Business and Economic Services. In addition to funding UNCW business student internships abroad, the funds will support a limited number of free advisory services for southeast North Carolina businesses interested in expanding their global reach.

Link: http://www.wilmingtonbiz.com/industry_news_details.php?id=788

Source: Greater Wilmington Business Journal

Date: 10/22/2009

Figure 3: Screenshots March 20, 2010. Shown in this figure is an example of the archive page that appears from the link on the CSB home page. Note that it is a single column format with each archived story containing a link, source and date and separated by a gray bar.

3. CSB - Calendar of Events

The Calendar features a few (typically three to seven) upcoming events involving the CSB. The calendar has a line item format. Each event displays the date to the left and short details to the right (see Figure 4). Within the details, a link may be provided. These links may navigate to another web page, document, or PDF. Other details may include description, location and contacts. A consideration is the number of characters that are permitted in the description to keep the calendar a calendar item and not an 'event' item. There is no standard for the number of characters; however it is typically less than 100 characters.

Each calendar item is generated by the Web manager manually entering each item into an HTML table via Adobe Dreamweaver.



Figure 4: Shown in this figure is an example of the calendar that appears on the main CSB home page.

4. CSB - Secondary and Internal Pages

The CSB site is organized in a multi-tiered hierarchy (see Figure 5), with vertical dimensions (home pages link to secondary pages, which link to internal pages) and a horizontal spread of distinct content regions that graphically and organizationally help the user navigate. CSB secondary and internal page templates relate to the home page templates. Secondary pages serve as a gateway to internal pages where the most useful content is presented. Although not standard, most internal pages feature a three column layout with a navigation column, page content column, and a recent "News and Events" column.

The third column is frequently updated with news and events surrounding the area that coincide with a particular internal page. For example, the Information Systems & Operations Management Department's internal page may provide an announcement for an upcoming "Wilmington Area Technology Exchange and Fair" Event. Using Adobe Contribute, most departments have editing and publishing permissions for this column based on their work field. However, the in-browser editor used by Adobe Contribute requires all content to be entered manually. There are no standards for management and content becomes outdated without frequent administration. In addition, since each department may enter their own 'news', the

formatting between departments quickly becomes different, losing the ‘consistency’ of appearance desired on the schools website (see Figure 6).

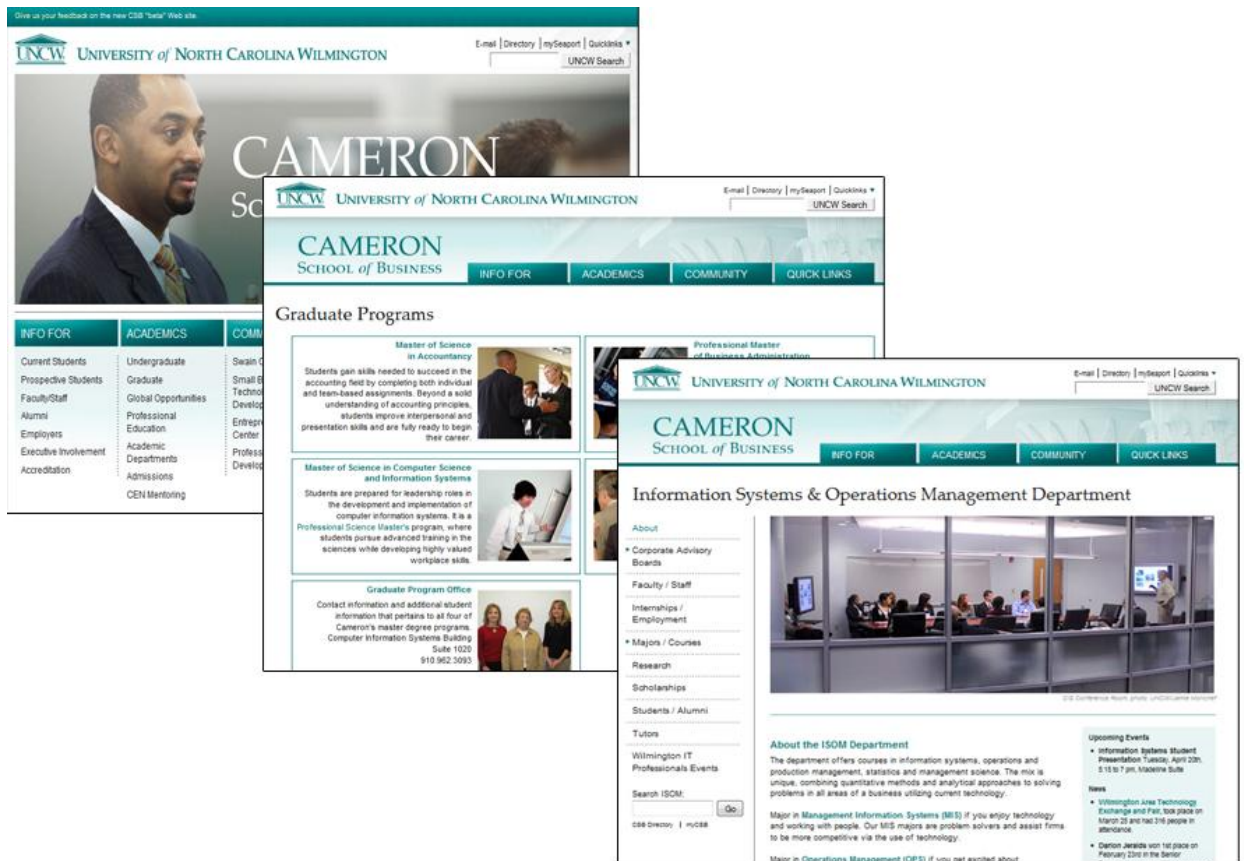


Figure 5: Screenshots: March 20, 2010. This figure shows an example of the hierarchy of CSB pages. It includes the home page(left), a secondary page(middle), and an internal page(right).

Upcoming Events

- **Information Systems Student Presentation** Tuesday, April 20th, 5:15 to 7 pm, Madeline Suite

News

- **Wilmington Area Technology Exchange and Fair**, took place on March 25 and had 316 people in attendance.
- **Darion Jerolds** won 1st place on February 23rd in the Senior Presentations competition sponsored by the Operations Management Advisory Board.
- The **Southeast Decision Sciences Institute (SEDSI) Conference** was recently held at the Wilmington Hilton. President of the regional meeting was ISOM professor **Barry Wray**.
- **Drew Rosen** was the recipient of the Decision Sciences Institute's highest award the Distinguished Service Award.
- **Kevin Matthews** and **Tom Janicki** won the Best Paper Award in the Innovative Education and Experiential Learning Track at the SE DSI Conference.

Recent Accounting and Business Law Newsletter



Harvey Pitt spoke recently at UNCW. Pitt was the chair of the Security Exchange Commission during 2001-2003. The event was held in CIS 1008, on March 19th

VITA
(Volunteer Income Tax Assistants Program)

Volunteer Income Tax Assistants Program (VITA). Accountancy students offer income tax preparation assistance. Schedule:

All sessions occur in Cameron Hall 231

- April 8, 5 to 7 pm
- April 9, 2 to 6 pm
- April 12, 4 to 7 pm

[More Details](#)

Figure 6: Screenshots: March 26, 2010. Shown in this figure are examples of the different information displayed in the right most column on two different departmental web pages. Note that there is no standard format. The information on the right example reiterates a news item from the home page. However each of these items was manually entered at two different times. Student Club announcements and news are not currently displayed on the CSB website.

III. Need for a NECMS

The CSB website attempts to provide information to internal users, such as faculty, staff, and students, and to target external users, such as prospective students, including donors, mentors, and surrounding communities. Communicating school news and event experiences to these users becomes a critical part of the website's usefulness. When determining pertinent web content, the site's most critical target audience should be identified, and news and event announcements should be implemented to meet their needs accordingly. Depending on different times, the most critical target audience may change. When acceptance applications are nearing due dates, prospective students may be the critical audience; and conversely, when funding a project is essential, information for donors may be critical. Table 1 outlines examples of CSB's website's target audience, site goals, resources and scenarios of use.

Audience	Site Goals	Resources	Scenario
Prospective Students	Provide answers to questions and a reason to apply	School history, frequently asked questions, application	High school senior Jane Smith is a prospective student researching colleges and universities online. She wants to answer several key questions quickly including size of school, available degrees, cost of education, and faculty to student ratio. Freshman Joseph Smith is a prospective student researching UNCW majors online. He wants to choose a major that is active in promoting the future of the student's professional life.
Alumni	Provide info and maintain interest in donating money	Alumni event info, institution news	Attorney Bob Smith is an alumnus working in a different state. He brags about his alma mater and wants to stay involved with the school. Bob reads the school news every week and wants to take part in alumni events.
Parents of Students	Provide info about child's school	Institution news, recent awards received by the school	Susie Smith has a child, Frank, that attends the school. Susie wants to know what is going on at the school and to be informed enough to converse about school events.
Students	Provide available classes and school news	Course listings, department info Information about concentration	David Smith is sophomore preparing to choose classes for next semester. He needs to have current information about the available classes and background information provided by the different departments. David also is undecided on his concentration; he requires information on each of the school's concentrations and potential jobs.
Faculty	Provide faculty research info for enhancing reputation	Research sections, faculty CVs	Professor Caroline Smith is looking for a new position and is researching the faculty members of a department. She needs to have current faculty CVs with publications to see if she is a good fit.
Community	Provide info on school events	Up-to-date calendars and announcements	Douglas Smith is a professional in the community and enjoys the school's unique events. He needs to have current information available and easily retrievable online. Christy Smith is a professional Mentor that supports CEN and RAP programs. She needs to have news and event details readily available.

Table 1: In this table examples of target audience, site goals, resources and scenarios are provided.

A. News and Events in the Schools

Taking into account of the size of the CSB community, it is logical that CSB news and events information comes from many different places. Managing information from these highly decentralized communities often becomes difficult and cumbersome to a single individual in a centralized location.

1. Cameron School of Business's Divisions and Audiences

The CSB website is focused on effectively delivering useful content to its different audiences. CSB includes five different academic departments with undergraduate and graduate programs, and more than four different outreach and community centers and development programs as well as the dean's office. Table 2 provides CSB divisions, categorized by the type for which it pertains.

Type	Division
Undergraduate Department	Accountancy and Business Law
Undergraduate Department	Economics and Finance
Undergraduate Department	Management
Undergraduate Department	Information Systems & Operations Management
Undergraduate Department	Marketing
Graduate Program	Master of Science in Accountancy
Graduate Program	Professional Master of Business Administration
Graduate Program	Master of Science in Computer Science and Information Systems
Graduate Program	International Master of Business Administration
Community	Swain Center for Business & Economic Services
Community	Wilmington Area Information Technology Professionals Events
Community	Supporters and Donors
Community	Small Business Technology Development Center
Community	Professional Development
Community	Entrepreneurship Center

Table 2: In this table, CSB divisions categorized by the division type it pertains to are provided.

Each of these divisions may have news or event occurrences happening at any given time. When news and events surrounding these divisions occur, CSB's website becomes a beacon for users

looking for accurate and precise information. The home page is a basis to navigate users to this information (see Figure 7). Users, both internal and external, visit the website to learn what is going on, when an event is occurring, and where it will be located. The home page should navigate the users to pages where further information can be found.



Figure 7: Shown in this figure is the navigation panel on the CSB home page. Different target audiences can navigate to the information they need.

Site organization is crucial to ensure that information users most want is easy to find and access. In addition to navigation, the goal of the home page is to display the most important news and events. Because the home page limits the number of “News and Event” announcements it can show, news pertaining to different divisions of the CSB community rather than CSB as a whole is often placed on secondary and internal pages. With the new site design (see Section II-A for details, pg 4), the audiences can navigate through different pathways in order to address their needs and meet their unique site requirements and interests. Secondary and internal pages often display “News and Events” in the rightmost column of the page. Information on these pages is usually contributed by the page owners themselves.

2. Cameron School of Business’s News and Events

CSB hosts at least one hundred events each year, such as conferences, “Business Week”, invited panels, alumni breakfast series, advisory board meetings. Each event may pertain to a certain division or the CSB community as a whole. The biggest event that occurs within CSB is

“Business Week”. This is an annual event that has been held for twenty-nine years. It is designed to help prepare CSB students for the business world. The event features more than 100 sessions with prominent alumni and executives sharing their knowledge and experiences in the areas of business, marketing, entrepreneurship, information technology, and more. Both internal CSB members and the external CSB community are critical to making this event a success. For this event, the main source of information is the CSB website (see Figure 8).

Promoting events, such as “Business Week”, and other news and events as they related to student events, department events or external events, through the website should encourage a sense of pride for the internal users, including students, faculty and staff while promoting a sense of community for external users.

The external community is an essential part of CSB. These users encourage the outside community to become a part of the school. “News and Events” is essential in providing a link to the business community and continuing to build the basis for future development of the college.

The Cameron Executive Network (CEN), Resume Assistant Program (RAP) Consultants, and individual departmental advisory boards are examples of external community groups that help build this link. Each of these executive involvement teams includes many professionals and executives that help mentor CSB students into the business world. These executives improve the quality of the educational experience for CSB students and the community. Members participate in a variety of events from sharing experiences in the classroom to hosting presentations, conferences, and student competitions. A number of external professionals use the site to learn details of news and events occurring in CSB.

**Wilmington
IT Professionals Events**
Events sponsored by the advisory board for the entire Wilmington Area Community

Join us on:  

Spring 2010 Advisory Board Events

- **Senior Presentations -**
Tuesday, April 20, 5:15 to 7 pm,
Madeline Suite

Previous Events

- **Wilmington Area Technology Exchange and Conference -**
was held on March 25 and had 316 people in attendance. [More....](#)
- **Advisory Board Business Meeting,** Wednesday, Jan. 27;
Topics included internships, technology exchange and fair and member web experience survey. [Minutes of the Meeting.](#)
- Jan. 29, **Company Tours and Information Exchange** to the RTP campus, homes of AT&T, Cisco and IBM. Over 55 students and faculty participated.

Figure 8: Shown in this figure is an example of the Advisory Board “News and Events” presented on a single Department’s Advisory Board page. This information is displayed in the right most column.

With the breadth of information, it becomes difficult to manage news and event information. There is no way of knowing whether information that should be on the website is actually presented or is accurate. In an interview with Dr. George Schell (Associate Dean of CSB), he noted that the secondary page’s content is often outdated. When asked why, he stated that there is a lack of responsibility among faculty and staff for controlling the website content. The problem is that news and event information is distributed across dispersed locations and that no one takes responsibility for contributing to the Web. This means that not only is information scattered, but often times is no longer relevant. In addition, scattered information means that it cannot be reused for other pages without additional manual entries. The overall problem identified is management of information: who is responsible for the information on pages and assuring the information is current.

B. Key User Interviews

In order to understand the current situation as well as solicit input on user problems and future enhancements, a series of interviews was conducted. Table 3 lists the individuals, the dates of interview, and their position titles.

Individual	Date	Title
Dr. Tom Janicki	March 15, 2010	Web manager
Dr. George Schell	March 29, 2010	Associate Dean
Donna Kurtz Crystal Greene Helms	April 12, 2010	Administrative Assistant – Dean’s Office Administrative Assistant
Jennifer Mackethan	April 19, 2010	Administrative Assistant
Barbara Biehner Deb Helin	April 20, 2010	Director of External Programs Administrative Assistant – Dean’s Office

Table 3: In this table, a list of interviewees, date, and title are provided

Questions were asked regarding the current systems and opinions were gathered regarding how “News and Event” articles are updated (see Appendix A for questions and answers). The overall opinion was that the process is extremely manual and time consuming, especially for Web managers. Throughout the interview process, three main problems of the current system were identified. These problems are:

- 1) Information is difficult to get.

The Web manager and administrative assistants get information in a number of ways: faculty and staff email, word of mouth, or even seeing a flyer hanging up.

- 2) Collection of information from many sources leads to errors.

This data is often scattered and lacking detail

- 3) Information may need to be entered into more than one page, such as the main web page and departmental web pages.

Interviewees were asked if a news and event content management system would be helpful. The overall opinions were very favorable and interviewees were excited. The Web

manager’s main goal for the system is to eliminate full responsibility for all web content and allow content owners to contribute information without aid or programming. In addition, a consistent need recognized, through the interview process, is to provide a means for data to be entered once for an event and have it appear on multiple pages.

In conclusion, overall interviewee attitudes for NECMS would benefit greatly in contributing to the website’s usefulness. Interviewees hope NECMS would provide many functions that add value to the news and event information gathered.

C. Competitors - Peer and Aspiration Schools

An analysis study was conducted of peer and aspiration schools in an attempt to identify patterns and common elements universities use to deliver news and event announcements. The UNCW CSB website was compared to six university websites. Of the six universities, three were CSB aspiration schools, two were CSB peer schools and one was UNCW main website. Aspiration schools were determined by the Cameron School of Business Strategy Committee, who engaged in a thorough evaluation of potential peer institutions during the 2006-07 academic years. These schools are determined using multiple sources, including the Association to Advance Collegiate Schools of Business (AACSB) Knowledge Services. A large database was created comparing 24 key characteristics for over 20 schools of business (Cameron School of Business). The websites analyzed are identified in Table 4.

University	Home page site	Peer/Aspiration
UNCW CSB	http://www.csb.uncw.edu	NA
UNCW	http://www.uncw.edu	NA
James Madison University	http://www.jmu.edu/	Aspiration
Miami University of Ohio	http://www.miami.muohio.edu/	Aspiration
College of William and Mary	http://www.wm.edu/	Aspiration
Appalachian State	http://www.appstate.edu/	Peer
Duke	http://www.duke.edu/	Peer

Table 4: In this table, competitor schools reviewed are listed

For each university site, three page content components were compared for each site. The components were the:

- “News and Event” announcement section,
- “News and Events archive”, and
- “Calendar of Events”.

In addition, uses of common Web 2.0 applications were noted. The home page was the primary concern; however, some details of secondary pages were also reviewed.

1. Competitive Analysis – “News and Event” Announcement section

All analyzed competitive universities provide “News and Event” announcements directly on their home page. It is assumed that these universities realize an importance in providing this type of data to their users. The sites have a section or sections dedicated to delivering news and event content on their home page. The use of templates is universal on each of the home pages featuring “News and Event” announcements. These templates usually include a thumbnail of standard size, with the same number of pixels used for each, headline and a few sentences of detail. Two other common features are found on all sites other than CSB website. These features include links to full stories and the date the story is posted to the website. For the CSB site, more information may be provided, such as a PDF or link to an external site; however, it is not common practice to link to an additional page presenting a full news article. In addition, all sites provide news articles through an RSS feed except for CSB. CSB does contain a link to RSS feed, however this link is for all UNCW’s articles. Table 5 provides competitor schools reviewed and the common elements found on each University sites for “News and Event” announcements.

	UNCW	UNCW CSB	James Madison University	Miami University of Ohio	College of William and Mary	Appalachian State	Duke University
Page Content – News and Events Announcements							
News and Events Section on home page	✓	✓	✓	✓	✓	✓	✓
Short description included on home page	✓	✓	✓	NA		✓	
Template used for each story on home page	✓	✓	✓	NA	✓	✓	✓
Link to separate page for full story	✓		✓	✓	✓	✓	✓
Date posted	✓		✓	✓	✓	✓	✓
Contact person always given	✓				✓		
Links in actual article such as PDF, email, other website	✓	✓	✓	✓	✓	✓	✓
RSS Feed							
On home page	✓		✓		✓	✓	✓
On secondary pages				✓			

Table 5: In this table, competitor schools reviewed and common elements found on University sites for News and Event announcements are provided

2. Competitive Analysis – Calendars of Events

In addition to “News” articles, most universities appear to realize the importance of maintaining event calendars. Event calendars provide a list of events that are scheduled for current and future dates and times. Five of the seven sites display the calendar directly on their home page. Each of these calendars is formatted using a similar style. The style lists different events, and for each event dates are provided on the left with specific details on the right. As previously stated, CSB lists only a few events on their home page calendar. For this reason, events must be prioritized and only critical events are displayed on the home page. Table 6

provides competitor schools reviewed and common elements found on University Site Calendars.

An interesting feature was found at Duke University. Duke University displays only a few events on the home page calendar, however it links to a full calendar (see Figure 9). For each event, listed on both the home page and full calendar page, a link to a page detailing the event’s information is provided. An event information template provides when, where, description, sponsor, and contact information categories. In addition, a unique feature, included for each event, is icons allow users to quickly and easily add events to Google Calendar, post the event to Facebook, or download an .ics file for import to other calendars.



Figure 9: This figure provides the unique way Duke presents its full calendar to users. Links to Google Calendar, Facebook and ICS files are provided.

	UNCW	UNCW CSB	James Madison University	Miami University of Ohio	College of William and Mary	Appalachian State	Duke University
Page Content – Calendar of Events							
Calendar of Events on home page		✓	✓	✓	✓	✓	✓
Links in Calendar Events to website, PDF, further details, etc	NA	✓		NA	✓	✓	✓
RSS Feed for Calendar of Events	✓						✓

Table 6: In this table, competitor school reviewed and common elements found on University Site Calendars are provided.

3. Competitive Analysis – Archive

The preservation of current and historical “News and Event” articles is important because it allows a historical awareness within the community of the value and activities of the school. Archives are a common element included for all school websites researched. Two presentation formats are commonly found. Four of the seven schools present a table including metadata such as date, topic and title. The title is linked to the full archived story. Of the schools that do not present archives in this manner, a single page is provided with archive stories in a single column. Two of the seven schools provide both presentations. A search by keyword functionality is found in all archives except for UNCW, CSB, and William and Mary. In three of the schools, archives could be filtered by a range of dates. Two allow for filtering by topic. Table 7 provides competitor schools reviewed and common elements found on University Site Archives.

	UNCW	UNCW CSB	James Madison University	Miami University of Ohio	College of William and Mary	Appalachian State	Duke University
Page Content – Archive of News and Events							
Archive of News and Events							
Linked table format providing Title & Date	✓		✓	✓			✓
Single column format		✓	✓		✓	✓	✓
Archive Sorted - By Date	✓	✓	✓	✓	✓	✓	✓
Archive Searchable - By Keyword	✓		✓	✓		✓	✓
Archive Filtered - By Date	✓		✓				✓
Archive Filtered - By Topic						✓	✓
Archive Filtered - Date posted	✓		✓	✓	✓	✓	✓

Table 7: In this table, competitor schools reviewed and common elements found on University Site Archives are provided

4. Competitive Analysis – Web 2.0 applications

Web 2.0 applications have a common presence in current Internet use. Web 2.0 applications include social networking sites such as Facebook, Twitter, and LinkedIn, social media sites such as Flickr and YouTube, and web feed such as RSS feeds. Universities are rapidly realizing the potential for using Web 2.0 applications to deliver content to more users. Essentially, this is where the majority of all the university users are, namely social networks (such as Facebook and Twitter) and YouTube (Erin Dorris Cassidy, 2011). Not only do many college students have a Facebook, Twitter, YouTube, Flickr and/or LinkedIn account, but the professional usage by companies and universities is also growing. These applications are highly interactive and allow for information sharing and content exchanging. The shift toward user-generated content is having a major impact on education as more universities engage in Web 2.0 applications. Users are able to connect directly to university accounts for many content deliverables. Although not all applications and tools are utilized, six of the most popular and common tools were also noted. The six tools and applications included were: RSS feeds, Facebook, Twitter, LinkedIn, Flickr, and YouTube.

Table 8 indicates whether the tools are used by the website and linked directly from the home page. Of the six tools, the most common were Facebook and RSS feeds. Almost all, five out of seven websites, feature links to Facebook accounts. It is interesting to note, however, that the CSB Facebook icon is linked to a CSB Alumni page which often features “News and Event” stories centered solely around the Alumni association. The most common tool that CSB does not use, but its peer and aspiration universities do, is RSS feeds. All other universities, with the exception of Miami University of Ohio, link to RSS feeds where users can subscribe for “News and Event” information delivered directly to their RSS Reader. Most universities only deliver

RSS for “News and Event” articles. One university, Duke, also provides an RSS Feed for calendar events. Of the remaining tools, YouTube and Twitter are the next most common. Four of the universities use these tools. CSB provides links to Twitter as well as an RSS feed, although these tools are linked to UNCW’s RSS and Twitter, and there is not a separate account for CSB use only.

	UNCW	UNCW CSB	James Madison University	Miami University of Ohio	College of William and Mary	Appalachian State	Duke University
Web 2.0 Social Networking Tools linked on home page							
RSS	✓		✓		✓	✓	✓
Facebook	✓	✓	✓		✓		✓
Twitter	✓		✓		✓		✓
LinkedIn		✓			✓		
Flickr					✓		
YouTube	✓		✓		✓		✓

Table 8: This table indicates Web 2.0 tools used on school home pages

V. System Benefits to Stakeholders

An NECMS would provide a user interface where content owners can contribute without the need to know HTML. The key interface would be the use of web forms which prompt the user for specific information. Since updates can be controlled by web page owners directly, accountability for accurate content is created. This would also allow for more timely updates

while upholding to standardization rules. NECMS will achieve the following key goals:

- *Streamline and automate content administration.* Reduce the need for a single Web manager to write HTML into static pages to update content. Pages will automatically update without manual entry.
- *Implement Web-forms-based content administration.* Allow faculty and staff to publish content through Web forms using a Web browser. Specialized expertise (such as knowledge of HTML, graphic design or Web publishing) is not required of content managers. Users simply complete the fields in the form.
- *Distributed content management and control.* The Web manager's schedule and interest no longer creates a bottleneck for the timeliness of publication. The burden of reviewing and adding content to numerous pages is lessened by distributing content management responsibilities to individuals throughout the organization.
- *Separate content from layout and design.* Content will be stored separately from its publication format. The information may be stored as text format or XML and formatted to display properly on the web pages.
- *Create reusable content repositories.* Content managers enter the content only once but it appears in several locations and formatted according to the page location.
- *Implement central graphic design management.* Graphic design becomes template-driven and centrally managed. Using web forms creates a structure and format for users to follow, ensuring a consistent and professional look for content on the site.
- *Automate workflow management.* Allow workflow processes to administrate who creates, approves and publishes content. With a workflow system, an alert is sent to the

next person in the chain when an action is required. This also ensures that content is adequately reviewed and approved before publication.

- *Build sophisticated content access and security.* Allow to define who has access to different types of information and what access each person has.
- *Make content administration database driven.* The website will no longer use flat static pages but will dynamically tie to a database that stores all information in a central repository.
- *Include structures to collect and use metadata.* Information stored in the database will include metadata describing and defining data such as author, creation date, publication and expiration dates, content descriptions, indexing and category information, revision history and security and access information.
- *Allow for integration with current system.* NECMS allows for integration with the current website without effect.
- *Allow for archiving.* The system must automatically archive information upon expiration.

IV. System Design and Analysis

A. System Description

The NECMS is a system providing a collection of procedures used to manage the communication of news and event via the CSB website. The system stores data, inputted by internal users through custom web forms, in a database, manipulates the data, and publishes it to CSB web pages using Serving Side Includes (SSIs). A Serving Side Include is the facility provided by most web servers to replace special tags in an HTML file with the contents of another file, typically containing HTML, before the file is sent out by the server (see Section IV-

B-4 to see the SSI HTML tag, pg 30). Internal users include CSB web page supervisor, including CSB department and office administrators, and web page contributors such as faculty, staff and other CSB community. The system is designed to provide the following:

- Allow for a large number of people to contribute to the CSB website without being required to have any programming knowledge
- Share stored data
- Decrease Web manager's manual workload
 - Improve the ease of information gathering
 - Eliminate continually having to manually writing HTML for the CSB web pages
- Reduce repetitive duplicate input by allowing data to be published on multiple web pages

B. Development of Key Features

1. NECMS web forms

NECMS uses custom web forms presented through dynamic web pages that allow users to enter data. The data is sent to a database stored on a server. The database design for the NECMS can be found in Appendix B. Screenshots of the News Item web form and Calendar Item web form can be found in Appendix C. These custom web forms allow the:

- Users to create, submit, and edit resources
- Users to approve resources (based on permissions)
- System to provide text formatting tool (bold, hyperlink, etc)
- System to provide for uploading of .jpg, .gif and .png images
- System to provide for uploading of .pdf files

- Users to choose pages and location to publish
- System to publish resources using SSI
- System to define and manage meta data (author, post date, expiration date, etc)
- System to generate RSS feeds
- System to automate archiving

2. NECMS Accessibility and Authentication:

The system is made accessible through an existing system used by CSB faculty and staff, myCSB portal. Each user is authenticated via simple username and password. Each user or user role have various privileges associated with different pages. Users are a particular person where user roles may a person or group of people based on their role(s) assigned in the myCSB portal system, such as a Department Chair. The levels and details of these are defined by the Web manager.

3. NECMS Workflow:

The rules for workflow are based on user permissions (see section B-2, pg 28) and may be different for each user, and each piece of content, depending on location desired for publishing Table 9 shows examples of user permissions. The system, as such, allows for different workflows for each user for each package of data. For example, a faculty department member wanting to publish a news or calendar item to their own site will not require approval, and content may be published between the inputted publish dates. Appendix C shows a screenshot of the ASPX page that allows users to input publish dates for each page. A more strenuous process, however, may be a staff member wanting to publish to the CSB home page. The news or calendar item must be approved by the person or persons that have approval permissions for that page before publishing is allowed. After the resource is approved, it will be published between

the inputted begin and end publish date. News Items will be automatically archived after the end publish date is met while Calendar Items will simply expire from the page.

User	Permissions	Content
Web manager	submit, edit, approve, set permissions, read	New and Events on all pages
Designated Dean's Office and Swain Center Faculty/Staff	submit, edit, read	News and Events on home page
Designated Dean's Office and Swain Center Faculty/Staff	submit, edit, approve, submit, read	News and Events on secondary department pages
Faculty/Staff	submit, edit, approve, read	News and Events on owned secondary page
Faculty/Staff	submit, read	News and Events on owned secondary page
Student Organizations Presidents	submit, edit, read	News and Events on secondary page
Student Organization Advisors	submit, edit, approve, read	News and Events on secondary page
Joe Smith	submit, edit, read	News and Events on all pages
Site User	Read	News and Events on all pages

Table 9: In this table, cases of user permissions and content examples are given

4. Publishing and Archiving

The NEMCS automatically publishes both news and event items. Appendix D shows use case diagrams for publishing a “News Item” and adding a “Calendar Item”. News items are archived based on their published ending date. In order to routinely publish items, the NECMS uses Microsoft SQL Server’s built in SQL Server Agent. SQL Server Agent is a Microsoft Windows service that executes scheduled administrative tasks which are called jobs. NECMS’s recurring jobs run scripts each night that generate different results. If the starting publish date inputted by the user is equal to the current date, the system runs these scripts as soon as the item is submitted. These results include publishing, news or event items, archiving news items and creating Server Side Includes (SSIs). Server Side Include is a coding that allows content of a file

to be automatically included within the HTML of a web document being served. The file is included using the following special HTML tag:

```
<!--#include file="../../LiveNews.txt" -->
```

-The file created by the NECMS contains HTML that replaces manually inputted HTML on the CSB web pages. An example of the file contents created is provided in Appendix E.

Each CSB page uses various templates to display “News and Event” information. Appendix F shows examples of templates E, C and D. As a result, multiple Server Side Include structures were built to maintain the CSB web pages design. The CSB Home page, which uses template A, uses SSI’s that allows publishing news and event items in the News and Events section and calendar items in the Calendar section (see Figure 1 for CSB Home Page design). These SSI’s maintain the current format and styling as the manually inputted “News and Events” and “Calendar” items (see Section II-A-1, pg 5, and Section II-A-3, pg 8, for these styling formats). CSB web pages, using templates C and E, use SSI’s that allow publishing of both News and Event items and Calendar Items in the left most column of the page. On these pages, News and Event items are published in a bullet style while calendar items are published in the same style as the CSB Home Page, using dates to the left and short details to the right (see Section II-A-3, pg 8). The Swain Center, one of CSB’s Community centers, page layout uses template D, only uses SSI’s that allow publishing of News and Event items. These items are published under two sections “News and Events” and “Past Events”. Table 10 shows the CSB web pages NECMS can currently allow for publishing of News Items and Calendar Items and the associated template the page uses.

The result of the NECMS should allow management and publishing of unstructured information content to CSB web pages regardless of its diversity of format and location.

CSB Page Description	Template
CSB Home	A
Accountancy and Business Law	E
Economics and Finance	C
Management	C
Finance	C
Information Systems & Operations Management	C
Global Initiatives	E
Marketing	E
Cameron Executive Network	E
Professional Master of Business Administration	E
Master of Science in Computer Science and Information Systems	E
International Master of Business Administration	E
Swain Center for Business & Economic Services	D
Wilmington Area Information Technology Professionals Events	E
Supporters and Donors	E

Table 10: In this table, CSB web page description and template used that the NECMS can currently publish on are provided.

5. Additional Key Features

The implementation of the above functionality is balanced with usability. Faculty and staff will not use a system where the learning curve is high (Schell interview). Ease of use is implemented in the design, in order to encourage uptake of the product. For example, the flows (or route through screens) to input a particular content item are kept to a minimum. The particular tasks that users will typically carry out on the system are quickly and easily achievable.

In addition, NECMS is compliant with W3C standards for CSS and XHTML and generates content that is compliant with W3C standards for CSS and XHTML.

C. Alternative Solutions

1. SharePoint

Microsoft SharePoint is a web application platform used to share information with others, manage documents, and publish reports. (SharePoint Capabilities & Benefits). Microsoft SharePoint was considered as an option to use. Since this project is highly customized and the developer's knowledge of other technologies is strongly developed, the decision was made to use Microsoft's ASP.NET and SQL Server (see Section VI, pg 37). In addition, the environment used to build NECMS was already established through the use of another system used by CSB, myCSB Portal.

2. Make versus Buy

Content management systems have become an attractive option for helping keep content current on websites. For this reason, hundreds of content management system vendors provide solutions out-of-the-box that can be tailored to meet organizational needs. The decision to be made is whether to buy an existing software application that has a wide range of functionality built in or to build a custom content management system that meets the specific needs of the user content management system. There are advantages and disadvantages with each solution.

A custom-built solution can provide an enormous advantage since NECMS has unique requirements that are mapped directly to a specific purpose: providing news and event information. Custom-built applications typically tend to suffer from lower quality, primarily because it is difficult to provide the same quality, maturity, and features of an off-the-shelf solution. However, pre-built CM software is very expensive and requires extensive integration. Because of the nature of the project, and specific requirements, a custom built solution was chosen. The NECMS system was built from the ground up to ensure maximum flexibility.

The following success factors were realized of an in-house solution:

- A clearly defined project, system goals and scope

- An open communication channel up and down the organizational chain
- An actively involved developer
- An involvement by end users during the design of the system
- A realistic expectations for the time needed to develop the system
- A realistic expectations for the functionality of the system

V. Methodology and Plan for Development

Software development methodology frameworks are used to structure, plan, and control the process of developing software systems. Three common methodologies are reviewed in an effort to find the best approach for the NECMS. These methodologies are: the waterfall approach, the spiral life cycle model, and the unified process. Each of these methodologies involves the following software development activities: project planning, analysis, design, implementation, and support. Before making the decision, each methodology must be weighed according to its strengths and weaknesses. After assessing each methodology, the decision for use in the development of the NECMS is given.

A. The Waterfall Approach

The waterfall approach (Figure 10) is most predictive methodology of software engineering. Predictive methodologies assume that each phase of the project can be completed in succession before moving to the next. This approach appeals to systems in which rigorous planning is first developed and all requirements can be specified at the beginning of the project. Since there is no backtracking, this approach cannot truly be accomplished by developers. (Satzinger, Jackson, & Burd, 2005, pp. 40-41)

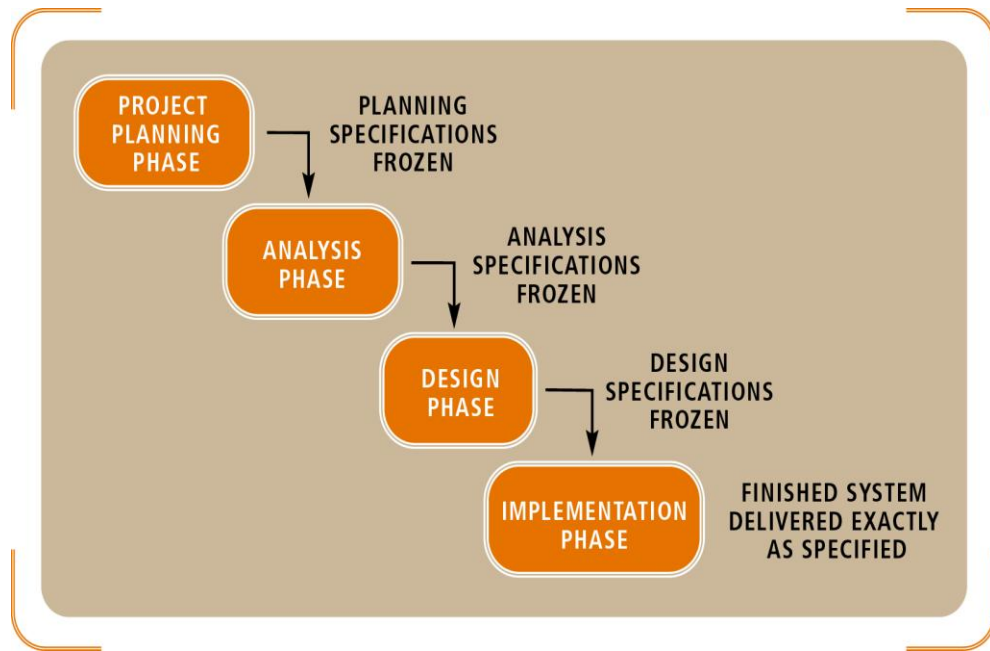


Figure 10: This figure depicts the waterfall approach to the Software Development Lifecycle. (Satzinger, Jackson, & Burd, 2005, p. 41)

B. The Spiral Life Cycle Model

The spiral life cycle (Figure 11) moves toward a more adaptive approach which assumes the phases of software development cannot be independently executed and must be improved over time in conjunction with the other phases. An adaptive methodology is ideal for projects where project activities, including deliverables and plans, are adjusted as the project progresses. This approach incorporates the idea of prototypes. Following each lifecycle iteration, a prototype is developed that is tested and analyzed against the refined project plan and requirements gathered in previous iterations. (Satzinger, Jackson, & Burd, 2005, pp. 42-43)

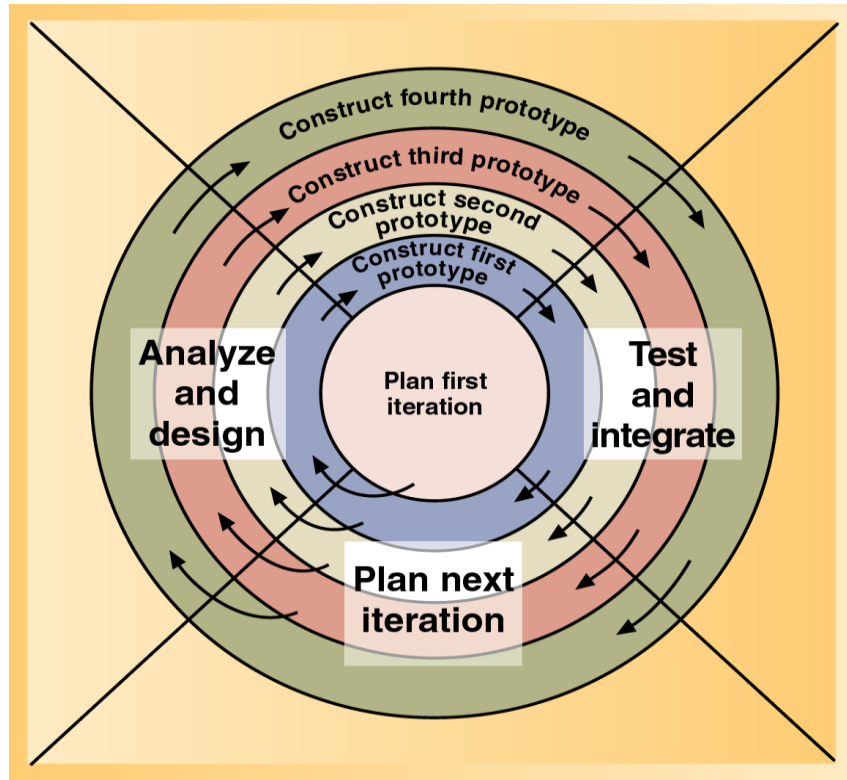


Figure 11: This figure depicts the spiral life cycle model. (Satzinger, Jackson, & Burd, 2005, p. 43)

C. The Unified Process

The Unified Process (Figure 12) is an adaptive approach based on object-oriented development methodology that “uses Unified Modeling Language (UML) to design system models and the Unified Process system development life cycle” (Satzinger, Jackson, & Burd, 2002, p 50-51). This methodology’s life cycle is made up of four phases: inception, elaboration, construction, and transition, which can then be divided into iterations.

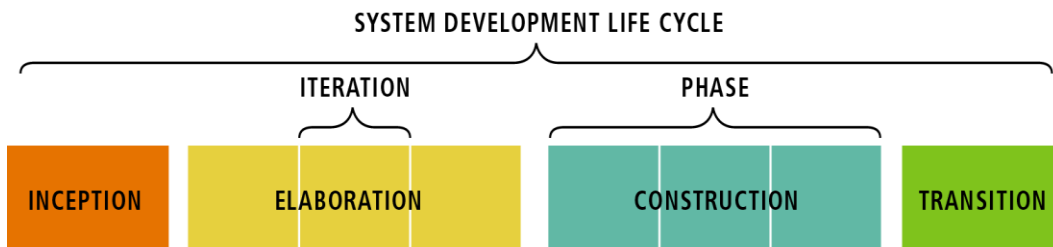


Figure 22: This figure shows the Unified Process System Development Life Cycle (Satzinger, Jackson, & Burd, 2005, p. 45)

Some form of deliverable is due at the end of each iteration; rather than waiting through the entire duration of the phase. Each iteration allows for enhanced user feedback during the development life of the project. The Unified Process uses not only phases, but also several disciplines in order to determine focus and drive during the life cycle of development. Each phase has specific tasks, or disciplines, that should be accomplished as shown in Figure 19 (Satzinger, Jackson, & Burd, 2002, p 45-47). This system development methodology allows a developer to revisit items from previous phases and specific disciplines or tasks can overlap.

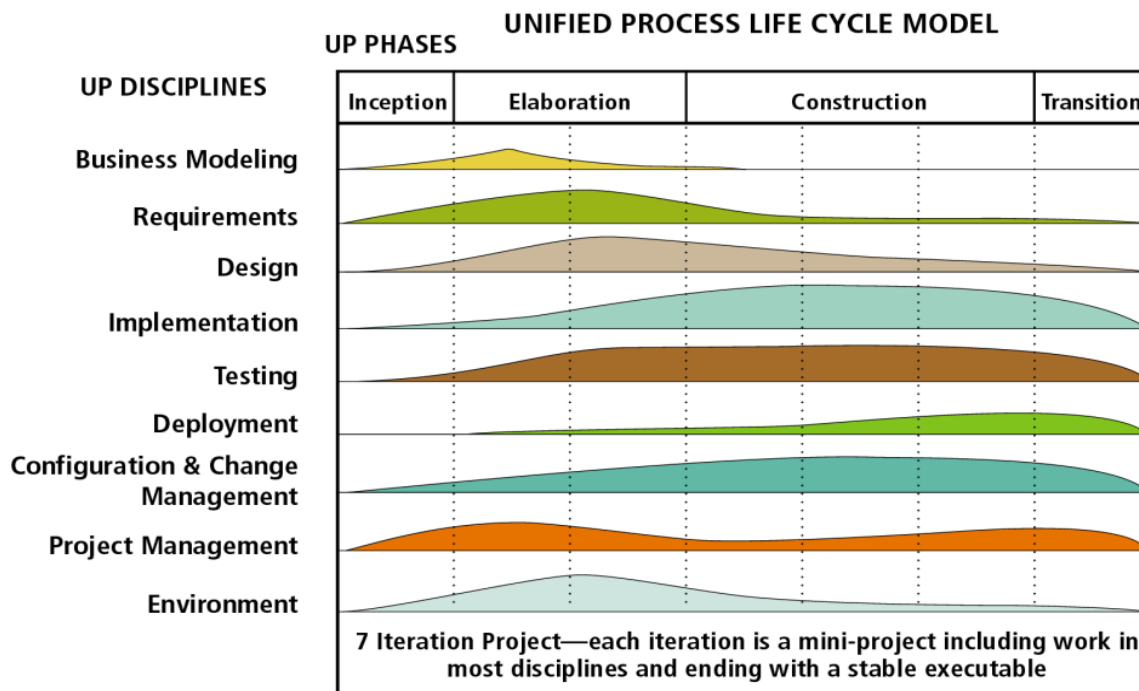


Figure 13: This figure shows the Unified Process Life Cycle with Phases, Iterations, and Disciplines (Satzinger, Jackson, & Burd, 2005, p. 45)

D. The Methodology for NECMS

NECMS required an adaptive life cycle approach to system development. The requirements, system analysis and design, could not be completed up front while still meeting the desired quality and specific needs. In addition, continual feedback from users was critical and constant testing was required. Because of the nature of the domain and the likelihood that

changes in design, testing, and specifications would occur during development, a phased methodology was found to be more applicable. In addition, enabling advanced communication with the use of the modeling and other tools standard to the Unified Process was vital to successful development. The methodology chosen to use during development of NECMS was the Unified Process. This methodology allowed the required iterative phases to occur, each including a portion of the defined Unified Process Disciplines. The focused and organized object-oriented nature of the Unified Process better served the stakeholders and developers during this project.

The Unified Process identifies several disciplines. The disciplines used during the development of NECMS and their respective actions are shown in Table 11.

Discipline	Action
Business Modeling	CSB Faculty Interviews Peer and Aspiring Schools Review Project Proposal Defense
Requirements	CSB Faculty Interviews Use Cases
Design	Database design Use Cases CRUD Diagramming User interface design
Implementation	Development of system Communication between system and website
Testing	Collect feedback on usability and functionality Develop test cases (with committee members) Pilot testing of system
Deployment	Deploy NECMS Train faculty

Table 11: In this table, the Unified Process disciplines with their respective actions are shown.

VI. Technologies used and Skills Learned

Throughout the project of implementing NECMS, many technologies were used and skills learned. The skills learned will strengthen the understanding of and knowledge needed for

future similar projects. The following outlines the technologies used for the project and lessons learned.

Microsoft ASP.NET

Microsoft ASP.net was the programming language used to build the presentation portion of the system. The ASP.NET code allows the system to present web forms and pages in a browser. ASP.NET was chosen because NECMS was to be fully integrated into myCSB Portal. NECMS utilizes myCSB Portal's users so CSB faculty will not have to be added to a new system or learn a new system. MyCSB Portal also uses UNCW style sheets which are needed in NECMS.

Microsoft SQL Server 2008

The backend database used by NECMS was built in Microsoft SQL Server 2008. The database used for NECMS can be found in Appendix B. Tables used by myCSB Portal needed to be migrated into part of NECMS. For this reason, Microsoft's SQL Server was chosen. Stored Procedures were written in SQL Server that provide the means for data manipulation (store, retrieve, update, delete) as well as querying data. NECMS also uses Microsoft SQL Server Job agent to write jobs that automate the publishing and archiving of News and Calendar Items, write Server Side Include files, and write RSS file. All SQL Server Jobs can be found in Appendix F.

Systems Analysis – Unified Process

As stated, the Unified Process methodology was used as a basis for the development of this project. This process was beneficial in allowing the project to be broken up into different phases and iterations. Initially the project was to include two UNCW schools, Watson School of Education and Cameron School of Business. At that time, the two school web sites featured completely different designs. When the project was proposed, it was assumed that the scope for

the system would be too wide to include WSE. For that reason, the requirements changed to include only the Cameron School of Business. Competitive analysis, and interviews were conducted of members during the early phases. During requirements, the scope of the system proved to be too big for the different schools. Systems analysis and the Unified Process helped to clearly define the requirements of the system and to break down the development of the system into manageable portions.

Course Work Utilized

This project utilizes a combination of classroom skills gained at UNCW. The following courses have contributed to the foundation of knowledge enabling the completion of this project:

- MIS 555 – Database Management System: This class was essential in establishing fundamentals required to develop a functional database, write stored procedures and scripts for SQL Jobs.
- CSC 550 – Software Engineering and MIS 565: Analysis, Modeling and Design: These classes provided the fundamentals of software analysis and design. They were especially helpful in choosing a methodology to adapt and follow through the development of the project.
- POM 370 - Project Management: The class provided the skills to managing an overall successful project.

VII. System Limitations and Future Enhancements

Style sheets and Templates

NECMS uses style sheets. NECMS is restricted by using the styles used by in the UNCW Master Style sheet. If the style sheet changes, so might the need to change the scripts that create the SSI's containing HTML utilizing these style sheets. The customization of the styles sheets

are out of NECMS's control which may limit the use of NECMS. In addition, the SSI's written by NECMS for CSB pages are based on the template the page uses. If the template or template structure changes, so will the SSI structure written for that page.

Content Reusability

One of NECMS benefits discussed in section V was the ability to create reusable content repositories. This allows content managers to enter the content once but have it appear in several locations, formatted according to the page location. This is a limited feature since NECMS can only produce the exact same content on each page. This may limit content reusability when, for example, the "News Item" on the CSB Home Page provides more detail, but on a secondary page, however, less detail is desired because of limited space. For different content, the item would need to be entered twice.

Export/import of data

The ability to export and import data was a general tool and a desired feature discussed in the initial development iterations. It was not included in final system requirements and was not built into NECMS. However this feature may be an enhancement to consider for future versions.

Searchable Archive

Searchable Archives was a feature of many peer and competitive school's news and event archives (see section III-C-3, pg 22). Since all data is stored in a database, NECMS now has the initial requirements to be capable of creating a searchable archive. This is a feature that could be considered in future versions.

Spell Check

NECMS does not currently have the capability to check the spelling of content entered into the database. The narrative portion of the News and Event or Calendar item is the main

concern for spell check. Each of these portions uses an HtmlEditor control from the AJAX tool kit. A spell check feature to use with this AJAX tool was researched, however the only solutions were not open source or cost money. The best solution found, which could be considered to buy, would be the About HtmlEditor which uses a SpellCheckExtender to check the spelling in the controls to which it is attached. This extender can be attached to multiple TextBox and HtmlTextArea controls- (About.Ajax.UI Controls - Spell Checker). An alternative, recommended solution would be using NECMS in a Mozilla Firefox browser. Mozilla Firefox versions 2 and above, have spell check features built in. The HtmlEditor will underline all misspelled words in the narrative portion.

VIII. Conclusions

Following user interviews and a competitive analysis, it was found that there was a desire to change the process of contributing to the CSB website from manual inputs that are dependent on the CSB Web manager to a more standardized and automated process. Following the Unified Process methodology, NECMS was developed to improve this process and alleviate bottlenecks created by the CSB Web manager's schedule and interest in maintaining websites. Because of this project, the Cameron School of business should now be keep more up-to-date with news and event information. The system will reduce web manager's responsibility for current news and event content, allowing content owners to contribute their information through template-driven web forms without knowledge of HTML. NECMS also streamlines and automates content administration, creates reusable content repositories, makes content database driven and allows for the automatic archiving of data. Currently, the system is in the testing and deployment stage. The system will be tested on a sample server and then moved onto the CSB Live server after testing is satisfactory.

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Appendix A - Interviews

Donna Kurtz and Crystal Greene Helms

Q: What is your current role in contributing to the news and events and/or calendars on the website?

A: Donna: I am responsible for creating a calendar for all CSB events. This does not get added to the website however. I create one calendar in Excel to give to the Chancellor and one calendar for SharePoint. I have to enter the data manually in both locations. I have deal a lot with the commencement and any news or events that the Dean needs to know, it comes to me.

Crystal: I do not have a lot of input for the Web, although I do help Donna a lot. My main concerns are news and events relating to the Medal Program.

Q: What do you like about the current way news and events are presented on the website?

A: Donna: I love the redesign - it has a very clean look. The news stories on the home pages and the secondary web pages are very informative.

Crystal: I am a very visual person, so I like how the design is structured.

Q: What are the issues of the current way news and events are presented on the website?

A: Crystal: The news and events on the main page are at the bottom. With such a large image at the top, you have to scroll down to get to them with a typical browser. I also don't like that there is not a print option other than printing out the entire page.

Q: How do you normally get your information?

A: Donna: Administrative faculty and department faculty normally email me their events and I add it to the calendars. I often have to email the calendars out and say 'this is what I have, is this all you want to add?'.
Crystal: I don't have a lot of input for the Web, although I do help Donna a lot. My main concerns are news and events relating to the Medal Program.

Q: Do you feel a content management system would help you in contributing to the news and events displayed on the site? How?

A: Donna: Absolutely, with so many different places I have to enter event information, I often forget to add things to the Web. Faculty are not comfortable with SharePoint, so that is why I add it there. It would be great if I could enter the information once.

Q: Who would use this system?

A: Student workers, the department staff administrative assistants, hopefully the department staff, student services.

Q: What features would you like for this system to have?

A: It would be great if it would generate a report of all the upcoming events for the month so they could be added to the SharePoint and excel calendars.

It would be good to have a start and end date for the website. In addition, it would also be great to have email reminders once a event has occurred that says ‘this event has occurred would you like to add a news article?’

It would be great if the news and event and calendars could automatically go to the PowerPoint slides that are on the plasma screens in the halls.

Q: Do you like the format for displaying news and events on the site?

A: I don’t really know exactly how the secondary pages are formatted. (Ashley explains the format and how news and events often are in the right hand column.) Maybe there should be a format for what news and events are there. But what would be added if there wasn’t any news and event information to include there.

Q: Do news and events need to be prioritized?

A: Yes, but it's difficult to know what has priority over something. Everyone thinks their information is the most important. Maybe CSB wide before departmental. And if information comes from the Dean.

Q: How far in advance are events displayed?

A: I guess it just depends on the news and or event. It would be good to have a start/end date.

Q: How far are news stories left on the site before being archived?

A: same as above

Q: What features would you like to see implemented for archived stories?

A: Mainly a search feature, by date, by keyword or by topic (department, Swain Center, etc). It would be good if this search could use a wildcard.

Tom Janicki – Web Manager

Q: What is your current role in contributing to the news and events and/or calendars on the website?

A: I act as the Web manager for CSB and I have ultimate control of the main page.

Q: What do you like about the current way news and events are presented on the website?

A: I like that the stories have a short couple of sentence blurb expanding the detail of the story headline. The main page is especially meant for users external to CSB such as donors and prospective students. CSB users are familiar with the site and mostly know where they need to navigate.

Q: What are the issues of the current way news and events are presented on the website?

A: The main issue I have is getting the proper information from contributors. Usually they will email me a flyer and I have to figure out what they want to post. They rarely send me actual English sentences. They also do not include the priority of the post. In addition, I have to find images that fit with the news story or event and manually resize that image into a thumbnail to fit the website.

Q: How do you normally get your information?

A: Usually I get emails saying ‘this event is coming up, can you add it to the website’.

Q: Do you feel a content management system would help you in contributing to the news and events displayed on the site? How?

A: Yes. People have certain rights to enter their own data. It takes the bottleneck of me out of the equation. What happens if I get sick? There should be a reliance and ownership of people’s own data.

Q: Who would use this system?

A: For CSB, there are two parts that the system should be used for: News & Event post and the Calendar. People that would enter data into the News & Events post include the Swain Center, Entrepreneurship Center, Barbara Biehner and Deb Helin, and the Graduate School. People that would enter data into the Calendar would be the same as well as the departments

Q: What features would you like for this system to have?

A: Give admins rights to add news, events and activities

Ask where (on what pages) to put the information. Filter down to proper page and section.

Ability to upload a photo and automatically resize and format it to the proper size for display

Link to document or PDF

History tracking – tracking of who created, revised data, including date when

Rank Priority of news stories so higher priority stories will automatically get better

placement than lower priority

Time, date, location of calendar events

Desired advance notice when to put on

Contact person for external users

Q: Do you like the format for displaying news and events on the site?

A: I wish that the news and events were higher and more prominent on the page. I also don't like how News Archives don't have a way to role from News & Events to the Archives without manual input.

Q: Do you see areas of improvement? Ideas?

A: Yes, If event personal and academic departments were able to submit in one place and the information would show up in multiple locations on different pages. We also need extra info for the??

Q: Do news and events need to be prioritized?

A: Yes, because space determines what gets added to the home page.

Q: How far in advance are events displayed?

A: Space also determines well as how far in advance and how far after the story remains before being achieved.

Q: How are stories archived?

A: Web interns manually enter the data into a web form in the CSB portal. It is a data driven page that allows the interns to enter different fields as well as upload a photo. The calendar is done the same way.

Jennifer Mackethan

Q: What is your current role in contributing to the news and events and/or calendars on the website?

A: I handle the logistics of all events surrounding the Swain Center. These are mainly two big conferences we have in October and March, presentations given by Woody Hall, and professional business courses.

Q: What do you like about the current way news and events are presented on the website?

A: Biggest thing I like is the professional development I am able to provide on the right side of the web pages.

Q: What are the issues of the current way news and events are presented on the website?

A: On the main CSB page, News and Events are down at the bottom so the user has to scroll down to see all of it.

Q: How do you normally get your information?

A: We have several people involved in the SWAIN center and they normally give me information through email, or through word-of-mouth. Media also asks for particular information that I can find the information for.

Q: Do you feel a content management system would help you in contributing to the news and events displayed on the site? How?

A: Yes, if it allows for quick and easy ways to update information.

Q: Who would use this system?

A: The members of the SWAIN center would use it, and I would assume departmental faculty would as well.

Q: What features would you like for this system to have?

A: Our Economic Newsletters are in PDF form so I would love the capability to include them with news and event announcements. We take pictures of the events so ways to upload pictures would be nice. We do some video recordings however, we have had to go through UNCW to make sure compatibility is not an issue.

Q: Do you like the format for displaying news and events on the site?

A: Yes, I like that a thumbnail is presented. It draws people's attention to the news blurb.

Q: Do news and events need to be prioritized?

A: We have two spots for news articles on our main page. I do not feel like we have enough news and event information to provide to the Web that priority is a problem at this point. The way that the web pages are set up now, I add the most immediate events to the pages.

Q: How far in advance are events displayed?

A: When I get the information

Q: How far are news stories left on the site before being archived?

A: There is no set time. Most the time a intern comes down and asks me what needs to be updated on our portion of the website.

Q: How are news stories archived?

A: I would have to ask Tom Janicki. We have a place for past events and most the time we just knock out the last one after it gets old, maybe a year. There isn't really a set number or time of the number of past event articles we present.

Q: What features would you like to see implemented for archived stories?

A: I don't feel like we need one for our page in particular.

Barbara Biehner and Deb Helin

Q: What is your current role in contributing to the news and events and/or calendars on the website?

A: We handle CSB's Alumni events, "Business Week", CEN, Internships and Student Organizations.

Q: What do you like about the current way news and events are presented on the website?

A: It is easy to read.

Q: What are the issues of the current way news and events are presented on the website?

A: I don't like how things frequently change on the secondary pages. One minute you know something is there and the next minute the content has changed.

Q: How do you normally get your information?

A: It depends on who the information is for. Student Organizations information is from Student Organization presidents, other information may be from heads of departments or other heads. Most information is through email or people coming to me.

Q: Do you feel a content management system would help you in contributing to the news and events displayed on the site? How?

A: I use the events template that is provided in the CSB portal. That is very helpful for me to add events. For the other, I'm not sure, we mainly use Contribute or go through Tom Janicki to get our information put on the site.

Q: Who would use this system?

A: The departments, CBES, Grad Programs, Student Services.

Q: What features would you like for this system to have?

A: Events need to include the following fields: Date, time, location, parking requirements, handicap needs, etc.

Q: Do you like the format for displaying news and events on the site?

A: Yes.

Q: Do news and events need to be prioritized?

A: We do not have that problem as of yet for our portions of the website.

Q: How far in advance are events displayed?

A: It depends on what the event is. Normally as soon as we know. “Business Week” is put up far in advance. Stuff for students may only be put up a week or two in advance.

Q: How far are news stories left on the site before being archived?

A: There is no set time. Most the time a intern comes down and asks me what needs to be updated on our portion of the website.

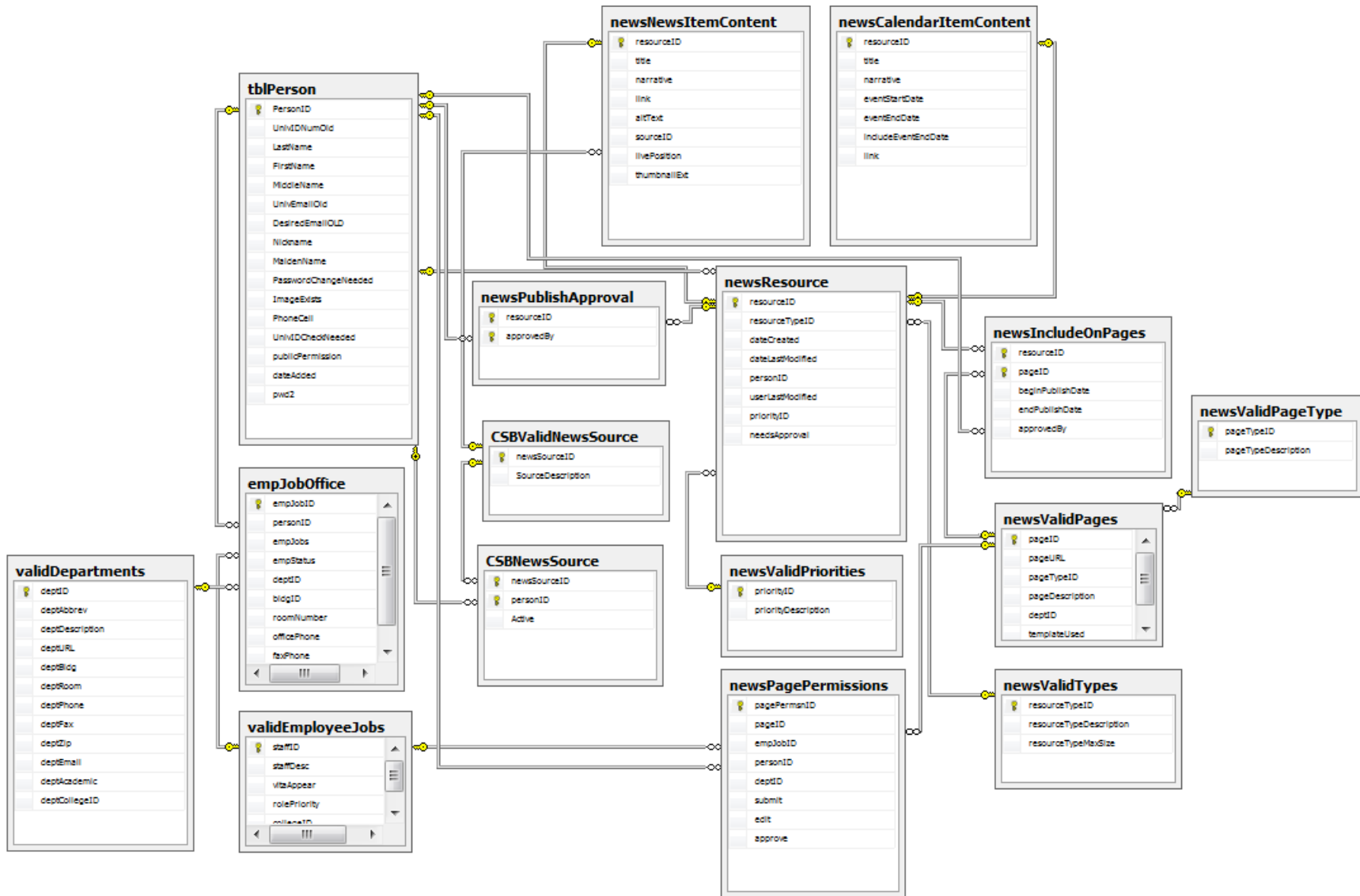
Q: How are news stories archived?

A: Through Tom Janicki.

Q: What features would you like to see implemented for archived stories?

A: More reports! All reports should be sortable by each column.

Appendix B – NECMS Database



Appendix C –System Screenshots

The following contains screenshots of the following NECMS ASPX pages:

- Add New News Item
- Add New Calendar Item
- Publish to CSB pages

Add New News Item



myCSB Information Portal

NECMS News - Add New Item

*Title:	chool of Business Again Listed Among Top Business Schools by Princeton Review
Link:	http://appserv02.uncw.edu/news/artview.aspx?id=3247
Including a link will make the image a link. This link will also be include when the story is archived.	
Narrative:	<p>Once again, UNCW is recommended by the editors of The Princeton Review as one of the best institutions in the nation to attend to pursue a Master's of Business Administration (MBA) degree. The professional MBA program in UNCW's Cameron School of Business is listed in the 2012 edition of The Princeton Review's "Best 294 Business Schools." It has been included six times in previous years. More...</p>
Please enter narrative exactly how you would like it to appear. Do NOT include Title. But Include all links, and text formatting.	
Thumbnail Image:	C:\Users\Janice\Desktop\best_business.jpg <input type="button" value="Browse..."/>
Image Alt Text:	2011 Top Business Schools
Priority:	<input type="radio"/> Normal <input checked="" type="radio"/> Urgent
Source:	Greater Wilmington Business Journal
<input type="button" value="Save and Choose Pages to publish"/> <input type="button" value="Cancel"/>	

Applications in the myCSB Information Portal were written by
MIS 413 and MIS CSIS students.

Add New Calendar Item

myCSB Information Portal

NECMS Calendar Add New Item

*Title:	<input type="text" value="Starting A Business Siminar: Dr Stephen Harper"/>
	<i>(title will appear at the top of the Calendar Item)</i>
Link:	<input type="text" value="http://uncwec.org/"/>
	<i>(if link is included, title will become link)</i>
Narrative:	<div style="border: 1px solid #ccc; padding: 5px;"><p>10:00 a.m., 11:00 a.m., CIS Building 1007</p></div>
	<i>(type narrative as you would like it to appear)</i>
Event Start Date:	<input type="text" value="11/18/11"/>
Event End Date:	<input type="text"/>
	<i>(Only enter an Event End date if Event is longer than a day)</i>
Priority:	<input checked="" type="radio"/> Normal <input type="radio"/> Urgent
<input type="button" value="Insert and Continue"/> <input type="button" value="Cancel"/>	

Publish to CSB Pages



myCSB Information Portal

NECMS Choose CSB Web Pages to Publish Item

To request the News Item to be published on a page, Click Add to Page and enter Publish Dates desired. And when finished, click Next

PageID	Page Type	Page Description/URL	Publish Date	
1	Home	CSB Home http://www.csb.uncw.edu/	Begin: 11/30/2011 End: 12/31/2011	Edit
2	Undergraduate	Accountancy and Business Law http://www.csb.uncw.edu/acg/index.htm	Begin: End:	Add to Page
3	Undergraduate	Economics and Finance http://www.csb.uncw.edu/ef/index.htm	Begin: End:	Add to Page
4	Undergraduate	Management http://www.csb.uncw.edu/mgt/index.htm	Begin: <input type="text"/> End: <input type="text"/>	Insert Cancel
5	Undergraduate	Finance http://www.csb.uncw.edu/ef/index.htm	Begin: End:	Add to Page
7	Undergraduate	Information Systems & Operations Management http://www.csb.uncw.edu/isom/index.htm	Begin: End:	Add to Page
8	Undergraduate	Global Initiatives http://www.csb.uncw.edu/global/index.htm	Begin: End:	Add to Page
10	Undergraduate	Marketing http://www.csb.uncw.edu/mkt/index.htm	Begin: End:	Add to Page
12	Graduate	Master of Science in Accountancy http://www.csb.uncw.edu/msa/index.htm	Begin: End:	Add to Page
13	Graduate	Professional Master of Business Administration http://www.csb.uncw.edu/mba/index.htm	Begin: End:	Add to Page
14	Graduate	Master of Science in Computer Science and Information Systems http://www.csb.uncw.edu/mcsis/index.htm	Begin: End:	Add to Page
15	Graduate	International Master of Business Administration http://www.csb.uncw.edu/imba/index.htm	Begin: End:	Add to Page
		Swain Center for Business & Economic Services	Begin:	Add to

Appendix D – Use Case Diagrams

The following contains detailed use case diagrams for the following functions:

- Publish a News Item
- Publish a Calendar Item
- Manage System Users

Use Case Name	Publish a News Item on CSB Homepage	
Use Case Description	A user creates a News item to publish to the News & Events section of the website	
Triggering Event	A user, signed into the portal accesses the system and clicks the Add News Item on the Menu	
Actors	Faculty member, Student Organization President, Student Organization Advisor	
Related Use Cases	None	
Stakeholders	Users: Correctly add information about the news item	
Preconditions	The user must exist in the portal, be logged in and have permissions to add a News Item	
Post-Conditions	The News item is added to the publishing queue and published when it meets all publishing conditions	
Publishing Conditions	<ol style="list-style-type: none"> 1. News Item’s Publish Date has been met 2. News Item has been approved 3. News Item has an associated image 	
Flow of Events	Actor	System
	<ol style="list-style-type: none"> 1. The User clicks on the “Add New News Item” link in menu 3. The User adds the News Item information 4. The User clicks “Save and Choose Pages to Publish” button 7. The User adds begin publish date and end publish date for which to publish and clicks “Next” button (goes to step 8) or the User clicks “Back” button (goes to step 2 with information displayed) 	<ol style="list-style-type: none"> 2. The System displays” Add New News Item” form page 5. Information is stored in the database 6. The System displays “Add to Pages” page 8. The System displays

	<ol style="list-style-type: none"> 9. The user can go back to menu(goes to step1) or edit item (goes to step 3) 	<p>“Item Summary Page”</p> <ol style="list-style-type: none"> 10. The System runs script at set time to check publishing conditions 11. When all publishing conditions are met, The System writes news item in SSI file and publishes News Item to web pages using the SSI file
Alternate Pathways	The User cancels out of the process – No changes saved.	
Exception Conditions	<ol style="list-style-type: none"> 1. Session time-outs – equivalent to a user cancel – no changes saved. 2. If the user does not put all the required information, the system notifications will prompt the user to add necessary information 	

Use Case Name	Manage System Users	
Use Case Description	The Web manager manages sets user permissions in system	
Triggering Event	A user or a user role needs permissions to system	
Actors	Web manager	
Related Use Cases	None	
Stakeholders	Web manager: grants proper permissions to system	
Preconditions	The user or user role must exist in the portal	
Post-Conditions	The user or user role has permissions set to submit, edit, approve on selected web page	
Flow of Events	Actor	System
	<ol style="list-style-type: none"> 1. The Web manager clicks on “Set System Permissions” link in menu 3. The Web manager clicks “Add New Permissions” button 5. The Web manager chooses which to set 7. The Web manager chooses the page, and sets submit, edit and approve permissions to true or false and clicks 	<ol style="list-style-type: none"> 2. The System displays “Page Permissions” page 4. The System displays radio button to select whether to set permissions for a Person or a User Role 6. System displays permissions form

	on the submit button	8. Permission attributes are stored in database for the person or user role
Exception Conditions	1. Session time-outs – equivalent to a user cancel – no changes saved.	

Use Case Name	Publish a Calendar item	
Use Case Description	A user creates a Calendar item to publish to the Calendar section of the website	
Triggering Event	A user, signed into the portal accesses the system and clicks the Add New Calendar Item	
Actors	Faculty member, Student Organization President, Student Organization Advisor	
Related Use Cases	None	
Stakeholders	Users: Correctly add information about the Calendar item	
Preconditions	The user must exist in the portal, be logged in and have permissions to add a Calendar item	
Post-Conditions	The Calendar item is added to the publishing queue and published when it meets all publishing conditions	
Publishing Conditions	<ol style="list-style-type: none"> 1. Calendar Item’s Publish Date has been met 2. Website has space for Calendar Item OR <ol style="list-style-type: none"> 3. Calendar item has a higher priority than other Calendar Items in Publishing Queue 4. If user submitting the Calendar Item is a Student Organization President, Item has been approved by Student Organization Advisor 	
Flow of Events	Actor	System
	<ol style="list-style-type: none"> 1. The User clicks on the “Add New Calendar Item” link in menu 3. The User adds the Calendar Item information 4. The User clicks “Save and Choose Pages to Publish” button 7. The User adds begin publish date and end publish date for which to publish and clicks “Next” button (goes to step 8) or the User clicks “Back” 	<ol style="list-style-type: none"> 2. The System displays” Add New Calendar Item” form page 5. Information is stored in the database 6. The System displays “Add to Pages” page

	<p>button (goes to step 2 with information displayed)</p> <p>9. The user can go back to menu(goes to step1) or edit item (goes to step 3)</p>	<p>8. The System displays “Item Summary Page”</p> <p>10. The System runs script at set time to check publishing conditions</p> <p>11. When all publishing conditions are met, The System writes news item in SSI file and publishes Calendar Item to web pages using the SSI file</p>
Alternate Pathways	The User cancels out of the process – No changes saved.	
Exception Conditions	<p>3. Session time-outs – equivalent to a user cancel – no changes saved.</p> <p>4. If the user does not put all the required information, the system notifications will prompt the user to add necessary information</p> <p>5. If the User is a Student Organization President, an email is sent to the Student Organization Advisor to approve the Calendar Item before allowing Item to be published</p>	

Appendix E – Example of SSI file written by NECMS

```
<div class=news><p><strong>UNCW CSB Alumni Chapter </strong><br>The
<strong>UNCW CSB Alumni Chapter</strong> recently hosted a breakfast with
keynote speaker: Livian Jones. Ms. Jones spoke during the breakfast meeting
on &quot;How you can have an impact on local economic development&quot;.
Jones is the Vice President of John S. Clark Company, one of the oldest and
largest general building contractors in the southeast. </p></div>
```

```
<div class=news><a
href="https://tswww.uncw.edu/events/signup.aspx?event=99"></a><p><strong>Cameron Alumni Chapter - Breakfast
Series</strong><br><strong>Cameron Alumni Chapter - Breakfast Series</strong>
- Jeff Mann spoke during the last UNCW/CSB Alumni Chapter Breakfast
Series</p></div>
```

```
<div class=news><a
href="http://csb.uncw.edu/cbes/conf/eoc/index.htm"></a><p><strong>The annual UNCW
Economic Outlook Conference (EOC)</strong><br><span class="style_bold">The
annual <span style="font-weight: bold; font-style: italic;">UNCW
</span>Economic Outlook Conference (EOC)</span> was recently held and is our
region's premier forum for economic activity and forecasts. The conference
highlighted key trends, challenges, and opportunities that will impact our
region economically. It also covered the impact of the military bases to
southeast North Carolina. This economic data was complemented by panel
discussions and a keynote speaker representing relevant local business
sectors and leaders in our community. </p></div>
```

```
<div class=news><p><strong>Pete Schumann receives two honor
awards</strong><br>Pete Schumann, professor of economics was twice honored at
this year's fall faculty meeting. He received the Board of Trustees Teaching
Excellence Award as well as the Distinguished Teaching Professor Award. The
purpose of the awards is to exemplify UNCW's commitment to excellence in
teaching and in teaching related activities by recognizing faculty members
who have made a profound contribution to higher education through their
dedication and service to students.</p></div>
```

Appendix F - CSB Page Layouts using Templates

The following provides screenshots examples of CSB web pages using templates:

- C
- D
- E

Undergraduate ISOM Department page using Template C



Information Systems & Operations Management Department

- About
- Corporate Advisory Boards
 - Information Technology
 - Operations Management
- Faculty / Staff
- Internships / Employment
- Majors / Courses
 - Information Systems
 - Operations Management
 - Quantitative Methods
 - Master of Science - CSIS
- Research
- Scholarships
- Students / Alumni
- Tutors
- Wilmington IT
- Professionals Events

Search ISOM:

[CSB Directory](#) | [myCSB](#)



CIS Conference Room photo: UNCW/Uartle Mancrief

About the ISOM Department

The department offers courses in information systems, operations and production management, statistics and management science. The mix is unique, combining quantitative methods and analytical approaches to solving problems in all areas of a business utilizing current technology.

Major in [Management Information Systems \(MIS\)](#) if you enjoy technology and working with people. Our MIS majors are problem solvers and assist firms to be more competitive via the use of technology.

Major in [Operations Management \(OPS\)](#) if you get excited about understanding how products and services are created and ultimately delivered to the consumer. Our OPS majors help firms to be more productive, efficient and achieve higher levels of customer satisfaction.

If you are interested in an advanced degree, our unique [Master of Science in Computer Science and Information Systems](#) will enable you to grow your technology skills and prepare you for a career in information technology management. You may pursue this degree either on a full or part time basis.

NEWS

[WILMINGTON IT BREAKFAST PANEL](#)

❖ Tuesday - November 15, 7:30 a.m., Madeline Suite

❖ 2011 ISOM Newsletter

Fall 2011 Events

IS Advisory Board Meeting	September 20 Madeline Suite - 5 p.m.
---------------------------	---

ITOM Career Day	October 20 CIS Building 3:30-7:30 p.m.
---------------------------------	--

Wilmington IT Breakfast Panel	November 15 Madeline Suite - 7:30 a.m.
---	---

Undergraduate Marketing Department page using Template E

UNCW UNIVERSITY of NORTH CAROLINA WILMINGTON

E-mail | Directory | mySeaport | Quiklinks

Search UNCW Go

CAMERON
SCHOOL of BUSINESS

INFO FOR | ACADEMICS | COMMUNITY | QUICK LINKS

Marketing Department

- About
- Faculty / Staff
- Internships / Employment
- Marketing Program
 - Why Major in Marketing
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About the Marketing Department

The Department of Marketing provides courses and other academic support for the B.S. degree in Business Administration with an option in Marketing. In addition, the department is actively involved in the International Business option, the Master of Business Administration, and the Master of Science in Accountancy.

The department currently has nearly 400 undergraduate students in the Marketing option.

The Marketing faculty have diverse teaching and research interests. They hold doctoral degrees from the University of Cincinnati, Florida State University, University of Georgia, Indiana University, Mississippi State University, University of South Carolina, Duke University, and Virginia Tech. The faculty is supplemented with several adjunct faculty who provide a wealth of academic and professional experience to the department.

Students are encouraged to join the marketing and professional selling fraternity, Pi Sigma Epsilon. With one of the most active chapters in the country, UNCW's PSE students compete at regional and national competitions and organize major events.

Contact Information

NEWS AND EVENTS

Marketing Newsletter

PASSIONATELY PINK ZIP FOR THE CURE - PSE FUNDRAISER

- ❖ Sat, Oct 15, 11am - 6pm
- ❖ \$20, UNCW High Ropes Course

WELCOME:

- ❖ Dr. Fredrika Spenoer as a new assistant professor of Marketing

PROMOTIONS

- ❖ Dr. Katie Hartman, Associate Professor
- ❖ Dr. Tracy Meyer, Associate Professor

Swain Center page using Template E



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Swain Center Overview

The Swain Center for Business and Economic Services in the Cameron School of Business at UNC Wilmington is the business research and outreach division for [Cameron School of Business](#). Using faculty and available resources, the Swain Center also provides professional development and continuing education opportunities for the community with major emphasis on business management, project management, finance, and human resources. [The Center staff](#) collect and analyze local, state, and national economic data that impact our region and its growth.

Connect with us on: [facebook](#) [twitter](#) [Blogger](#)

News and Events

[Spring Course Schedules](#) will be updated soon!

CAMERON
PROFESSIONAL DEVELOPMENT

Past Events

Economic Outlook Conference took place on October 11. Visit the [conference website](#) to access the economic presentations. Please take a [survey](#) about this year's conference to provide us valuable feedback.



Enov&T took place June 20-24, 2011 and the [Youth Entrepreneurship Program](#) took place July 11-15.



Appendix F - SQL Server Agent Scheduled Jobs

The following provides the code for these SQL Server Agent Jobs:

- CreateCalendarSSL - Scheduled to run nightly at 3am
- CreateNewsRSS - Scheduled to run nightly at 2am
- CreateNewsSSL - Scheduled to run nightly at 3am
- NewsArchiveNewsItems - Scheduled to run nightly at 12am
- NewsMakeLive - Scheduled to run nightly at 12:05, 12:07 & 12:10am (in case multiple News Items need to be made live)

Note code may not represent the final version as code is subject to change as testing continues.

CreateCalendarSSL

```
USE CSBLive2007

--File variables--
DECLARE @FileName varchar(255)
DECLARE @FileContents VARCHAR(max)

SET @FileName = '****\*****\LiveCalendar.txt'--File path Not shown--
SET @FileContents = ''

BEGIN

DECLARE @tempLiveCalendar TABLE (
    numberRecords int not null identity(1,1),
    resourceID varchar(5),
    title varchar(100),
    narrative varchar(max),
    eventStartDate date,
    eventEndDate date,
    link varchar(300)
)
DECLARE @numberRecords int, @rowCount int

INSERT INTO @tempLiveCalendar (resourceID, title, narrative, eventStartDate,
eventEndDate, link)
SELECT dbo.newsResource.resourceID, dbo.newsCalendarItemContent.title,
dbo.newsCalendarItemContent.narrative,
dbo.newsCalendarItemContent.eventStartDate,
    dbo.newsCalendarItemContent.eventEndDate,
dbo.newsCalendarItemContent.link
```

```

FROM          dbo.newsResource RIGHT OUTER JOIN
              dbo.newsCalendarItemContent ON
dbo.newsResource.resourceID = dbo.newsCalendarItemContent.resourceID
WHERE         dbo.newsResource.resourceTypeID = 2 AND
              dbo.newsResource.beginPublishDate <= CONVERT(nvarchar(20),
GETDATE(), 101) AND
              dbo.newsResource.endPublishDate >= CONVERT(nvarchar(20),
GETDATE(), 101)
ORDER BY     dbo.newsCalendarItemContent.eventStartDate
SET @numberRecords = @@ROWCOUNT
Set @rowCount = 1

END

--Get information from each row
DECLARE @resourceID varchar(5)
DECLARE @title varchar(100)
DECLARE @narrative varchar(max)
DECLARE @eventStartDate date
DECLARE @eventEndDate date
DECLARE @link varchar(300)

WHILE @rowCount <= @numberRecords
BEGIN
    Set @resourceID = (SELECT resourceID from @tempLiveCalendar WHERE
numberRecords = @rowCount)
    Set @title = (SELECT title from @tempLiveCalendar WHERE numberRecords =
@rowCount)
    Set @narrative = (SELECT narrative from @tempLiveCalendar WHERE
numberRecords = @rowCount)
    Set @eventStartDate = (SELECT eventStartDate from @tempLiveCalendar
WHERE numberRecords = @rowCount)
    Set @eventEndDate = (SELECT eventEndDate from @tempLiveCalendar WHERE
numberRecords = @rowCount)
    Set @link = (SELECT link from @tempLiveCalendar WHERE numberRecords =
@rowCount)

    --Handles any Nulls--
    If @resourceID is Null SET @resourceID=''
    If @title is Null SET @title=''
    If @narrative is Null SET @narrative=''
    If @eventStartDate is Null SET @eventStartDate=''
    If @eventEndDate is Null SET @eventEndDate=''
    If @link is Null SET @link=''

    ----BEGIN WRITING FILECONTENTS----

    --Add opening html div tag
    DECLARE @longDate varchar(30)
    SET @FileContents += '<tr>
                        <th><span class="month">' + CONVERT(VARCHAR(3),
DATENAME(MM, @eventStartDate), 100) + '</span>'
                        +CAST(DAY(@eventStartDate) AS VARCHAR(2))+ '</th>'
                        <td><p class="event">'

    --Add link if available--

```

```

    If @link <> ''
    BEGIN
        SET @FileContents += '<a href="'+@link+'"'>'
    END
    ----Add title
    SET @FileContents += @title
    --Add End link if available--
    If @link <> ''
    BEGIN
        SET @FileContents += '</a>'
    END
    --Add narrative and surrounding HTML tags
    SET @FileContents+='</p><p>' + @narrative + '</p></td>
</tr>
'

    --Go to next row
    SET @rowCount = @rowCount +1

END

--WRITE @FileContents TO FILE
exec [dbo].[uspNewsCreateFile] @FileName,@FileContents

```

CreateNewsRSS

```

USE CSBLive2007

--File variables--
DECLARE @FileName varchar(255)
DECLARE @FileContents VARCHAR(8000)

SET @FileName = '***\***\***\***\CSBNewsRSS.txt' --File path not shown--
SET @FileContents = ''

----XML ATTRIBUTES --
DECLARE @xmlOpen varchar(250)
SET @xmlOpen = '<?xml version="1.0" encoding="utf-8"?>
<rss version="2.0">
<channel>
<title>UNCW</title>
<link>http://www.csb.uncw.edu</link>
<description>UNCW Cameron School of Business official news feed</description>
<lastbuilddate>'

DECLARE @todaysDate date
DECLARE @todaysDateTxt varchar(30)
SET @todaysDate = CONVERT(nvarchar(20), GETDATE(), 101)
SET @todaysDateTxt = @todaysDate

SET @xmlOpen += @todaysDateTxt + '</lastbuilddate><language>en-us</language>'
DECLARE @xmlClose varchar(50)
SET @xmlClose = '</channel>
</rss>'

```

```

BEGIN

--Create temporary table containing Live News Items--
DECLARE @templiveNews TABLE (
    numberRecords int not null identity(1,1),
    resourceID varchar(5),
    title varchar(100),
    narrative varchar(max),
    link varchar(300),
    beginPublishDate date
)
DECLARE @numberRecords int, @rowCount int

INSERT INTO @tempLiveNews(resourceID, title, narrative, link,
beginPublishDate)
SELECT dbo.newsResource.resourceID, dbo.newsNewsItemContent.title,
dbo.newsNewsItemContent.narrative, dbo.newsNewsItemContent.link,
dbo.newsResource.beginPublishDate
FROM         dbo.newsResource RIGHT OUTER JOIN
                dbo.newsNewsItemContent ON dbo.newsResource.resourceID
= dbo.newsNewsItemContent.resourceID
WHERE        (dbo.newsResource.resourceTypeID = 1) AND
(newsResource.beginPublishDate = CONVERT(nvarchar(20), GETDATE(), 101) AND
newsNewsItemContent.link<>'' )
SET @numberRecords = @@ROWCOUNT
Set @rowCount = 1

END

--Get information from each row
DECLARE @resourceID varchar(5)
DECLARE @title varchar(100)
DECLARE @narrative varchar(max)
DECLARE @link varchar(300)
DECLARE @beginPublishDate varchar(20)

WHILE @rowCount <= @numberRecords
BEGIN
    Set @resourceID = (SELECT resourceID from @templiveNews WHERE
numberRecords = @rowCount)
    Set @title = (SELECT title from @templiveNews WHERE numberRecords =
@rowCount)
    Set @narrative = (SELECT narrative from @templiveNews WHERE
numberRecords = @rowCount)
    Set @link = (SELECT link from @templiveNews WHERE numberRecords =
@rowCount)
    Set @beginPublishDate = (SELECT beginPublishDate from @templiveNews
WHERE numberRecords = @rowCount)

--Handles any Nulls--
If @link is Null SET @link=''
If @resourceID is Null SET @resourceID=''
If @title is Null SET @title=''
If @narrative is Null SET @narrative=''
If @beginPublishDate is Null SET @beginPublishDate=''

```

```

----BEGIN WRITING FILECONTENTS----
SET @FileContents += @xmlOpen
SET @FileContents += '<item><title>'
SET @FileContents += @title
SET @FileContents += '</title><link>'
SET @FileContents += @link
SET @FileContents += '</link><description>'
SET @FileContents += @narrative
SET @FileContents += '</description><pubdate>'
SET @FileContents += @beginPublishDate
SET @FileContents += '</pubdate></item>'

--Go to next row
SET @rowCount = @rowCount +1

END

--WRITE @FileContents TO FILE
exec [dbo].[uspNewsAppendToFile] @FileName,@FileContents

```

CreateNewsSSL – For Template A

```

USE CSBLive2007

--File variables--
DECLARE @FileName varchar(255)
DECLARE @FileContents VARCHAR(max)

----CSB HTML ATTRIBUTES --
DECLARE @imgSRC varchar(130)
DECLARE @thumbWidth varchar(5)      ---LINK BELOW WILL CHANGE--
SET @imgSRC = 'img src="***\***\NewsImages\'-path not show--needs #news
story.jpg, .gif or .png
SET @thumbWidth= '113'

--Create temporary table containing Live News Items--
DECLARE @tempPageIDs TABLE(
    numPageIDs int not null identity (1,1),
    pageID int
)
--For Template A --
DECLARE @numPageIDs int, @rowCount1 int
INSERT INTO @tempPageIDs (pageID)
SELECT newsValidPages.pageID FROM newsValidPages
WHERE newsValidPages.templateUsed = 'A'
SET @numPageIDs = @@ROWCOUNT
SET @rowCount1 = 1

DECLARE @pageID int
WHILE @rowCount1 <= @numPageIDs
BEGIN

```

```

Set @pageID = (SELECT pageID from @tempPageIDs WHERE numPageIDs = @rowCount1)
DECLARE @pageIDtxt varchar(5)
SET @pageIDtxt = @pageID

--File path not shown--+
SET @FileName = '***\****\***\***\LiveNews' @pageIDtxt + '.txt'
SET @FileContents = ''

BEGIN

--Create temporary table containing Live News Items--
DECLARE @tempLiveNews TABLE (
    numberRecords int not null identity(1,1),
    resourceID varchar(5),
    title varchar(100),
    narrative varchar(max),
    eventStartDate date,
    eventEndDate date,
    link varchar(300),
    altText varchar(50),
    livePosition int,
    thumbnailExt varchar(8)
)
DECLARE @numberRecords int, @rowCount int

INSERT INTO @tempLiveNews(resourceID, title, narrative, link, altText,
livePosition, thumbnailExt)
SELECT dbo.newsResource.resourceID, dbo.newsNewsItemContent.title,
dbo.newsNewsItemContent.narrative, dbo.newsNewsItemContent.link,
dbo.newsNewsItemContent.altText,
        dbo.newsNewsItemContent.livePosition,
dbo.newsNewsItemContent.thumbnailExt
FROM        dbo.newsResource RIGHT OUTER JOIN
        dbo.newsNewsItemContent ON dbo.newsResource.resourceID
= dbo.newsNewsItemContent.resourceID
WHERE        (dbo.newsResource.resourceTypeID = 1) AND
(dbo.newsNewsItemContent.livePosition <> 0)
ORDER BY dbo.newsNewsItemContent.livePosition
SET @numberRecords = @@ROWCOUNT
Set @rowCount = 1

END

--Get information from each row
DECLARE @resourceID varchar(5)
DECLARE @title varchar(100)
DECLARE @narrative varchar(max)
DECLARE @link varchar(300)
DECLARE @altText varchar(50)
DECLARE @livePosition int
DECLARE @thumbnailExt varchar(8)

WHILE @rowCount <= @numberRecords
BEGIN

```

```

        Set @resourceID = (SELECT resourceID from @templiveNews WHERE
numberRecords = @rowCount)
        Set @title = (SELECT title from @templiveNews WHERE numberRecords =
@rowCount)
        Set @narrative = (SELECT narrative from @templiveNews WHERE
numberRecords = @rowCount)
        Set @link = (SELECT link from @templiveNews WHERE numberRecords =
@rowCount)
        Set @altText = (SELECT altText from @templiveNews WHERE numberRecords =
@rowCount)
        Set @thumbnailExt = (SELECT thumbnailExt from @templiveNews WHERE
numberRecords = @rowCount)

--Handles any Nulls--
If @link is Null SET @link=''
If @resourceID is Null SET @resourceID=''
If @title is Null SET @title=''
If @narrative is Null SET @narrative=''
If @altText is Null SET @altText=''
If @thumbnailExt is Null SET @thumbnailExt=''

----BEGIN WRITING FILECONTENTS----

--Add opening html div tag
SET @FileContents += '<div class=news>'
--Add image link if available--
If @link <> ''
BEGIN
    SET @FileContents += '<a href="'+@link+'"'>'
END
--Add image and surrounding html tags--
SET @FileContents += '<' + @imgSRC + @resourceID + @thumbnailExt + '"
alt="' + @altText + '" width= "' + @thumbWidth + '">'
--Add End image link if available--
If @link <> ''
BEGIN
    SET @FileContents += '</a>'
END
--Adds title, narrative, surrounding html tags and close div--
SET @FileContents += '<p><strong>' + @title + '</strong><br>' +
@narrative + '</p></div>'

'

--Go to next row
SET @rowCount = @rowCount +1

END

--WRITE @FileContents TO FILE
exec [dbo].[uspNewsCreateFile] @FileName,@FileContents

--Go to next row in pageID
SET @rowcount1 = @rowcount1 +1
END

```

NewsArchiveNewsItems

Step1: Archive Expired News Items and Set LivePosition = 0

```
USE CSBLive2007
set rowcount 100
DECLARE @resourceID TABLE (id int)
Begin
Update newsResource
SET newsResource.resourceTypeID = 3
OUTPUT inserted.resourceID INTO @resourceID
WHERE newsResource.resourceTypeID = 1 AND newsResource.endPublishDate =
CONVERT(nvarchar(20), GETDATE(), 101)

Update newsNewsItemContent
SET newsNewsItemContent.livePosition = 0
FROM newsNewsItemContent
JOIN @resourceID i on i.id = newsNewsItemContent.resourceID
END
set rowcount 0
```

Step2: Renumber livePositions so they are sequential

```
use CSBLive2007
DECLARE @variable int
DECLARE @newsTempTable TABLE (
    resourID int,
    livePos int
)

INSERT INTO @newsTempTable (resourID, livePos)
SELECT    resourceID, livePosition
FROM      dbo.newsNewsItemContent
WHERE     livePosition >0
ORDER BY livePosition

SET @variable = 0
UPDATE @newsTempTable
SET @variable = livePos = @variable + 1

UPDATE newsNewsItemContent
SET livePosition = livePos
FROM @newsTempTable
WHERE resourceID = resourID
```

NewsMakeLive

Step 1: Make News Items Live

```
set rowcount 1
use CSBLive2007

IF EXISTS ( SELECT * FROM newsResource INNER JOIN
```

```

        newsNewsItemContent ON newsResource.resourceID =
newsNewsItemContent.resourceID
        WHERE (newsResource.resourceTypeID =1) AND
                (newsNewsItemContent.livePosition =0) AND
                (newsResource.beginPublishDate = CONVERT(nvarchar(20),
GETDATE()), 101)) AND
                (newsResource.needsApproval = 0) AND
                (newsNewsItemContent.thumbnailExt <> 'No Image'))

        UPDATE newsNewsItemContent
        SET newsNewsItemContent.livePosition =
newsNewsItemContent.livePosition + 1
        WHERE newsNewsItemContent.livePosition > 0

        UPDATE newsNewsItemContent
                SET newsNewsItemContent.livePosition = 1
                FROM newsResource INNER JOIN
                newsNewsItemContent ON newsResource.resourceID =
newsNewsItemContent.resourceID
        WHERE (newsResource.resourceTypeID =1) AND
                (newsNewsItemContent.livePosition =0)
                AND (newsResource.beginPublishDate =
CONVERT(nvarchar(20), GETDATE()), 101))
                AND (newsResource.needsApproval = 0) AND
                (newsNewsItemContent.thumbnailExt <> 'No Image')

set rowcount 0

```

Step2: Renumber livePositions so they are sequential

```

use CSBLive2007
DECLARE @variable int
DECLARE @newsTempTable TABLE (
        resourID int,
        livePos int
)

INSERT INTO @newsTempTable (resourID, livePos)
SELECT        resourceID, livePosition
FROM    dbo.newsNewsItemContent
WHERE        livePosition >0
ORDER BY livePosition

SET @variable = 0
UPDATE @newsTempTable
SET @variable = livePos = @variable + 1

UPDATE newsNewsItemContent
SET livePosition = livePos
FROM @newsTempTable
WHERE resourceID = resourID

```