Lab 1 – NGage Product Description

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CS411
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1 Introduction

The lack of student involvement and engagement in campus communities, events and organizations can negatively impact academic performance. Due to the lack of available resources needed to succeed, college students may have trouble finding suitable housing, tutoring services, entertainment and amenities for an overall positive college experience.

One key disconnect which may cause students to be uninvolved on campus is when they are unaware of events, resources and organizations on campus. Getting involved is nearly impossible if the student does not know what is offered. Students may be searching for an apartment or house and not know where they should consider renting.

Living arrangements should ideally be safe and affordable. Students from another state or another country do not have the same knowledge about good neighborhoods local resident might have. These students may find themselves leasing an apartment in a bad neighborhood.

Students from outside Hampton Roads are unaware of local restaurants, grocery stores and entertainment. Food and fun can be important for a positive college experience. Information about what is offered on campus and what there is around campus can help students get involved. At ODU 19% of freshman did not return the following year (Collage Factual). Student involvement could play a role in the student completing their degree or dropping out.

The diverse causes of the problem require a solution which addresses the problem from different angles. Neatly organizing the information for students in a single resource presents the students with opportunities to get involved.
2 NGage Product Description

CS 411 Team Silver Fall 2017 is developing an application called NGage. The application could be considered an interactive resource which keeps students updated by readily providing useful information. NGage consolidates many resources in one place instead of using numerous other sources. Dorms, apartments, houses, and local attractions can be researched and reviewed by students for others to read. NGage can be used by students to browse events, clubs, and tutoring services on campus. Team Silver wants to get students to get engaged on campus and ultimately succeed.

2.1 Solution Method

The application will be developed using agile programming methods. Team Silver will use Gitlab to contribute to the development individually. Team Silver will develop the application using JavaScript, PHP, and mySql. A graphic user interface will be used to display organized information users can interact with.

2.2 Goals and Objectives

The ultimate goal of the NGage web app is to increase student involvement. The main objective of the web app is to provide information for students to encourage students to attend events on campus which interest the student. NGage is intended to be used as a resource to promote students actively participating in clubs and organizations and making use the tutoring services provided by ODU. Information about the city aims to help students find living arrangements relax and participate in local culture.
2.3 Key Features and Capabilities

One main feature of NGage is the consolidated live feed of all upcoming events. Details of events are sent out as they become available. Notifications are sent as email or text alerts to registered users.

The NGage Platform provides information in 4 major categories. Housing opportunities on and off campus gives details known about living arrangements. Organizations and clubs are listed and upcoming events pertaining to them will be posted and pushed to the live feed. Tutoring hours and locations are all displayed in one location for students to reference. Local food and entertainment can help students find a grocery store or an art museum.

2.4 Major Components

NGage requires certain hardware and software components. As shown in Figure 1, a web enabled device, such as a laptop or phone, is necessary hardware for the user to access the web app.

A Linux server will be used to host the web application and hold a database that will retain user data. The key software is the NGage web application built using a LAMP Stack (Linux, Apache, MySql, and PHP). The user must have some sort of internet browser on their device to access the web app.
3 Identification of Case Study

NGage was designed with ODU students in mind. The apartment and housing information could potentially help anyone, not just students. This section describes the expected users of NGage and intended benefits to the user.

3.1 Users

The primary users of NGage are college students attending Old Dominion University. NGage could be a useful resource for freshman or transfer students to get acquainted with ODU community and the surrounding area. International students may find NGage to be particularly helpful if they have recently moved to the U.S. and are unfamiliar with Hampton Roads.
Apartment and housing information could help these students find safe housing near ODU and avoid getting stuck in a lease living in a bad area. Information about clubs and tutors can be vital to academic success. Students trying to get involved on campus may be aided by NGage but the app could potentially be useful to others as well.

High school seniors may also find the information useful when choosing which college they would like to attend. Potential applicants could find out what clubs and organizations exist at ODU. NGage may help students get a head start if they use the app the summer before attending ODU. After getting accepted at ODU students could use NGage to find living arrangements before the school year begins.

Parents could use the app to find out more about the community around ODU where their child will be living. Parents may get involved in researching apartments and houses. Visiting parents could use the app to find a good restaurant. NGage could be used by parents to learn about clubs or campus events and encourage their child to get involved. Local parents living in Hampton roads could find out when theater performances or sports games take place.

Tourists and visitors to Hampton roads could make use NGage to find local entertainment such as music venues or movie theaters. Someone visiting Norfolk could find details about restaurants nearby.

Anyone in the Norfolk area could make use of NGage features that are not for academic purposes. Residents in Hampton Roads could use the web app to gain information about ODU sports, concerts and other events such as plays or film screenings. The listings of apartments and houses for rent could be useful to anyone looking for somewhere to live in Norfolk.
Land Lords and real estate companies may find it beneficial to post listings on the NGage Web app to attract students to rent out their houses and apartments.

Clubs and organizations could post information within the NGage app to increase membership by providing students with details to get them involved. Clubs could use NGage to send out new or updated information.

3.2 Reason for Visiting the Site

The features of NGage will give users reasons to use the app frequently to stay informed. The NGage app features a live feed of events and new information as it becomes available. Students can only attend events they know about and may check the feed regularly to stay current.

All users will have the ability to access the app to browse all resources. Apartments, clubs, and events can be searched or scrolled through.

Any registered users who previously lived in the houses or apartments listed could post reviews for potential renters to read. Primary source descriptions can be important when selecting a safe place to live. Visitors and international students who are unfamiliar with the Hampton Roads area can attain peace of mind knowing they are choosing an apartment or house that is good for them.

Students, locals, and visitors who register with their email or phone number can get notifications sent directly to their phone. The user may set notifications for the type of updates relevant to them. Someone on the hunt for an apartment may wish to receive notification of any new listings.
The current NGage application is being developed for ODU; Moving into the future Team Silver believes there is potential for expansion. After the application is built, it could be replicated. Newer versions of NGage could be developed for different areas outside of Norfolk and Hampton Roads by replacing the information in each category. The NGage app could be adopted by other schools and potentially be spread nationwide. With support from schools overseas NGage could be developed to be used by schools in other countries.

4 NGage Product Prototype Description

The prototype is designed to exhibit many of the qualities of the intended final product. Overall the prototype will be the same. The explicit limitations and key features of the prototype application will be discussed in this section.

4.1 Prototype Architecture (Hardware/Software)

Hardware must be used to host and use the web application software. The NGage prototype requires the user is operating a physical device that has access to the Internet. The Web app and accompanying database will be hosted from an ODU Linux server. The primary software is the NGage web application prototype which is created using development software IDE such as eclipse or webStorm. The user’s device must be able to run a web browser in order to access the NGage prototype.

4.2 Prototype Features and Capabilities

The NGage prototype will serve as a functional application which delivers many of the features intended for the final product. Housing and tutoring information will still be listed as reference within the app. A list of all clubs and organization will be displayed with contact information. The contact feature and live feed will remain key features in the prototype. The
The prototype will provide information for students to reference in the same fashion as the final product.

The goal is for the NGage prototype is to offer all the main deliverable features in a more basic way. The main objective for the prototype is to offer organized material to be browsed and referenced by students and others spending time in Hampton roads. NGage intends to increase involvement and improve student success.

The prototype will include some fully functional features which will work just as they would in the final real world product. As shown in Table 1, Guests will be able to use the app to search information and get updates via email. Tutoring and housing information will be updated and provided. Clubs and organizations are listed within the prototype. The Contact form will work and function fully in the prototype. The live feed will operate in the same way as the final product. Some capabilities of the app will be limited in the prototype.

The clubs and organizations will only include a comprehensive list providing additional information provided by the clubs. The prototype will not support joining clubs or directly messaging club leaders. The contact information is included so that the students may follow up on joining clubs. The prototype must feature the contact form submission. Clubs and student organizations could send information to be added in this way. Comments could be left to be included in housing information if submitted in the contact form.

Certain features which would be included in the final product will be left out of the prototype. Table 1 lists the features which will be left out of the prototype due to limited time and skill level. Organizers will not be able to manage their own page. Direct messaging will not be supported from within the app. The prototype will not allow students to join organizations or
R.S.V.P for events. These features were determined to be auxiliary and cut from the prototype for simplification.

Table 1  *Feature comparison between real world product and prototype*

<table>
<thead>
<tr>
<th>Real World Product</th>
<th>Prototype</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fully Functional Components</strong></td>
<td></td>
</tr>
<tr>
<td>Students can search Information on Organizations and grocery stores</td>
<td>Guests can use the app Search Information and get updates about housing on campus and near to campus</td>
</tr>
<tr>
<td>Students can create user accounts to save their preferences and searches</td>
<td>Tutoring hours will be posted for each department</td>
</tr>
<tr>
<td>Organizer can manage their own Page on the site if they choose</td>
<td>A list of all clubs and organizations will be displayed with current contact information.</td>
</tr>
<tr>
<td>Users can Post comments about their personal experience with an apartment, house, or dorm</td>
<td>Students can use the “contact us” feature to request information or sign up for email</td>
</tr>
<tr>
<td>Registered user can join Organizations and R.S.V.P for events</td>
<td>Campus events will be posted in the live feed</td>
</tr>
<tr>
<td></td>
<td>Live feed can be filtered by category</td>
</tr>
<tr>
<td><strong>Partially Functional Components</strong></td>
<td></td>
</tr>
<tr>
<td>Food, attractions and housing can be looked up on a map, students can copy and paste address into another service to get directions.</td>
<td>Students can view a list of current clubs and organizations. Organizers can use the “contact us” form to send information they would like to see added pertaining to a club or organization</td>
</tr>
<tr>
<td>Comments may be posted for housing only through the “contact us” feature</td>
<td></td>
</tr>
<tr>
<td><strong>Eliminated Components</strong></td>
<td></td>
</tr>
<tr>
<td>Students Direct Messaging Realtors may post listings</td>
<td>Organizers can manage their own page</td>
</tr>
<tr>
<td></td>
<td>Students comments and direct messaging</td>
</tr>
<tr>
<td></td>
<td>Join Organizations and R.S.V.P for events</td>
</tr>
</tbody>
</table>
4.3 Prototype Development Challenges

Team Silver has considered 8 risks (technical and consumer) and placed each within a Risk Matrix shown in Table 2. Time constraints could pose the greatest threat to completion. If the team is unable to maintain the schedule the prototype may not be completed on time. To address this issue the work should be broken up. Some team members may lack the necessary skills to produce a web app. Team members lacking knowledge will need to learn about the techniques involved. Team members can mentor one another and independently research and practice.

4.4 Risk Mitigation

Team Silver has identified 4 technical risks. There are 3 medium risk issues. Social media integration could be an issue and is shown in Table 2 as item T1. Links must be monitored to ensure they are live. Links will be replaced or removed. The possible loss of data corresponds to item T3 in Table 2. There will need to be a backup in case of data loss or corruption. Traffic could be heavier than anticipated. To address this issue traffic will be monitored and the scale of the application can be increased to handle higher traffic. Data breach is always possible, but safety protocols will be followed. This problem is considered low risk by Team Silver because no sensitive data will be collected or saved. NGage is not likely to be targeted by hackers.

Team Silver has identified 4 consumer risks. Users may experience some difficulty operating the application or may be concerned about data security. Team Silver considers both of these issues to be low risk. Tutorials and help screens will be provided to users who need extra assistance. NGage will not collect or transfer any sensitive information which substantially limits any risk to the consumer. The app may experience network downtime. Team Silver considers this to be medium risk as item C1 in Table 2. Administrators will be notified.
Information accuracy is necessary and therefore must be audited to insure the user is provided with factual information.

Table 2  
*Risk Matrix displaying relative probability and impact of identified risk*
Glossary

Alert (email/text): Alert messaging (or alert notification) is machine-to-person communication that is important or time sensitive. An alert may be a calendar reminder or a notification of a new message.

AngularJS: a JavaScript-based open-source front-end web application framework maintained by Google.

Cookie: (also called HTTP cookie, web cookie, Internet cookie, or browser cookie) a small piece of data sent from a website and stored on the user's computer by the user's web browser while the user is browsing.

Git: version control system for tracking changes in computer files and coordinating work on those files among multiple people.

GitLab: web-based git repository manager that includes wiki and issue tracking features.

Gradle: an open-source build automation system that was designed for multi-project builds.

JavaScript: a programming language commonly used in web development where the code is processed by the client’s browser.

MySQL: an open source multi-user database management system.

ODU: Abbreviation for Old Dominion University

Platform: an integrated set of packaged and custom applications tied together with middleware.

Student involvement: the amount of physical energy students exert and the amount of psychological energy they put into their college experience.
**Ubuntu**: open-source Linux operating system.

**Virtual machines**: an emulation of a computer system that provide functionality of a physical computer.

**Web Application**: a client server computer program in which the client (including the user interface and client-side logic) runs in a web browser.

**Wiki**: a website on which users collaboratively modify content and structure directly from the web browser.
References


“IInterview with Dan Zimmerman” March. 17 2017


https://nscresearchcenter.org/signaturereport8/

