Lab 2 – Ngage Prototype Product Specification

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1 Introduction

One of the most commonly cited factors that affect university retention rates is student involvement. Roughly 20.4 million students in the United States are expected to enroll in a college, university, or higher education institution in the fall semester of 2017 (NCES). Of these students, roughly 41% full time students are expected to fail to attain a degree within 6 years of their enrollment (NCES). As shown in Figure 1-1, students can find it stressful to plan for life on campus, especially if they are not accustomed to the area surrounding the university campus.

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1.1 Purpose

NGAGE is a web based social media platform developed as a solution for universities looking to increase student engagement. NGage is designed to assist with and facilitate the integration of new, incoming students into a variety of campus communities by providing a consolidated dashboard that allows users to easily navigate the information necessary to get engaged on campus. The NGage prototype will provide Old Dominion University students with
assistance in finding/joining student organizations, researching available housing options, planning/finding events and leisure activities, and finding university resources such as tutoring.

1.2 Scope

The NGage platform is designed to integrate into any campus community, such as Old Dominion University. NGage aims to provide a service that increases student engagement on campus, as student engagement is shown to have a direct relationship with graduation and success rates. Studies have shown that students who are more engaged on campus, whether it is by joining student organizations or by taking leadership roles on campus, are much more likely to graduate with an undergraduate degree, and are more likely to have a higher grade point average (Student). In order to nurture and promote student engagement, NGage provides students with the resources to easily navigate university information, and grants to the university the opportunity to reach out to students who would otherwise remain unengaged. This positive relationship between engagement and academic success is the primary motivation behind a universities decision to implement the NGage platform. Figure 1-2 shows the NGage solution to the common problems faced by students adjusting to campus life.

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The NGage prototype will be developed by Old Dominion University’s Team Silver. Team Silver will build and design a web-application framework, database server, build automation system, and web server using resources provided by the Old Dominion University Computer Science Department, along with online open-source resources. Team Silver is composed of six members who work under the guidance of professor Thomas Kennedy: Amer Righi, Bryan Carey, Omar Craddock, Patrick Trinidad, Samuel Young, and Mewael Tsegaye.
1.3 Definitions

**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.

**Angular2:** 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.

**RSVP:** a process for a response from the invited person or people
**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.
1.4 References


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1.5 Overview

This product specification lays out the software and hardware requirements, external interfaces, features, and capabilities of the NGage social media platform. The following information provides a detailed description of the NGage prototypes key features, hardware and software requirements, and the details of external interfaces used in the product prototype.

2 General Description

NGage is a project designed, developed, and proposed by Team Silver with the goal of creating a web based platform that acts as a consolidated source of information for all the non-academic aspects of campus life. Designed as a dashboard oriented social media platform, users are able to easily navigate between pages listing information on housing options, student organizations, events, and university resources. The NGage platform will provide a live feed of information posted by student organizations, including events, as well as a marketplace with resources aiding in locating a safe and affordable housing arrangement. Users will be able to filter the information in both the news feed and marketplace based on their individual needs.

2.1 Prototype Architecture Description

Figure 2-1 four major functional components integral to the NGage platform: a web enabled device, a web application, a database, and a social media api. The NGage prototype will be developed on a virtual machine running Ubuntu Server (v.14.04) that will be provided by the Old Dominion University Computer Science Department. A common codebase will be located in Team Silver’s git repository, hosted on the Computer Science Department’s GitLab server. The testing and building of the prototype will be managed using Gradle.
2.1.1 Web-Enabled Device

The primary point of access for users accessing the NGage platform. The device must have a stable connection to the internet and a web browser in order to access the platform.

2.1.2 Web Application

The core component of the NGage platform. The web application’s front-end will be designed using Angular2, which will find interactivity. The application’s back-end will be developed using Java, utilizing the Spring framework. The web application will send all data to the database component.
2.1.3 Database

A MySQL database server. The database will store all necessary data that is saved and used by the NGage platform. The database will be regularly backed up and stored in a separate location.

2.1.3 Social Media API

The Social Media API allows the user to communicate via the live feed. Users will be able to post and receive information via the API.

2.2 Prototype Functional Description

The NGage prototype will have many of the core features detailed in the NGage platform. The prototype will provide users with access to a news feed of posts created by student organizations. The information posted on the feed will initially be composed of test data pulled from the database. Users will have the ability to filter this feed, and search for specific student organizations and their posts/events. The prototype will also feature a marketplace, initially populated by test data, that users will be able to search through and navigate for housing options close to campus. Users will also be able to review posts on this marketplace. All data posted, searched, and viewed will be securely located on the centralized database server, and backed up at regular intervals for redundancy and to protect against data loss. The NGage prototype will have limited functionality compared to the full platform, as detailed in Table 2-1.

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Table 2-1 Prototype vs Real World Product Comparison

2.3 External Interfaces

This section describes the interfaces that will be used by the NGage platform prototype.

2.3.1 Web-Enabled Device

The web-enabled device is the primary point of access for users accessing the NGage platform. The device must have a stable connection to the internet, a web browser, and a
keyboard or touch screen in order to access and communicate with the NGage platform. A minimum screen resolution of 240x320 is required to view the web application.

2.3.2 Spring Framework

Spring is a Java-based application framework designed for accessing and communicating with databases. The web application will use the Spring framework to communicate with the database server using Structured Query Language (SQL) in order to push and pull relevant information.

3. Specific Requirements

All requirements that are necessary to complete the prototype can be found in Lab 2 Section 3.1. Requirements will contain the proper specifications to ensure accuracy.

Appendix

Team Silver has established project guidelines to be followed by all team members. Each team member has been assigned a development role based on their strengths, experience, and knowledge. Members communicate openly amongst each other, and if any issues arise during development, the proper actions will be taken to resolve the issue. By following good practices, following project guidelines, and remaining in communication with each other, team silver will continue to have all the skills and knowledge necessary to complete the development of the NGage prototype.