UNIVERSITY OF GUELPH

School of Computer Science

REQUIREMENTS DOCUMENT

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CIS*4250 - Software Design V

Date: 19 September, 2013

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1.0 Introduction

1.1 Motivation

The School of Computer Science (SoCS) is a busy and complex work environment that is always changing. Many highly useful and extensive information systems are being employed by the school to help improve the productivity of its users. Such as, prospective students, undergraduate students, graduate students, faculty, staff, and system administrator. There are many different systems currently in use and each system is optimized for a specific purpose. Unfortunately, this forces users to search multiple locations to find the information they are seeking.

To unify the fragmented SoCS information systems, we propose a single flexible service. This service will guide users to existing information and provide previously unavailable information that was specifically requested by stakeholders.

Our goal is to create a system that connects existing SoCS services using the pre-existing Wordpress management system. This will ease the retrieval of information related to SoCS for prospective students, undergraduate students, graduate students, faculty, and staff as well as management of the information by faculty, staff, and system administrator. The streamlined system will help attract new students by showcasing what SoCS has to offer using a clean system that leaves users with a positive impression.

This document outlines the essential criteria necessary to implement and achieve the goals of the project. The first section will involve a brief overview of the stakeholders invested in this project, the requirements section includes a system overview, list of system content, followed by a list of constraints, and the final section, the conclusion.

1.2 Terminology

This software design project will now be referred to as, “the system.”

1.3 Stakeholders

The following is a list of stakeholders:

- Prospective Students
- Undergraduate Students
- Graduate Students
- Faculty
- Staff
- System Administrator

2.0 Requirements

The requirements gathered for this system have been broken down into two categories:

1. System Overview
2. System Content

Requirements were captured through the use of a survey. The stakeholders were asked for the types of content they frequently search for, and information they had trouble finding. The system framework was then discussed with stakeholders to determine what needs were not currently being met. Finally the system hierarchy was determined through the use of affinity diagrams created from user feedback.

2.1 System Overview

These requirements are related to the framework and attributes of the system. These attributes are commonly found in software engineering projects and follow the ISO-9216 software quality standard. Below are some basic criteria that must be followed in order to integrate our system with the existing SoCS infrastructure. Each criterion is

accompanied by a metric to ensure that the requirement is met when delivering the final product.

1. General

1.1 The system must be accessed through the SoCS website.

Metric: Pass/Fail

1.2 The system must provide a graphical user interface for the user to interact with.

Metric: Pass/Fail

1.3 The system must be open source.

Metric: Pass/Fail

1.4 The system must contain functionality that enables users to search for content.

Metric: Pass/Fail

1.5 The system must utilize existing site infrastructure when possible. Such as the current Wordpress framework.

Metric: Pass/Fail

2. Users

2.1 The system must support different permissions for three levels of users and what type of content they are allowed to view or edit.

Metric: Pass/Fail

2.1.1 The system must support a content creator user to update and create content within the system.

Metric: Pass/Fail

2.1.2 The system must support a general user to view and navigate through the system.

Metric: Pass/Fail

2.1.3 The system must support an administrator to maintain the system.

Metric: Pass/Fail

2.2 The system must store information on what permissions various of users within the system are allowed.

Metric: Pass/Fail

3. Ticketing System

3.1 If a user is unable to solve their own problem, the system must direct the user to the SoCS ticket system, Request Tracker, to create a ticket for the problem.

Metric: Pass/Fail

3.2 The system must be able to pass information to the Request Tracker that will be added to the ticket being submitted.

Metric: Pass/Fail

3.3 When submitting a ticket, the system must prompt the user for all necessary information about their problem, to aid the system administrator in identifying and solving the problem.

Metric: Pass/Fail

3.4 The system must help users troubleshoot their issue prior to guiding them to the ticketing system.

Metric: 80% of users should be able to comprehend the information provided and use that information to guide them is solving their problem or increase their understanding of a topic.

4. Maintainability

4.1 The system must allow for administrators to add content.

Metric: Pass/Fail

4.2 The system must allow for administrators to edit content.

Metric: Pass/Fail

4.3 The system must allow for administrators to remove content.

Metric: Pass/Fail

4.4 The system must be flexible, to accommodate changes in content and improve usability over time.

Metric: The hierarchy and organization of sections in the system must be rearrangeable.

4.5 The system must document its status at an appropriate interval, to assist the system administrator with maintenance of the system. This can include a log of system changes, if the system crashes or changes, the administrator will know the state of the system prior to crashing.

Metric: Pass/Fail

5. Security

5.1 The system must not allow graduate, undergraduate, and prospective students to add content to the system.

Metric: Pass/Fail

5.2 The system must require administrators to use a password to make changes to the system.

Metric: Pass/Fail

5.3 The system must allow administrators to modify privileges of general users and allow them to add content to the system.

Metric: Pass/Fail

6. Reliability

6.1 The system must provide the user with an informative message upon malfunction within the system.

Metric: 80% of surveyed users rate messages related to malfunctions as informative, as opposed to uninformative.

6.2 The system must notify the user when it is unable to complete a request. Such as creating a post, or being unable to access information.

Metric: Pass/Fail

6.3 The system must retain the user's session data while they complete their request.

Metric: Pass/Fail

7. Usability

7.1 The system must follow the W3C standards for accessibility.

Metric: Pass applicable W3C validators provided by W3. This will be described in greater detail in the design documentation.

7.2 The system content applicable to the administrators must be available in an easy to understand layout.

Metric: Ask the user to find specific content, such as locating the program counsellors office, 80% of users complete task in an appropriate time frame.

7.3 The system content for general users must be available in an easy to understand layout.

Metric: Ask the user to find specific content, 80% of users complete task in an appropriate time frame.

7.4 The system must be easy for the users to navigate.

Metric: Returning users should be more proficient at finding information. Proficiency will be measured in number of mouse clicks and time.

7.5 The system must be aesthetically pleasing to the user.

Metric: The averaged rating for the aesthetic appeal of the system from surveyed users will achieve a grade of "above average". Such as the visual appeal of the help navigation system.

7.6 The system must follow typical web conventions. Such as those in HTML5 and CSS3 coding standards.

Metric: Pass/Fail

8. Portability

8.1 The system will load effectively in any web browser with more than 15% market share at release as stated by W3 Counter: http://www.w3counter.com/

Metric: Pass/Fail

8.2 The system must be supported on a range of devices, such as smartphones, tablets, and computer web browsers.

Metric: Pass/Fail

9. Efficiency

9.1 The system must perform with a load testing tool such as with Load Impact http://loadimpact.com/

Metric: The system must achieve a grade no lower than a 'C' for all five criteria tested by the efficiency testing tool located at: http://www.webpagetest.org

2.2 System Content

Stakeholders were surveyed to capture the topics of content to be accessible within the system. The gathered information shows what is commonly searched for within SoCS. This information was categorized by type using themes derived from the survey data.

Detailed information that will populate each category has been documented. This information is not relevant to the high level content requirements and will be incorporated into the design of the system in the form of user stories.

1. General SoCS Information

1.A Organizations and Clubs Within SoCS

1.B Events

1.C News & Announcements

1.D Scholarships & Funding

1.E Forms

1.F Schedules

1.G Important Dates

1.H Policies

1.I Building Information

1.J Resources

2. Academic Planning

This includes information about academic planning and program counseling.

3. Careers

3.A Job Listings

3.B General Information

4. Co-Operative Education

This would provide information related to the Co-op department and links to information important for computer science students.

5. Degree Information

This section would provide information about where to find degree information.

6. Prospective Students

6.A Academic Planning

6.B Program Information

6.C Is SOCS For You?

6.D Applying

7. Teaching Assistants

7.A Available Positions

7.B Guidelines and Standards

7.C Resources

7.D Contact Information

8. Moodle

This includes information such as how to use Moodle, where to access Moodle, etc.

9. Alumni

This includes information related to Alumni. Such as upcoming events, how to contribute to the school, and success stories of fellow students.

10. Graduate Students

10.A Thesis Information

10.B Exams

10.C Department information

10.D Important Dates

10.E Defense

10.F Degree Information

10.G Student Information

10.H Application Information

11. Faculty Resources

This includes information such as information about faculty members, meeting room locations, and how to use software and machines commonly used by faculty, such as printers.

12. Courses

12.A General Information

12.B Offerings

12.C Outlines

12.D Course Details

12.E 4900 & 4910 Information

12.E.A Topics

12.E.B Information

13. People

13.A Staff

- 13.A.A Profile
- 13.A.B Contact Information

13.B Faculty

- 13.B.A Profile
  - 13.B.A.A Academic
  - 13.B.A.B Personal
- 13.B.B Availability
- 13.B.C Contact Information

2.3 Constraints

- The system must be supported on the Wordpress content management system for the SoCS website.
- The system must make use of the current ticketing system: Request Tracker.
- The system must only allow faculty and administrators to edit content within the system.

3.0 Conclusion

The results of the requirements gathering have laid out a guide for how to organize the information and a structure for content within SoCS. Since these requirements were crafted using data provided by actual future users, we are able to group content and needs for this project that are applicable to the client. In conclusion we were able to

obtain a concise and relevant list of requirements using data synthesized from user feedback .

The next step in the process of this project is to organize the user content into use cases and create descriptions of what is needed. The requirements will be sorted by priority, and the design of the system will begin.