SOFTWARE REQUIREMENTS SPECIFICATION

ACADEMIC INFORMATION SYSTEM

[FOR RESEARCH PURPOSE ONLY]

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1. Introduction

1.1. Purpose

This document describes the software requirements for a web based academic information system. It is meant to be used to maintain a shared understanding of the requirements between the developers and the clients of the system.

1.2. Scope

The function of the system is to facilitate student activities such as registration and the viewing of time tables, transcripts, account balances, and other information. Additionally, it is to be used by student records administration for viewing and closing transcript requests.

1.3. Definitions, acronyms, and abbreviations

[The definitions, acronyms, and abbreviations of this SRS]

1.4. References

[The references of this SRS]

1.5. Overview

This document is organized into a couple major sections. Section 1 is an introduction. Section 2 provides an overall description of the system. Section 3 gives detailed specific requirements of the system.

2. Overall description

2.1. Product perspective

This system requires the development of a centralized system for facilitating all student administrative tasks such as registering for courses, managing account balances and transcript requests. Not only will the system be designed for students, there will be a feature to allow Records Administration to handle transcript requests. The system will also work with the existing University database.

2.2. Product functions

There should be a single log-on portal with which the user can access all the above systems. The user would be directed to the appropriate page depending on whether the user is a student or records staff.

If the user is a student:

- They are directed to a Main page that has links to the other systems. (Course Registration, Course timetable, Student Accounts, and Records)
- The Course Registration page will provide course information and allow the user to register for course as well as view his time-table.
- The Course timetable page will provide general course information without any need of registration.
- The Student Accounts page will display a student's personal and tuition (monetary) information.
- The Records page will display information regarding the student's academic progress and allow interaction with the Records Department.

If the user is a Records employee:

- The user is directed to a page that allows them to process Student Record related requests.

2.3. User characteristics

There are two groups of users using the system:

1) Students
   The students access the system to manage their courses and view their information. Due to the large size of this group, there is a wide range of technical ability. Ease of learning the system should be a priority for this user group.
2) Records Employees
   The records employees access the system to view pending transcript requests and close them when they've been completed. As using the system is a specialized part of the records employee occupation, efficiency of their workflow is the priority.

2.4. Constraints

[The constraint of this SRS]

2.5. Assumptions and dependencies

1) We assume that everyone that uses the system has access to the internet at speeds of 56k or above.
2) The system is depended upon by many users therefore it should be able to deal with thousands of users logging onto the system at any one time.

3. Specific requirements

(FR) = Functional Requirement
(NFR) = Non-Functional Requirement

3.1. Functionality

3.1.1. Functional Requirement 1 (FR) – Transcript Requests

The system must allow students to request official transcripts. All requests will be sent and managed by the university records database.

3.1.2. Functional Requirement 2 (FR) – Centralized Location

The system must encompass the functionalities of existing application. Rather than having each system as a separate entity, they will be consolidated into one central system while maintaining the functionality of each system.

3.1.3. Functional Requirement 3 (FR) – Records Employee Interface

The system is specifically intended for Records Employee. It will have a separate log in page where Records Employees can log in with their id and password. This connects them with the transcript database. From there, they will be able to fulfil transcript requests.

3.1.4. Functional Requirement 4 (FR) - Viewing Account Balance

The system will display account outstanding balances. An account balance will be placed on the interface indicating the amount owned until payment is fulfilled. There will also be another function within the system that will provide a detailed breakdown of all fees charged by the University.

3.2. Usability

3.2.1. Usability Requirement 1 (FR) - Single Sign-on

The system checks if the entered student number and password are valid.

Input: Student enters student number and password

Processing: The system checks if the student number is valid and the password is correct. The system authorizes the student to access their record information if they entered valid student number and password.

Output:
- System returns the user to the log in page if the student number or password is invalid.
- System provides user with options to access different records and do different functionalities with the system if the student number and password are correct

3.2.2. *Usability Requirement 2 (FR) – More Detailed and Concise Documentation for Grades*

The system will have functionality of producing a more professionally looking unofficial transcript that can be obtained and used when applying for jobs (mostly for coop students).

3.2.3. Usability Requirement 3 (NFR) – Account Management

The system should function such that when a user (student) signs into it, it provides them with all the information combined for the old systems without having to re-log in when they want to change from one service to the next. The new system will also allow records employees to log into the system, view and process transcript requests

3.2.4. Usability Requirement 4 (NFR) – Reports Information

The new system will provide a report that clearly shows what courses the student have completed and what courses they still need to take. This functionality will be important in saving students time from looking at the whole timetable of their course.

3.2.5. Usability Requirement 5 (NFR) – Web Accessibility

The new system will be accessible in any computer that is connected to the internet

3.2.6. Usability Requirement 6 (NFR) – Intuitive Interface

The new system will have an interface that is very easy to use and does not require training to use. It should combine some of the features of the old system so that users (students) who are familiar with the old system will not have trouble adjusting to the new system. The new system should also have an interface that can be useful to records employees for them to easily process transcript requests. Some of the old records system features will be included in the new system to help records employees to adjust easily to the new system.

3.2.7. Usability Requirement 7 (NFR) – Ease of Use

The new system should have a tool to help students produce their timetable instead of them spending much time looking at the timetable and manually planning it. This functionality does not replace the old system of planning the timetable manually but it is an additional feature that can be used.

3.3. Reliability

3.3.1. Reliability Requirement 1(NFR) – Crash Handling

In the event of a system crash during a transaction, the current transaction will either completed or not completed. This will be handled by an already existing database.

3.3.2. Reliability Requirement 2 (NFR) – Effective Recovery

The system must effectively recover from a crash within five seconds. For the system to effectively recover, it must be able to restart a session with the user within the time limit.

3.4. Performance

3.4.1. Performance Requirement 1 (NFR) – Load and concurrency

The system must be able to run without interruption and able to handle thousands of concurrent requests. It must be able to effectively recover from crashes and other problems, as it is handling sensitive data. It should be designed in such a way that it can run on distributed systems.

When brought up in the interview the response from University web systems was "Basically we want the system to handle errors gracefully, like crashes."

3.4.2. Performance Requirement 2 (NFR) – Dealing with large quantities of data

The developed system should deal with large quantities of data and a large number of users accessing the data at once.

When asked in the interview "In section 6.0 what do you mean by "large quantity of data"?" the response was "Probably internal data—like timetable information, data retrieved from the database—input data itself isn't very big."

3.5. Supportability

3.5.1. Supportability Requirement 1 (FR) – Minimum Access Requirements

The required system should be available on any system or workstation with a minimum requirement of 56k internet access.

When asked "Why do you have a 56K limit?" during the interview process the client responded with the following comment "We want the system to be able to load up in a reasonable time, recover with sensitive data, and guarantee it will work so it doesn't just have to be broadband access only—more like expanding to support 56k, not "limited" to 56k."

3.5.2. Supportability Requirement 2 (FR) – System Communication

The new system should be able to work with the existing system used by the records system. This should allow the records office to receive transcript requests. When asked during the elicitation the response received from University Web systems was "Yes".

3.6. User and Software Interfaces

3.6.1. Main Access Page/ Welcome Page

The user interface will have a single access portal where the user can sign-in and have access to the entire system.

If a student signs in, they are taken to the Student Main Page. If a Records employee signs in, they are taken to a Records Main Page.

The Records main page would allow a records employee to process Official Transcript orders.

The Student main page would have links or tabs to the various other systems like Course Registration, Course timetable, Student Accounts, Transcripts and Records.

3.6.2. Course Registration Page

The Course Registration Page would show the courses the user is currently registered in and allow the user to register for next term courses if they are eligible. It will not display past courses or grades.

When a user chooses the 'Register for Courses' option, they are taken to a page that has a list of courses offered that semester and an empty timetable. When the user selects a course, the course information like class size, current enrolment information (i.e. how many seats have been filed, how many seats are available), Instructor is displayed in text form. The course also appears in the time-table.

3.6.3. Course Time-Tables page

The Course timetable page basically displays information (timings, instructor, class size, prerequisites) of all the courses offered at the university.

3.6.4. Student Accounts page

The Student Account page contains information like a student's address, tuition account information, account details, and password changer. A student will be able to view and edit information which includes changing passwords.

3.6.5. Transcripts and Records

The Transcripts and Records page will contain a student's unofficial transcripts including and an ability to display all previously taken courses and the corresponding grades. It will also display a student's standing i.e. G.P.A.

This page will also allow a student to order official transcripts.

Appendixes

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