

CENTENNIAL COLLEGE

College: Centennial College

Course Title: Software Requirements Engineering

Course Code: COMP 225 SEC.001

Professor: Dr. Mina Labib

Team Project – Part A

Student Name:

Karimi, Arash (301303157)

Korra, Priya Shruthi (301223736)

Lee, Chui (301260201)

Leung, Ka Ying (301245290)

Lin, Ling (301292283)

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Section 1

Introduction

1.1 Purpose:

This document describes the software requirements specification (SRS) for a student app that provides an All-in-one student app for users to access school information and learning materials. Including personal schedules and notifications, the app can help users to manage school tasks and assignments by reminding them of the due day. Our project is based on a database, which stores and maintains the information of different modules within the system. Also, the app can replace student/staff cards as identification for users to access different rooms in the college. This app is version 1.0.0.

1.2 Document Conventions:

Table of Acronyms used in the document:

Acronyms	Description
Android	Open-source operating system for smart devices such as phones and tablets
App	Application
SQL	Sequential query language
DB	Database
DBMS	Database Management System
CPU	Central Processing Unit
GHz	Gigahertz
GUI	Graphical User Interface
HIPAA	Health Insurance Portability and Accountability Act

IOS	(iDevice Operating System) The primary control program in Apple's iPhone and iPad
IT	Information Technology
JAVA	Programming Language
L1 L2 L3	Multilevel caches used for CPUs
MB	Megabyte
OOP	Object-Oriented Programming
SEO	Search engine optimization
SRS	Software Requirements Specification
UI/UX	UI/UX User interface and User experience
WCAG	Web Content Accessibility Guidelines
WIFI	wireless fidelity
3G	Third-generation Wireless
4G	Fourth-generation Wireless
5G	Fifth-generation Wireless

1.3 Intended Audience and Reading Suggestions:

It is primarily written for Centennial College students and professors who need to schedule tasks and get noticed at school. Simply using a single platform for entity information from the college.

The document is intended for requirements developers, project managers, domain experts, documentation writers, testers, investors, and administrative staff. The developers and project managers need to be familiar with the SRS. Others involved need to review the document.

1.4 Project Scope:

Centennial College has many programs, courses, and classes; students have unique timetables and schedules. The students' app allows students, professors, and administration staff to manage college duties easily. The app enables users to access college information. Its essential function is a utility from the school website – eCentennial and myCentennial. It provides a centralized and convenient platform for users to manage their academic responsibilities. This app's main features are providing a user-friendly GUI with many modules in a single platform and creating an easy-to-use application for users to access their accounts on Centennial College. Users can log in with their user ID and password to access their accounts at Centennial College. The app will store all users' information (address, phone number, emergency contact person, etc.), that is connected to the college database. This facilitates the administration staff to communicate with the users, for example, by sending alerts to users for emergency purposes. For the professors, a function is added for viewing and modifying the information related to students. For example, they can mark the assignments, give grades, provide comments to students, etc. After logging into the app, users can view their timetables, download course materials, and stay on top of assignments and deadlines, regardless of their program. This app helps users manage their schedules more efficiently.

Furthermore, this app can be adjusted with the additional module at any time, for example, before and after the add-drop period of each semester. With the app, users would not have to log into different portals to access their plans and tasks. They would have all the information they need in one place. Users can access information not only on a computer but also on mobile phones or tablets.

Out-of-scope:

- Content creation (the content of the app should be provided by Centennial College)
- Copywriting (writing marketing and promotion materials)

- Database analysis
- DBMS
- Software maintenance and enhancement of the app must be purchased separately
- Publishing the finished app to the app store
- Logo design and product design
- Image optimization
- Editing media such as audio, video, or PowerPoint presentations
- Payment function (no payment feature in version 1.0.0, must be purchased separately)
- SEO optimization
- Website security protection

Section 2

Overall description

2.1 Product Perspective:

This app is a group of enhancements of “eCentennial” and “myCentennial.” Users can easily access their information by combining two primary websites with the new student apps.

- **Personal assistance:** Customized users’ schedules; users can edit their timetable and add a “To-do List” with the app. The app shows all the classes they have enrolled in. Notifications are sent to users to remind them to come to class and help them with time management.
- **Access course materials:** In the app, users can access their accounts and download all the learning materials. Like the school website, users can download the lecture notes and edit the document on mobile or tablet. Studying becomes easy and portable anywhere.
- **Communication:** It includes the student’s number, name, email, and phone number. This information may be used for any emergency contact or unexpected arrangement. The users can also access school email via the app instead of logging into an email account separately; it is an All-in-one platform for users.

2.2 Product Features (Functions):

The new application will provide the following features:

1. Collect and store academic information
2. Filter and search courses information
3. Navigate class schedules
4. Access course materials (e.g., notes, videos, PowerPoints)
5. Calendar integration with reminders (classes, assignments, quizzes, tests)
6. Announcement notification from the college
7. Connect to Wi-Fi, 3G, 4G, 5G.

2.3 User Classes and Characteristics:

1. Students: Will use the new application to access all their academic information, including class schedules, course materials, calendars, and school announcements.
2. Professors: Will use the new application to input and update course materials, manage students' assignments, and communicate with the class.
3. College administrators: Will use the new application for post-college updates, such as school events and emergency announcements.
4. System administrators: Will use the new application to set up accounts, keep the records of the users, respond to user inquiries, and continually monitor the system.

2.4 Operating Environment:

The application:

- Will run on Windows, Linux, and Mac servers.
- CPU speed of 3.5 GHz is more than enough.
- L1 L2 and L3 caches.
- Will use Google as the database to organize and store information.

- Will be compatible with the latest version of Microsoft Edge, Internet Explorer, Chrome, and Firefox for the web version.
- Will support the latest Android and iOS for the mobile version.
- Will be developed using Java.

2.5 Assumptions and Dependencies:

- The system's availability depends on the operating system's status. The application will be available as long as the operating systems (Windows, Linux, Mac) are connected.
- The device's network interface card and driver are assumed to operate correctly.
- The IT department of Centennial College has the required hardware to support the intended user load.
- The application should follow the legal requirements as below (Komnenic, 2022):
 - Data privacy and collection
 - Data security
 - Accessibility
 - Copyright and plagiarism
 - Content licensing and attribution
 - Anti-spam laws
 - Disclaimers & Disclosures
- Time requirements: 2 months.

Section 3

External Interface Requirement:

In this application for college students, we need two external interfaces to achieve customer satisfaction successfully. These two interfaces can be diversified into management and customer interfaces. Also, we need an interface to connect the management team to customers for additional features. Our software must be user-friendly and easy to use at all times.

3.1 User Interfaces:

Based on the user's role in the system, they will have access to their specified application section. As mentioned above, the management or customer interface application must be user-friendly and easy to use.

End users of the system, including students, will be able to access the application through a smart device by logging in with their college credentials. Once logged in, they will be presented with a dashboard that allows them to navigate through different system features, such as viewing the course calendar, accessing course materials, and navigating the campus. Professors can upload and manage course materials, while students can view and download them. Additionally, professors and students can filter and search for course information, making it easy for them to find the information they need. Students can also navigate through their classes schedule, view the schedules, and see the professors' details. Also, professors can set up notifications for announcements such as due dates or important information. Overall, the system is designed to provide a seamless and intuitive experience for all users, making it easy for them to stay organized and on top of their academic responsibilities.

3.2 Hardware Interfaces:

Camera

Speaker (for listening to the content in course shell)

3.3 Software Interfaces:

Calendar

To-Do list

Single Sign On

Download and upload feature.

Section 4

Functional Requirements List				
Requirement ID	Requirement Title	Short Description	Priority	Requester
FR01	User log-in	The application should allow users to log in by using their credentials.	Must	Student, Professor, School Staff
FR02	User profiles	The application should allow users to access their profile pages. Users can edit their personal information (password, e-mail address, and phone number).	Must	Student, Professor, School Staff
FR03	Calendar	The application should allow users to view and edit their calendars.	Must	Student, Professor, School Staff
FR04	Notifications	The application gives the users a mobile notification/alert when there are school announcements.	Must	Student, Professor, School Staff
FR05	Frequently asked questions (FAQ)	The application should allow the administrator to set up and manage frequently asked questions.	Should	Administrator
FR06	Navigation	The application should include a virtual ID card (students/professors/staff) for users to access to navigate classes, study rooms, library and ... in the college campus	Should	Students, Professor, School Staff
FR07	Filtering/ Search	The system must be able to filter and search for course information, making it easy for users to find the information they need.	Should	Student, Professor
FR08	File upload/ Download	The system must have the ability to allow professors to upload course materials and allow students to download them.	Must	Students, Professor

FR09	Attendance tracking	The application should have the ability for professors to track student attendance and for students to view their attendance records.	Should	Professor
FR10	Discussion boards	The application could allow students and professors to participate in online discussions and forums related to their classes.	Could	Students, Professor
FR11	Marking/grading assignments	The application should have the function for professors to do the marking and grade students' performance.	Should	Professor
FR12	Payment technology	The application may have a payment feature for users to tap as a debit/credit card, to purchase in the bookstore, canteen, and school fees, etc.	Won't have	Students, Professor, School Staff

Section 5

Non-functional Requirements List				
Requirement ID	Requirement Title	Short Description	Priority	Requester
NFR01	Mobile and tablet compatibility	The application should be iOS and Android for the mobile and tablet versions.	Must	Students, Professor, School Staff
NFR02	Web browser compatibility	The application should be compatible with Microsoft Edge, Internet Explorer, Chrome, and Firefox for the web version.	Must	Students, Professor, School Staff

NFR03	Loading speed	The application should load and be usable within 3 seconds. Each page must load within 2 seconds.	Should	IT administrator
NFR04	Data backup	Database backup should be done every 15 minutes and be kept for one month. All data is to be backed up automatically twice a day	Must	IT administrator
NFR05	Hard drive space	The application should take no more than 30MB of hard drive space.	Could	IT administrator
NFR06	Memory usage	The application should occupy no more than 30MB of the mobile operating memory.	Could	IT administrator
NFR07	Scalability	The application must be scalable to handle a large number of users and should handle the load efficiently.	Must	Students, Professor, School Staff, IT administrator
NFR08	Usability	The application must be user-friendly, easy to use with clear icons, and optimized for use on any device to provide users access to the system from anywhere.	Must	Students, Professor, School Staff
NFR09	Accessibility	The system must meet Web Content Accessibility Guidelines WCAG 2.1.	Must	Students, Professor, School Staff, IT administrator
NFR10	Security	Database security must meet HIPAA requirements.	Must	Students, Professor, School Staff, IT administrator
NFR11	Security	Users can only log in to accounts when users enter the correct username and password.	Must	Students, Professor, School Staff, IT administrator
NFR12	Security	Every user must create a strong password. For example, a strong	Must	Students, Professor,

		password might contain at least 8 characters and a capital letter.		School Staff, IT administrator
NFR13	Security	After a certain number of login attempts, a security system may lock an account to protect a user's information from potential hackers. Users can typically email the IT administrator to verify their identity and set a new password to unlock their account.	Must	Students, Professor, School Staff, IT administrator
NFR14	Security	After login, users should be prompted to provide a password before access to confidential information (e.g., personal information, disability, payment records)	Should	Students, Professor, School Staff
NFR15	Reliability	The app would run without failure and function normally after substantial use. under normal usage conditions, and the app must be over 85 percent reliable for a month.	Must	IT administrator

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Appendix C

Stakeholder Register					
Stakeholder Name	Stakeholder Position	External / Internal	Stakeholder contact details	Operational / Executive	Interest
Jamie Smith	Student	External	Jsmith@centen.ca	Operational	High
Mona Martin	Professor	External	Mmartin@centen.ca	Operational	High
Nelson Park	Administrative staff	External	Npark@centen.ca	Operational	High
Taylor Walker	Programmer	Internal	Walker.t@abc.ca	Executive	Medium
Chui Lee	Developer	Internal	Lee.c@abc.ca	Executive	Medium
Ka Ying Leung	Developer	Internal	Leung.ky@abc.ca	Executive	Medium
Ling Lin	Developer	Internal	Lin.l@abc.ca	Executive	Medium
Arash Karimi	Designer	Internal	Karimi.a@abc.ca	Executive	Medium
Priya Shruthi Korra	Designer	Internal	Kora.ps@abc.ca	Executive	Medium
Wilson Cook	IT administrator	Internal	Cook.w@abc.ca	Operational	Medium
Kelly Lee	IT security officer	Internal	Lee.k@abc.ca	Executive	Low
Allan Kim	Investor	External	Akim@gmail.com	Executive	High

Appendix D

Interview Questions		
Question	Stakeholder position	Answer
What is the primary function you think the app must have included?	Student	The important part of the app is that it should send reminders on time for our deadlines and a user-friendly interface to manage our daily activities.
Is it accessible on the website?	Developer	Yes. It can run on the latest versions of various browsers e.g., Microsoft Edge, Internet Explorer, Chrome, and Firefox.
Is there any potential risk?	IT security officer	Data has no remote backup.
Is there any specific feature you prefer?	Administrative staff	It should be easy to manage. Allow staff to access the app's database to contact the users more easily.
What problems would you like the software to solve?	IT administrator	The app can access college databases but is not a mix-up. Also, it can override users' accounts when users forget to log out.
Can you freely upload or download course materials, set up quizzes/assignments/tests starting and ending times, manage students' assignments?	Professor	Yes. It would be great if I could edit tasks on the mobile app.

How will we know when this feature/requirement is complete?	Designer	It can run on both mobile and web browsers, and all functions can access and available 24 by 7
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