COMP 3059 – Capstone Project I

Software Requirements Analysis and Design Assignment

1.0 Introduction

1.1 Purpose

This document describes the high level software requirements for the system. It describes the what, not how, of the capabilities of the system for the intended audiences.

1.2 Scope

Our goal is to create a web application to compare different post secondary education options. We will need to be able to store and recall information about the different schools, and we will need to keep such information as program requirements, residence costs, etc. We will need to create a database to store this information, and a website to display it in a clear manner. We will also need to have a means for universities and colleges to update us on any changes to their information, as well as a means for students and alumni to leave reviews and helpful information about their school.

Our team will be creating this application from the ground up, and will also be making the decisions for what technologies will be most useful to reach our goals.

For a launching point for our application, we will initially be keeping the scope to schools in Ontario, with the opportunity to expand to include more institutions at a later date.

2.0 System Overview

The System Overview section introduces the system context and design.

2.1 Project Perspective

The project will be created within a website in it's own exclusive environment. It is not a follow up of another project or system but rather being built from the ground-up utilizing various existing frameworks that will allow us to create the product.

2.2 System Context

The resulting software from this project will be in the form of a web application which the users would interact with. Within the web applications it'll host a variety of features ranging from a review system, an algorithm to curate a list for the user, a database to house the information, and a signup/login to allow users to compare and match their results.

2.3 General Constraints

- Due to the sheer number of colleges and universities, we would first be limited to Ontario but with plenty of room for advancement.

- Alot of the reviews feature would involve students and alumni to actively participate within the application and provide their input to allow for future students to get the most out of the experience.

2.4 Assumptions and Dependencies

It is assumed that users will:
-have a web browser capable of running web based applications and a working internet connection
-Users will be accessing this site on a personal computer
-Alumni users will sign up and provide reviews and feedback for their colleges/university

Dependencies for this project that will likely be used
-Angular
-React
-Laravel?
-Javascript, CSS, HTML, SQL, Python, PHP

3.0 Functional Requirements

This section describes specific features of the software project. If desired, some requirements may be specified in the use-case format and listed in the Use Cases Section.

3.1 <Functional Requirement or Feature #1>

- Introduction
- Inputs
- Processing
- Outputs

...

3.2 Use Cases

3.2.1 Use Case #1 -New user logged in

1. New User opens website
2. Is directed to homepage, with a pop-up to register or login if they'd like
3. User opens registration form
4. User fills out information up to their own personal comfort level

5. User gets email confirmation and signs in
6. User gets curated listings based on information they put
7. User is able to bookmark, browse, and compare institutes, and write reviews.

Use Case #2 -New user not logged in

1. New user opens website
2. New user is directed to homepage, with pop-up to register or login if they'd like
3. New user declines to login or register and chooses to browse instead
4. New user gets unfiltered content with basic filtration on program, or university
5. New user can browse and review content

Use Case #3 -Professor logs in

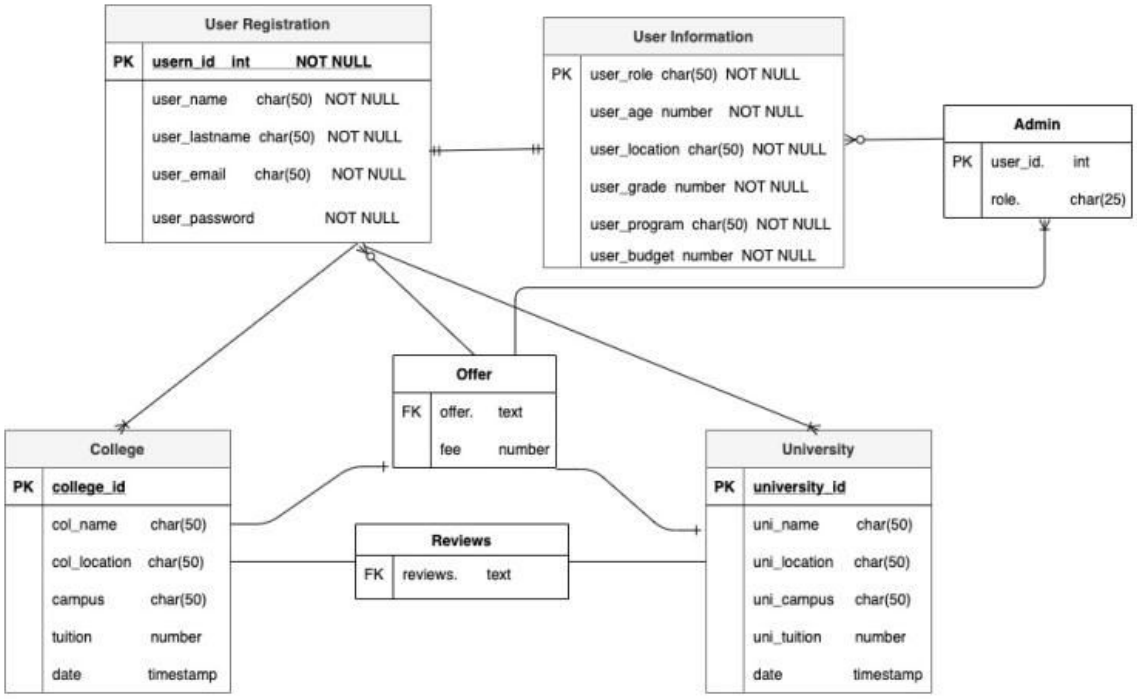
1. Professor opens website
2. Professor signs in
3. Professor has option to access personal program listing
4. Professor is able to edit information with admin review required before listings update
5. Professor is able to see anonymous reviews of their course.

Use Case #4 -Returning user

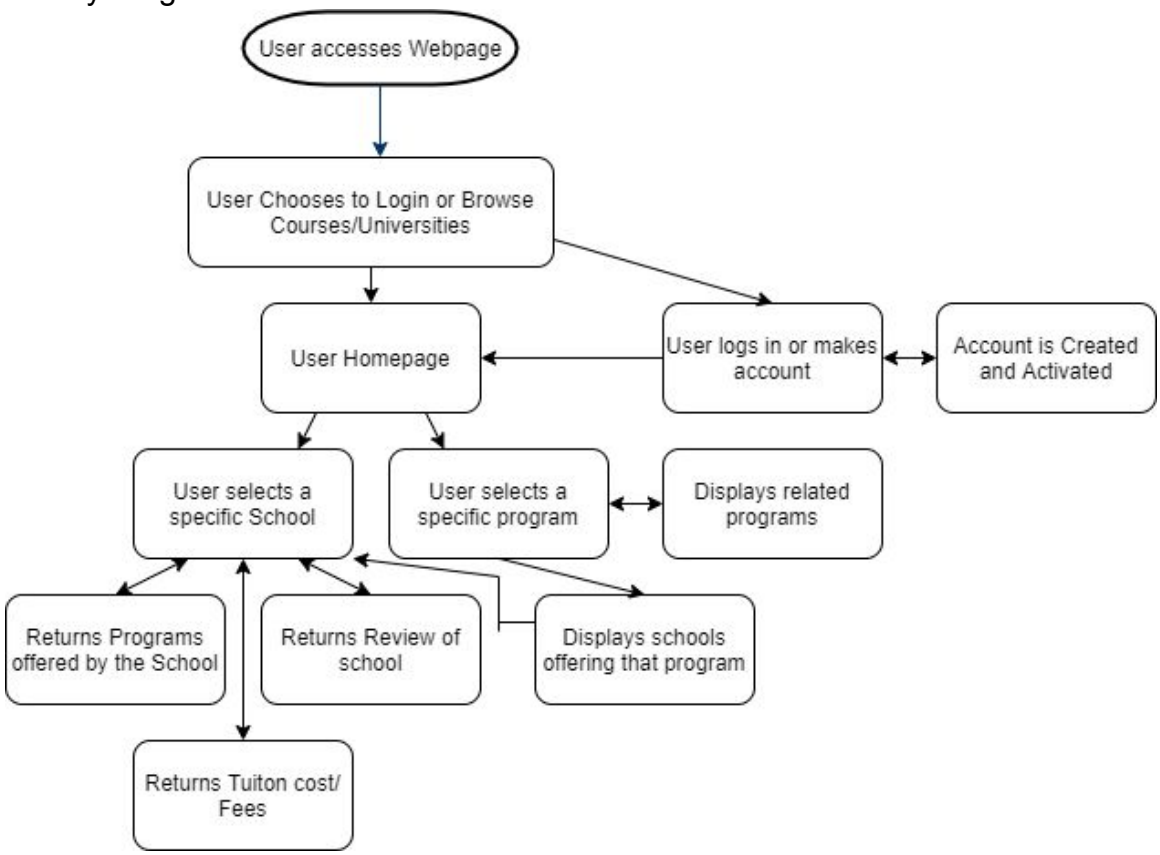
1. User opens website, cookies ensure new user pop-up doesn't appear
2. User logs in
3. Users get their curated homepage back, with the option of all the comparisons of programs and universities they have.

3.3 Data Modelling and Analysis

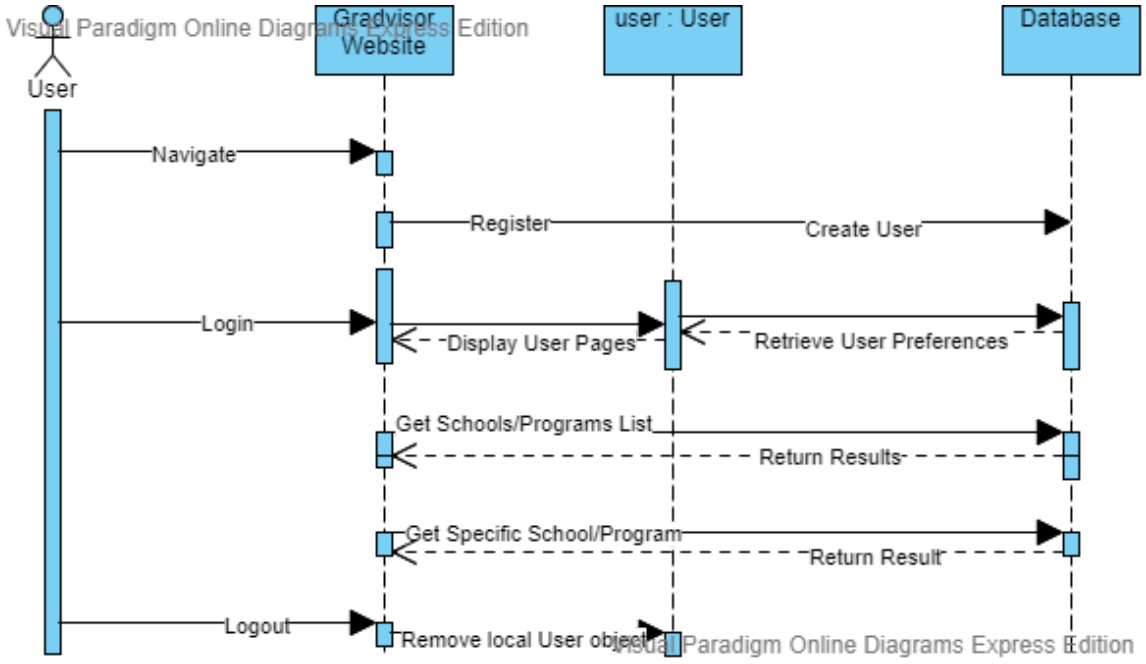
Normalized Data Model Diagram



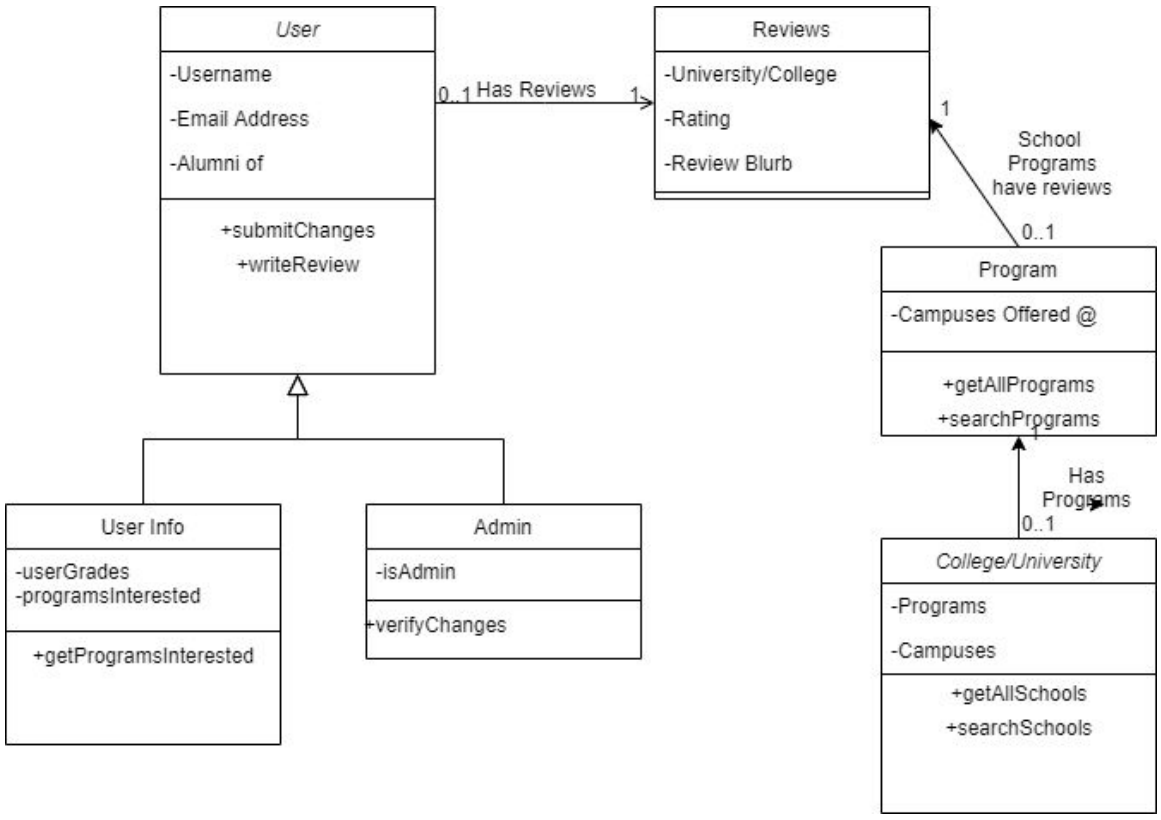
Activity Diagram:



Sequence Diagram:

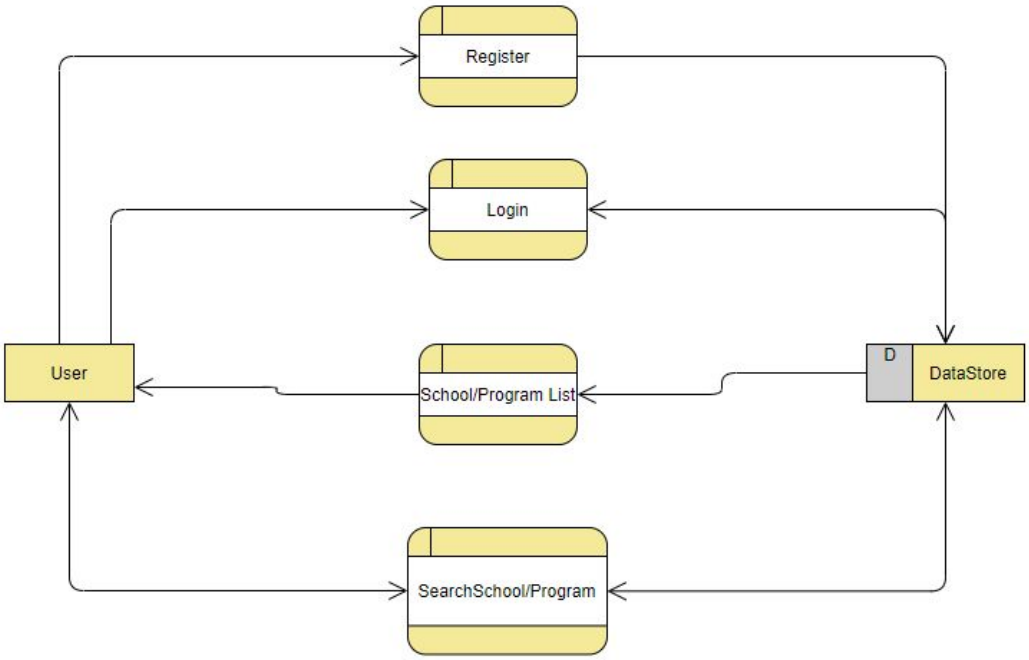


UML Class Diagram



3.4 Process Modelling

Data Flow Diagram



4.0 Non-Functional Requirements

Without filtration - 96% of all visits to the main dashboard will be processed in less than a second

With filters added by the user - 90% of the visits will be done in ten seconds or less.

Sign up - 95% of the signups will be processed immediately, reliably and securely.

Security - 100% of all data will be securely stored, with security measures being enforced by our cloud storage provider following the law.

Scalability - Our website will be 100% scalable and maintainable due to using a cloud storage that is flexible and easily upgradable.

Portability - The website can be accessed from anywhere in the world using either a mobile phone, laptop, or computer.

Availability and reliability - The website will remain up 98% of the time, only going down during a major update or unless a major issue occurs.

5.0 Logical Database Requirements

The project itself would be hosted on a cloud storage, which itself will act as the database as-well while utilizing SQL. The current options for cloud would be Amazon AWS, or Google Cloud SQL.

Data formats will be pretty standard as both AWS and Google Cloud enforce their own rules. The tables will likely be users, programs, universities, colleges, reviews. With the addition of more as necessary and each containing their own relevant information.

The data retention itself would be needed in order to curate the proper listings for the user whenever they access the application and to ensure it is all up-to-date. However the website will comply with all laws and standard security protocols to ensure only the needed data is being retained, with data integrity being an important part of our system.

6.0 Other Requirements

Additional requirements, if any.

7.0 Approval

The signatures below indicate their approval of the contents of this document.

Project Role	Name	Signature	Date (D/M/Y)
	Zac Shaw	Zac Shaw	04/11/2020
	Yazan Siyam		
	Joshua Rooney	J.Rooney	15/11/2020
	Fatih Kucukgokmen	Fatih K	15//11/2020