

# **CAPSTONE PROJECT: COLLEGE ENROLMENT SYSTEM SYSTEM DEVELOPMENT.**

**Developers and Presenters: Zviko and Seth**

**Instructor: Kim Banga.**

**28<sup>th</sup> January, 2022**

# **PROBLEM DEFINITION / BUSINESS CASE: COLLEGE ADMISSIONS SYSTEM.**

As specified by Instructor Kim Banga.

The College would like to build an online web based application to improve efficiency in the following activities / processes of the College Admissions System.

## **1. USER MANAGEMENT**

- New applicants should be able to create a profile that allows them to then log in with their details later
- Existing Applicant should be able to login into the system.
- New Admissions Office Staff should be able to create a profile that allows them to log in with their details later
- Existing Admissions Office Staff should be able to login into the system.

## **2. APPLICATION PROCESSES: APPLICANT**

- Online form that an applicant fills then submits their application
- Online enquiry on status of application.

## **3. APPLICATION PROCESS: COLLEGE ADMISSIONS OFFICE**

- Admissions officer should be able to see a list of submitted applications an
- Admissions Officer should have buttons that they can click to accept/decline an applicant

# **PLANNING and ORGANISING For DELIVERY OF PROJECT.**

## **1. RESOURCES: HUMAN**

- Seth- Lead Developer.
- Zviko – Lead Systems Analyst and Systems Designer.

## **2. RESOURCES: TECHNOLOGY**

- Flask Framework for API development in Python
- CSS, HTML for client interfacing
- MySQL Workbench for Database Modelling, Logical and Physical Design.
- Mockup Screens for UI and Dialogue Design.
- Enterprise Architect for UML modelling and documenting designs

## **3. GITHUB**

- Repository for deliverables
- Project Management facilities.

# **PROJECT MANAGEMENT and ADMINISTRATION.**

## **1. DONE FROM GITHUB.**

- URLs will be shared.

## **2. AGILE APPROACH SELECTED.**

## **3. GITHUB KANBAN BOARDS**

- For Agile management and delivery of tasks and activities.
- 4 Column Kanban Board Implementation Selected.

## **4. SOME GITHUB ACTIONS AUTOMATED**

Zviko & Seth

[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

## Z-and-S-Projects

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### Capstone Software Project

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#### 3 Backlog + ...

• Create Database ...

Admissions-System#4 opened by zvikomurahwi

• Sprint : Database Design ...

Admissions-System#8 opened by zvikomurahwi

• Do Requirements elicitation and specification ...

Admissions-System#7 opened by zvikomurahwi

#### 4 To Do + ...

• Finalize Project Brief / Business Case ...

Admissions-System#1 opened by zvikomurahwi

• Define Resources Required: Database Management System Software, working IDEs, API support frameworks etc ...

Admissions-System#5 opened by zvikomurahwi

• Acquire and Setup Resources ...

Admissions-System#6 opened by zvikomurahwi

• Define Target Deliverables in line with lessons learnt in course ...

Admissions-System#3 opened by zvikomurahwi

#### 0 In Progress + ...

#### 1 Done

• Assign roles ...

Admissions-System#2 opened by zvikomurahwi

Automated as Done

# College Enrolment System: High Level Requirements Specifications.

Due January 28, 2022 5:30 PM

## Instructions

You and your project partner have been asked to build part of a college enrolment system, where college applicants can apply for admission online (through a web interface).

At MINIMUM, the system you will build should include the following

### 1. **User Management.**

- a. New applicants should be able to create a profile that allows them to then log in with their details later
- b. Existing Applicant should be able to login into the system.
- c. New Admissions Office Staff should be able to create a profile that allows them to log in with their details later
- d. Existing Admissions Office Staff should be able to login into the system.

### 2. **Application Process: Applicant**

- a. Online form that an applicant fills then submits their application
- b. Online enquiry on status of application.

### 3. **Application Processing: Admissions Officer**

- a. Admissions officer should be able to see a list of submitted applications an
- b. Admissions Officer should have buttons that they can click to accept/decline an applicant

### 4. **Reporting**

- a. Once admissions officer has responded, the applicant should be able to see their feedback the next time they log in

## STUDENT ENROLMENT SYSTEM: USER STORIES

<b>Title:</b> System access / login function	<b>Priority:</b> High	<b>Estimate:</b> 2 days
<b>Story Outline:</b> <p>As the Admissions Officer and member of staff of the college, the system shall allow me to register appropriately so that I can use it to perform my admissions process tasks. The system shall securely store my login credentials so that I can use these for future access/logins to the system. The password shall be encrypted. Once registered, I should be able to login and perform my roles in processing students' applications. I want the system to allow me to change the password whenever I want to and to reset it when I forget.</p>		
<b>Acceptance Criteria:</b> <ol style="list-style-type: none"><li>1. The system rejects a login from a login attempt by a user who is not registered i.e. a user with no account.</li><li>2. The system does not allow login with a wrong password or username i.e. both must be correct.</li><li>3. The system allows a logged in user to change his/her password</li><li>4. When registering as an Admissions Officer/ College staff, the system shall check that I am a member of staff with a valid employee number..</li><li>5. The system only accepts an attempt to change the password before logging in when the user provides the current password.</li><li>6. A forgotten password reset shall only take effect after then user is successfully authenticated via email or other acceptable means such as a code sent to the user's phone or email.</li></ol>		

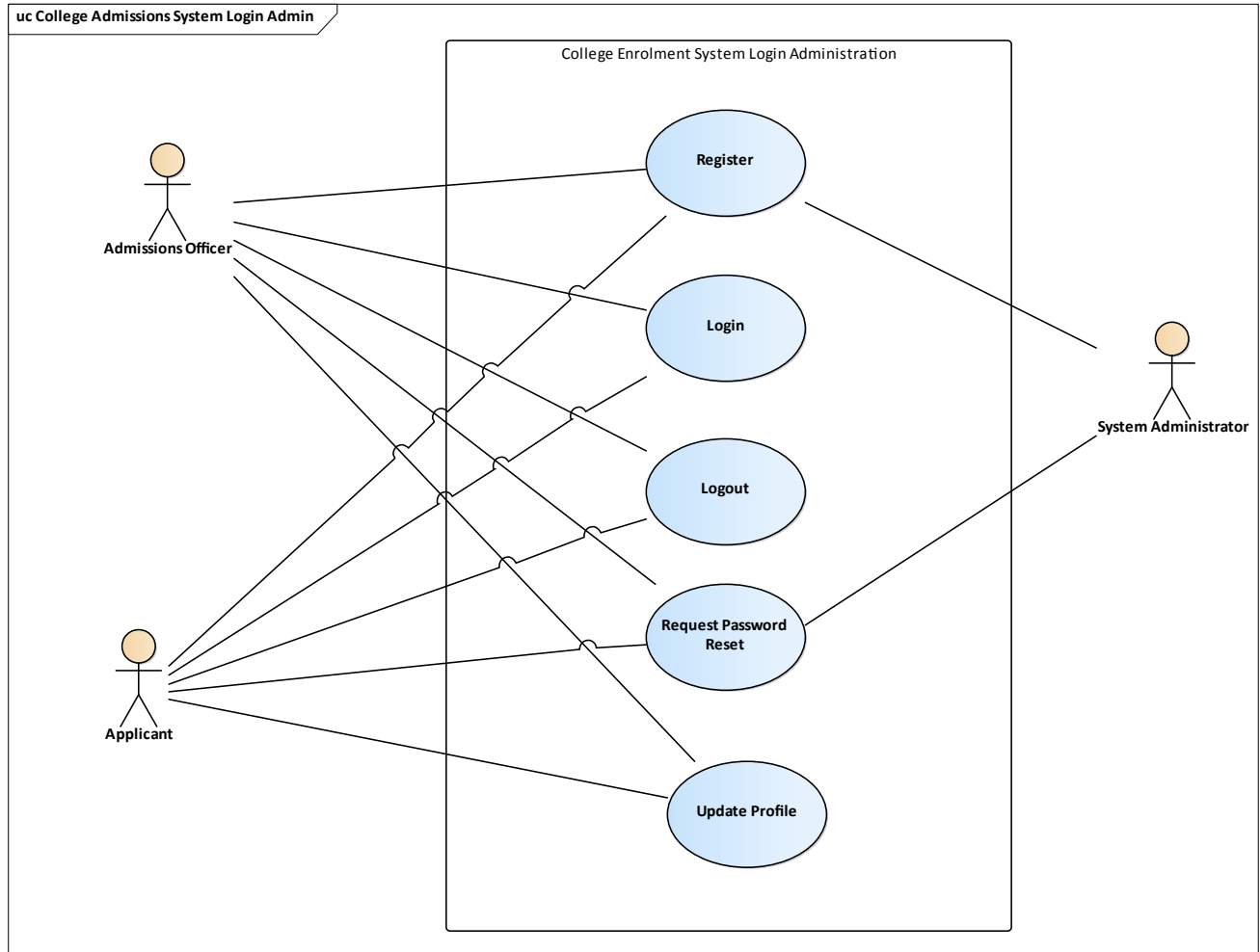
<b>Title:</b> Application Submission by Applicant	<b>Priority:</b> High	<b>Estimate:</b> 7days
<p><b>Story Outline:</b></p> <p>As an applicant registered to use the system, I want to be able to access a catalogue of available courses and submit an application for admission to a course of my choice. I may submit up to 3 applications. As the applicant who is registered to use the system, I would like to be able to check on the status of my application(s) and appropriately respond to any requests from the College Admissions office to provide more information and make corrections to my application(s) whenever and wherever this is required. .</p>		
<p><b>Acceptance Criteria:</b></p> <ol style="list-style-type: none"> <li>1. The system shall have a facility for applicant to browse the catalogue of courses offered by the college.</li> <li>2. The system allows the applicant to choose a course and submit an online application for the course.</li> <li>3. The system allows the applicant to check on status of his/her application and make enquiries on this status whenever this is necessary.</li> <li>4. The system allows the applicant to submit additional information as may be requested by the Admissions Office.</li> <li>5. The system allows the applicant to respond to and service any requests made by the Admissions Office.</li> </ol>		



<b>Title:</b> Application Processing : Admissions Office.	<b>Priority:</b> High	<b>Estimate:</b> 7days
<p><b>Story Outline:</b></p> <p>As the Admissions Officer, I want to be able to use the user account allocated to me when I register to use the system to:</p> <ul style="list-style-type: none"> <li>● Browse through all applications captured in the system e.g. by course, surname of applicant, status of application, by applicant id and respond to queries raised by an applicant. I must be able to respond to the queries.</li> <li>● Update an application based on interactions with both the applicant and the department/faculty the applicant will have applied to.</li> <li>● Communicate with the applicant and the department he will have applied to via the system..</li> <li>● Generate reports including acceptance/rejection letters as and when required.</li> </ul>		
<p><b>Acceptance Criteria:</b></p> <ol style="list-style-type: none"> <li>1. The system has facilities to retrieve and browse applications by applicant id, applicant surname, course.</li> <li>2. System has a facility to retrieve and browse all the applications captured as a list.</li> <li>3. System has role based facilities for Admissions Officers to update applications. e.g. Some Officers may not be allowed to change application status for example from UNDECIDED to ACCEPTED</li> <li>4. System must allow for communication between the Applicant and Admissions Officer(s)</li> <li>5. System has facility to generate reports including acceptance / rejection letters.</li> <li>6. System interfaces with email systems.</li> </ol>		

<b>Title: Student Admissions System Operations Traceability.</b>	<b>Priority:</b> High	<b>Estimate:</b> 7days
<b>Story Outline:</b> As the owner and chief subject matter expert of the Student Admissions System our all system operations to be traceable and auditable.		
<b>Acceptance Criteria:</b> <ol style="list-style-type: none"> <li>1. Changes to an Application status shall be documented</li> <li>2. All the system operations and actions shall be logged into log files.</li> <li>3. There shall be facilities for extracting and generating reports from log file for applicant to browse the catalogue of courses offered by the college.</li> <li>4. Log files shall be protected from unauthorized destruction.</li> </ol>		

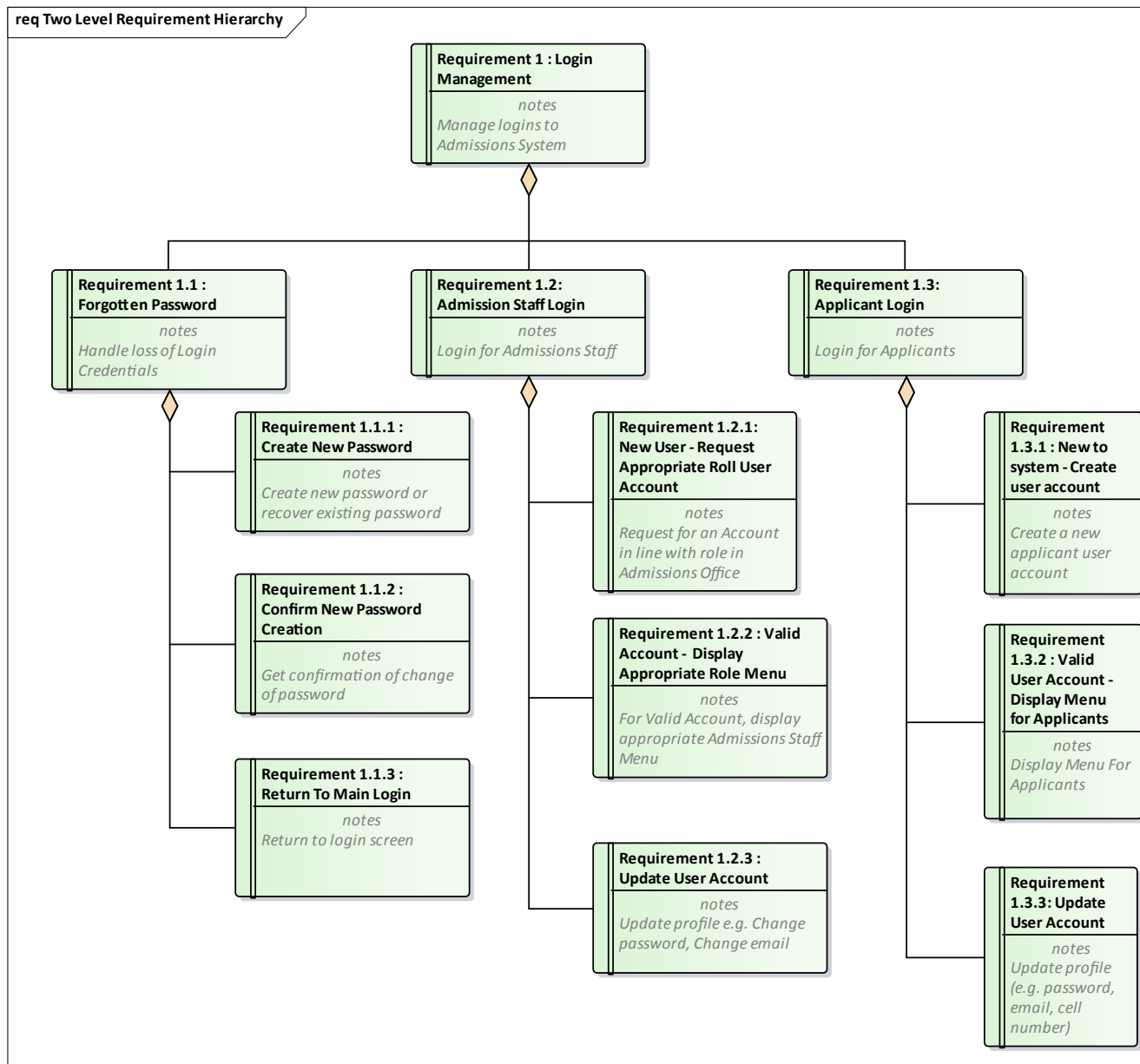
# College Enrolment System Use Case Diagrams: Login Management



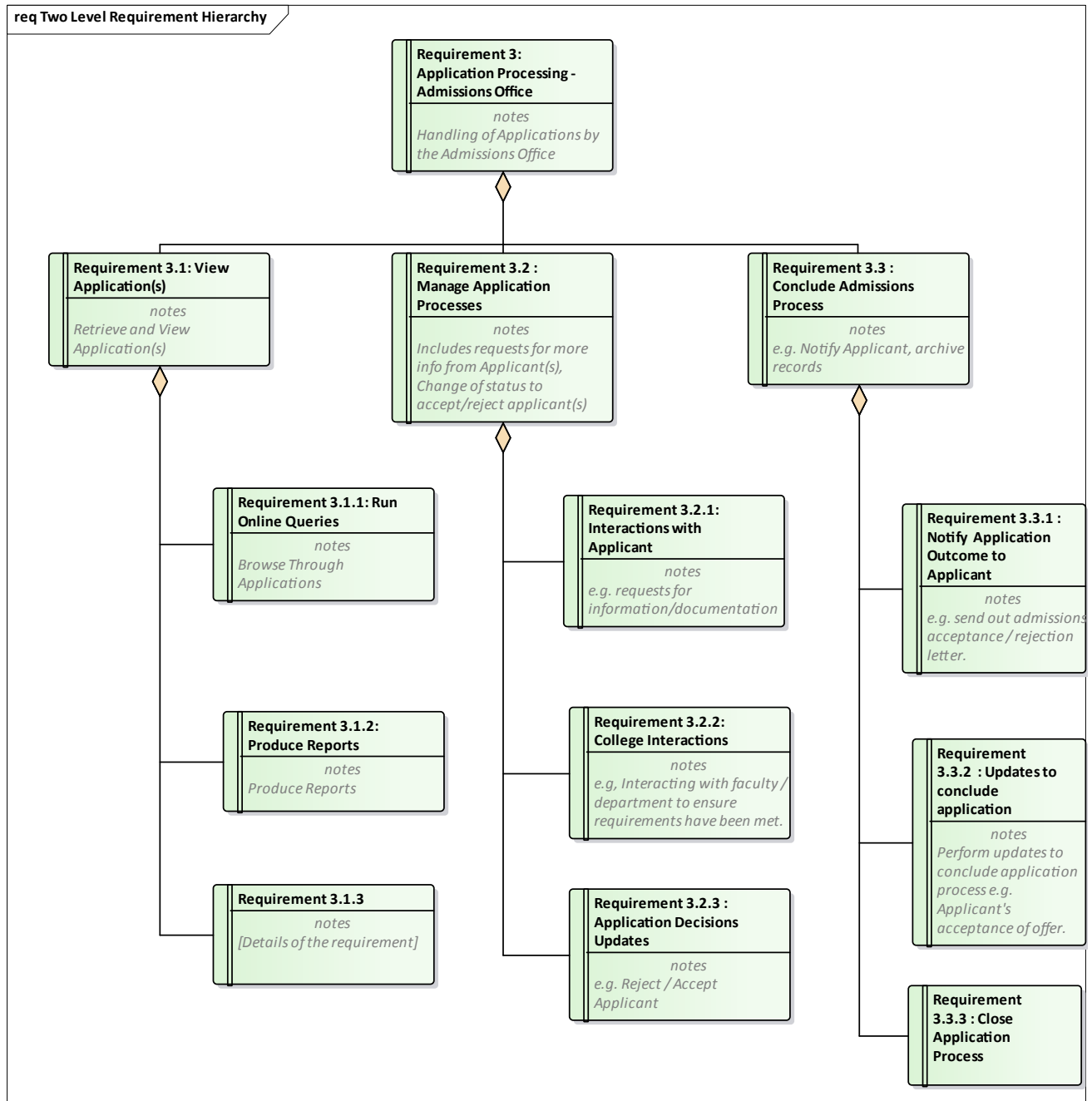
## College Enrolment System Use Case Diagram : College Admissions Use Cases



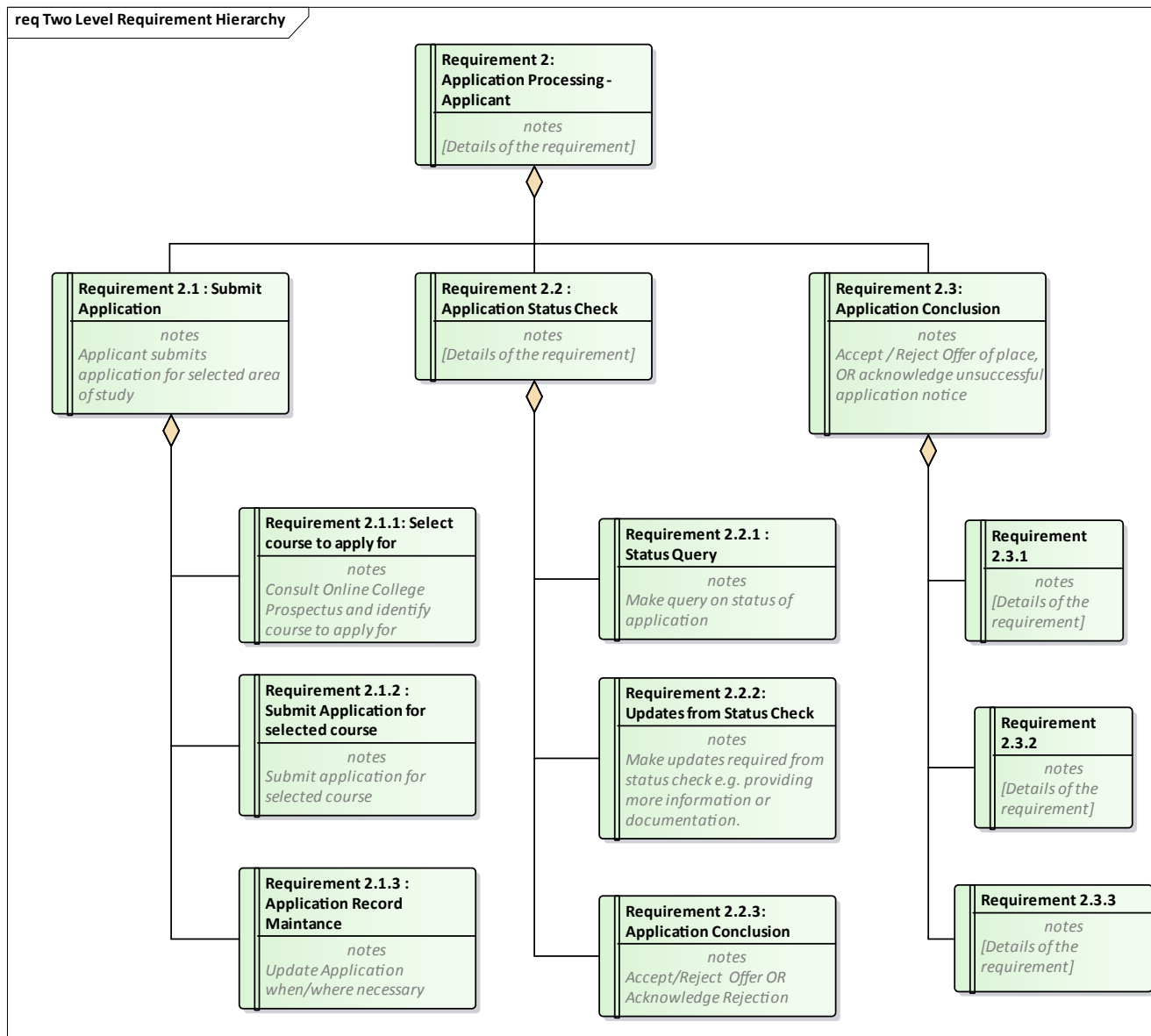
## Requirements Specification Diagram: Two Level Requirement Hierarchy – Login Management



## Requirements Specification Diagram: Two Level Requirement Hierarchy – Admissions Office



## Requirements Specification Diagram: Two Level Requirement Hierarchy – Applicant



# **College Enrolment System: None Functional Requirements**

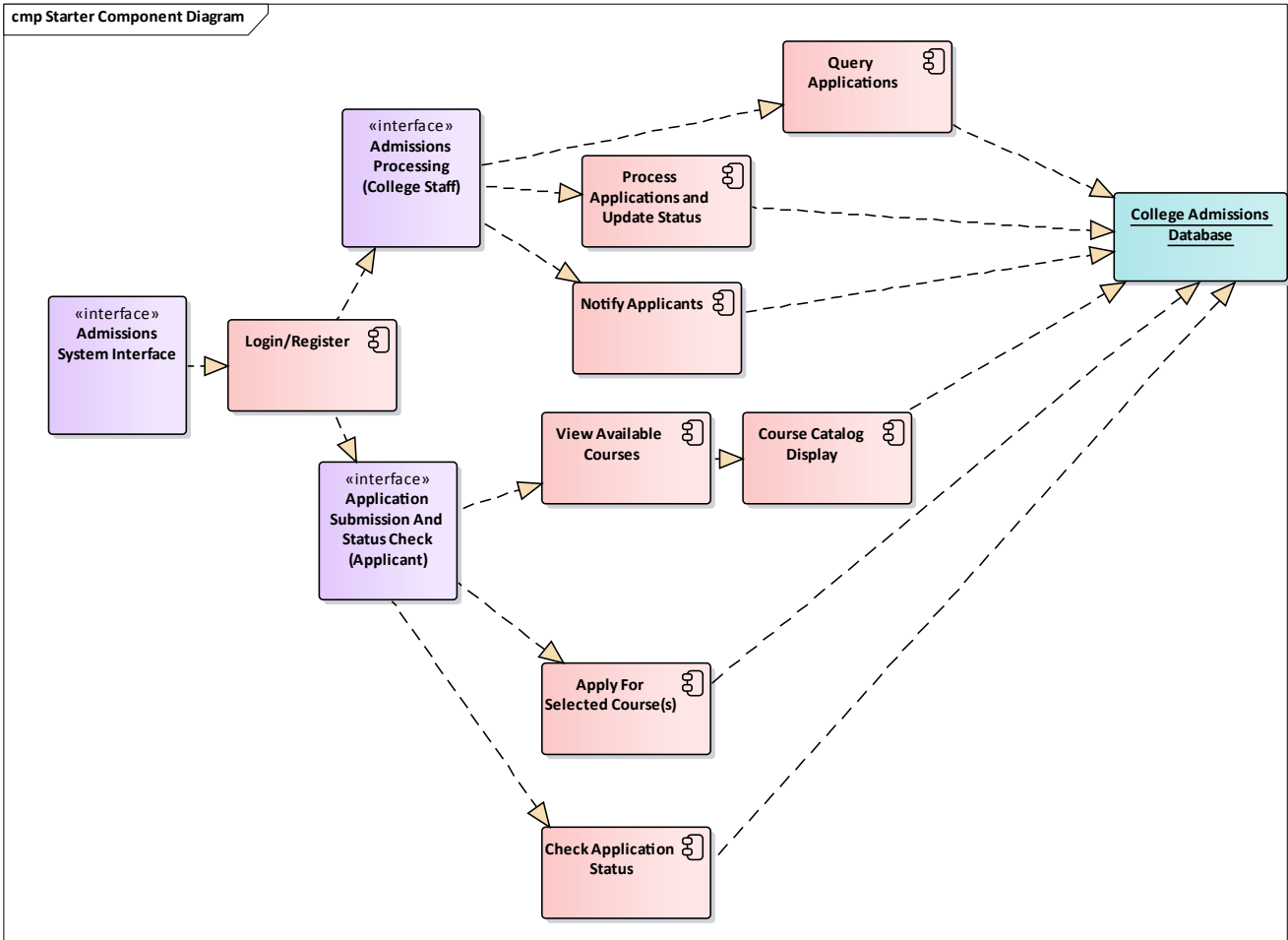
## **Note On Non-Functional Requirements.**

There will be use of AWS serverless services in particular AWS Lambda, AWS Fargate, Amazon S3 for data storage, and Amazon Aurora Serverless for hosting MySQL Databases to address the following non-functional requirements:

- Cost effective and scalable live deployment of the application to meet seasonal requirements e.g. for storage and processing power which are expected to fluctuate depending on time of the academic year.
- System Availability(99.999 %)
- Reliability and Resilience.
- Security in line with International Standards and Norms.

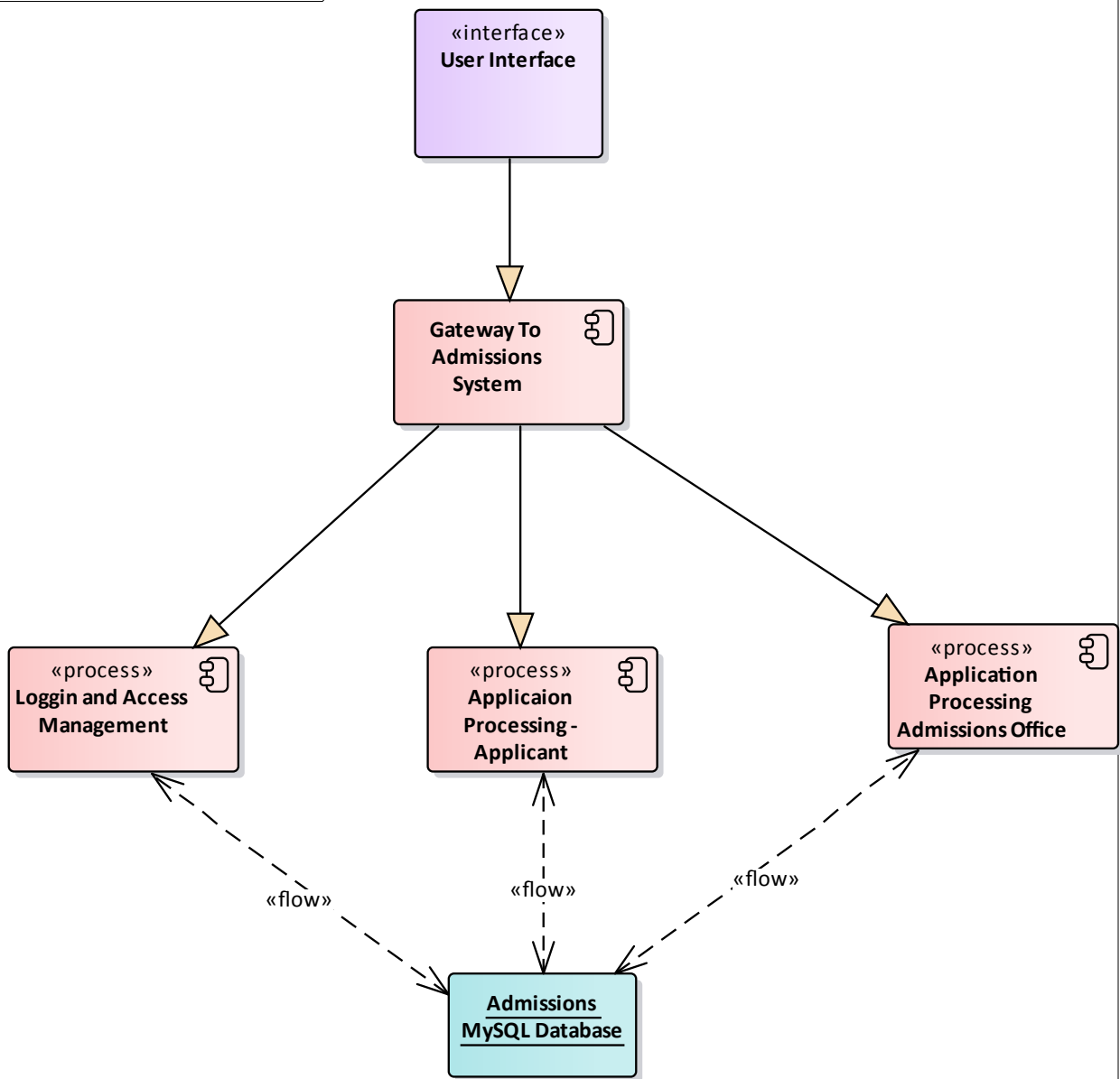


# College Enrolment System: Starter / Concept Component Diagram

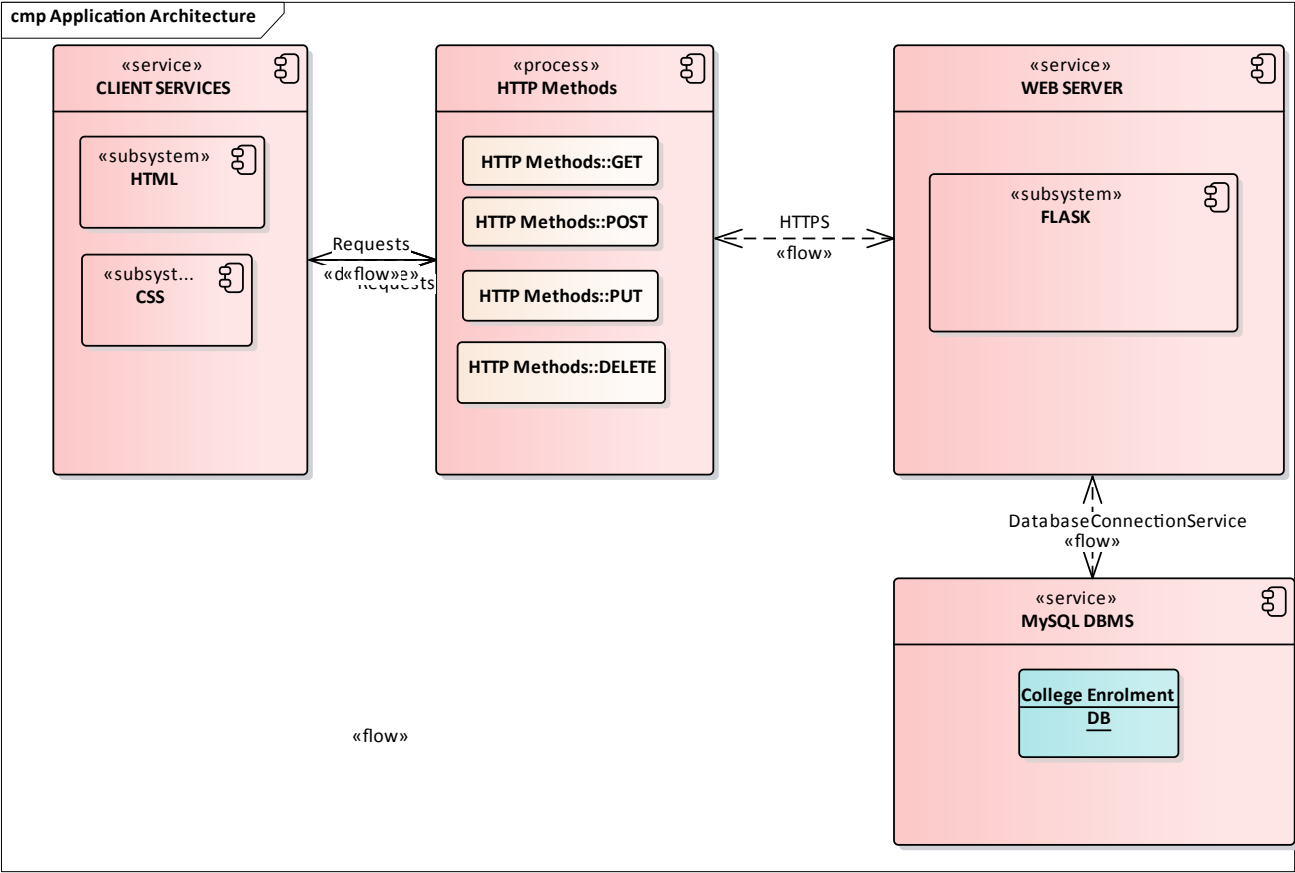


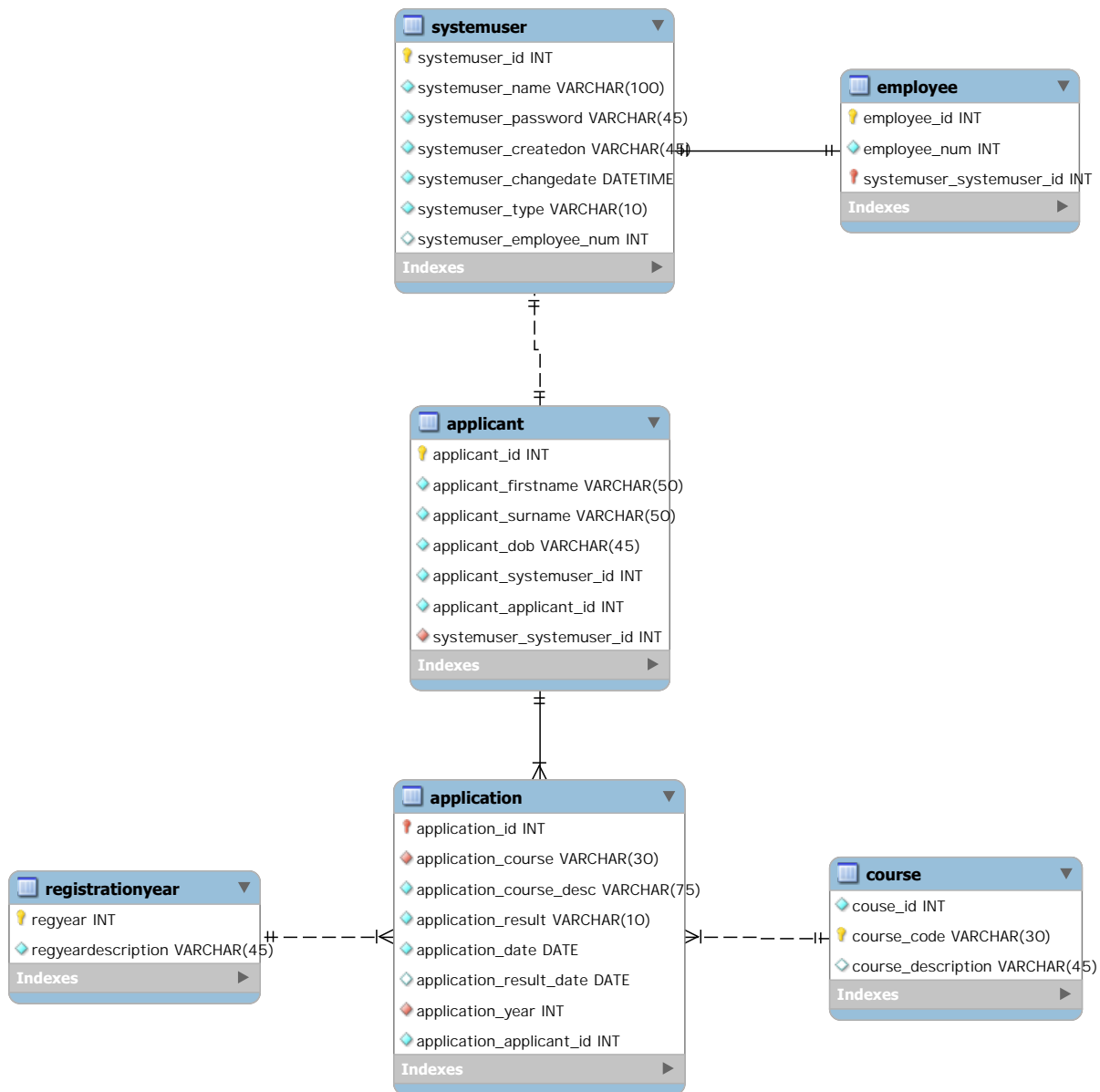
## College Enrolment System: System Architecture

### cmp Admissions System Architecture



COLLEGE ENROLMENT SYSTEM: Application Architecture With The Flask Framework





Welcome to the College Student Admissions System