## Chapter 2

## ANALYSIS PHASE

### A. Requirement Analysis

On 2015, K - 12 system has been added to our education system. We can call this as a new trend or main component of change in our educational system. With this, curriculum is not the only thing that felt the changes, but also the students. Students are affected on these changes because we are accustomed to only have 10-year educational system.

The proponents started to analyze the requirements gathered from the interview with the respondents. Before the proponents start to design the Mobile Application for the students of Columban College, the proponents first did their own collection and gathering of data. The proponents went to the High school's principal's office to conduct an interview to the principal personally. Interview is one of the primary sources in data collection. It is one of the effective way in gathering information may it be verbal or non-verbal communications. As the proponents conduct their interview, the proponents asked different questions that they need to start designing the system such as the current system of the Columban College High School Department, the problem with the existing system and what specific features they are expecting to the proponent's proposed system.

Also, part of the analysis of the requirements is gathering related information from different researchers. Using books written and compiled by the other researchers is a secondary source of data collection. The proponents also did their own research by reading the past thesis works of the students of the College of Computer Studies, Columban College that is related to their proposed system to gather more information about their system.

**Summary of the Complete Requirements for the Proposed System:**

Following is a summary of the list of complete requirements defined for the "**STRACK: Track and Strand Identifier, a Cross-Platform Mobile Application System**":

1. The **student** will able to login to the system and take the examination with ease and get result after they take the exam.
2. The **student** should be provided a user-friendly interface and comprehensive logical flow of pages which consists **of menu, login, register, home, admin, test, reset and result.**
3. **Students** should use their registered email address or Facebook account and their password when logging into the system.
4. Design an examination form consisting of multiple choice and sets of questions that will analyze the student's interest and strengths.
5. When a student submits his/her answers to the questionnaire, the result will be displayed immediately and will be sent to admin page for viewing of the results.
6. **Reports** should be organized by student's name, student ID and the result of their examination.
7. The result of the examination will help the student decide which is the best strand or track him or she belongs to or they should take.
8. The **admin** will able to login to the system by the uid provided for the administrators.
9. Student profiles/assessments and **examination records** will be viewed and organized by the admin.
10. Examination **results** will be reflected to the administrators account.

**System Design and Implementation**

**1. Detailed Architecture of the System**

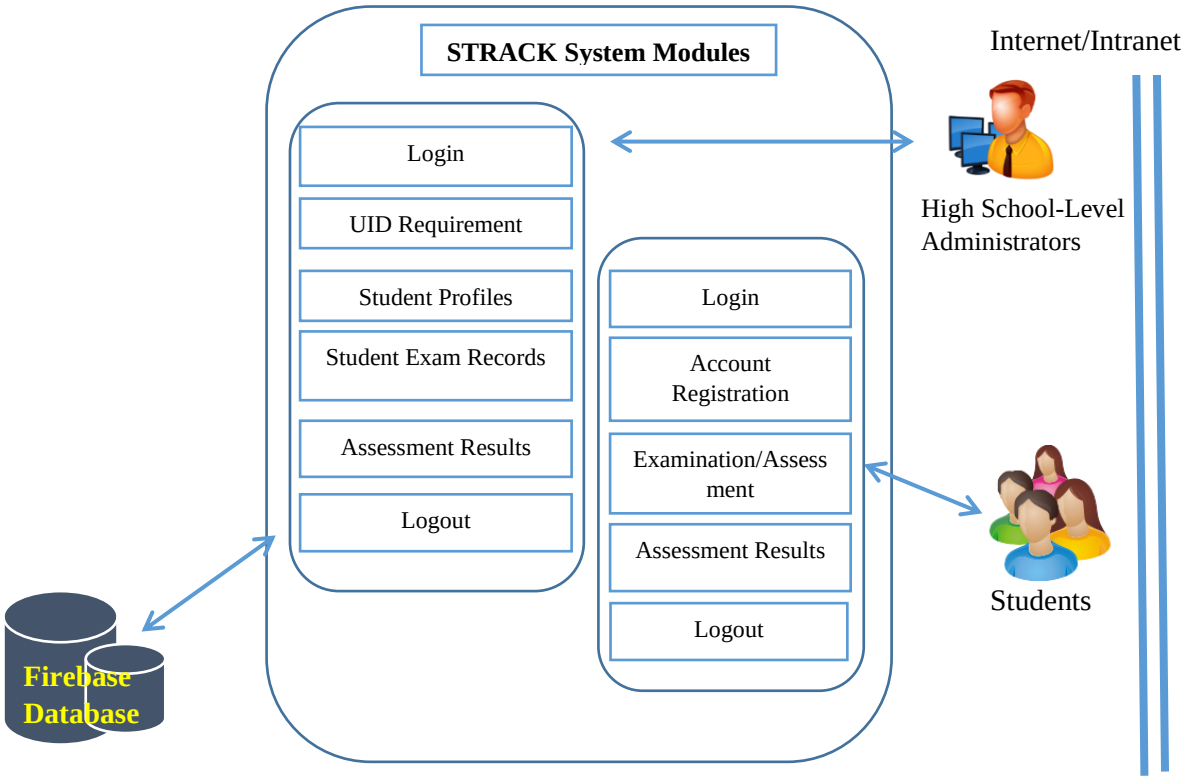


**Figure 2.1**
**Detailed Architecture of STRACK**

The first system process interface is a mobile application approached system. The administrator should log on first in the system using his/her username and password. When the administrator had log on, he/she will be directed in the Account Users page. The system will consists three significant modules: The Account Users – the administrator can add and edit user/s; The Student Profiles – the administrator can add and edit and can also view the result of the assessment; The Result Records – the administrator can add, edit, delete and search disciplinary record/s; The Student Organizations – the administrator can view and check the stats and record/s. All the information that enters the system will be saved in the database of the system. The mobile application can be access by the students of the Columban College by the use if the internet. The students can be able to check the result after they take the assessment.

**UML Class Diagram**

The UML Class Diagram represents the static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects of the system.

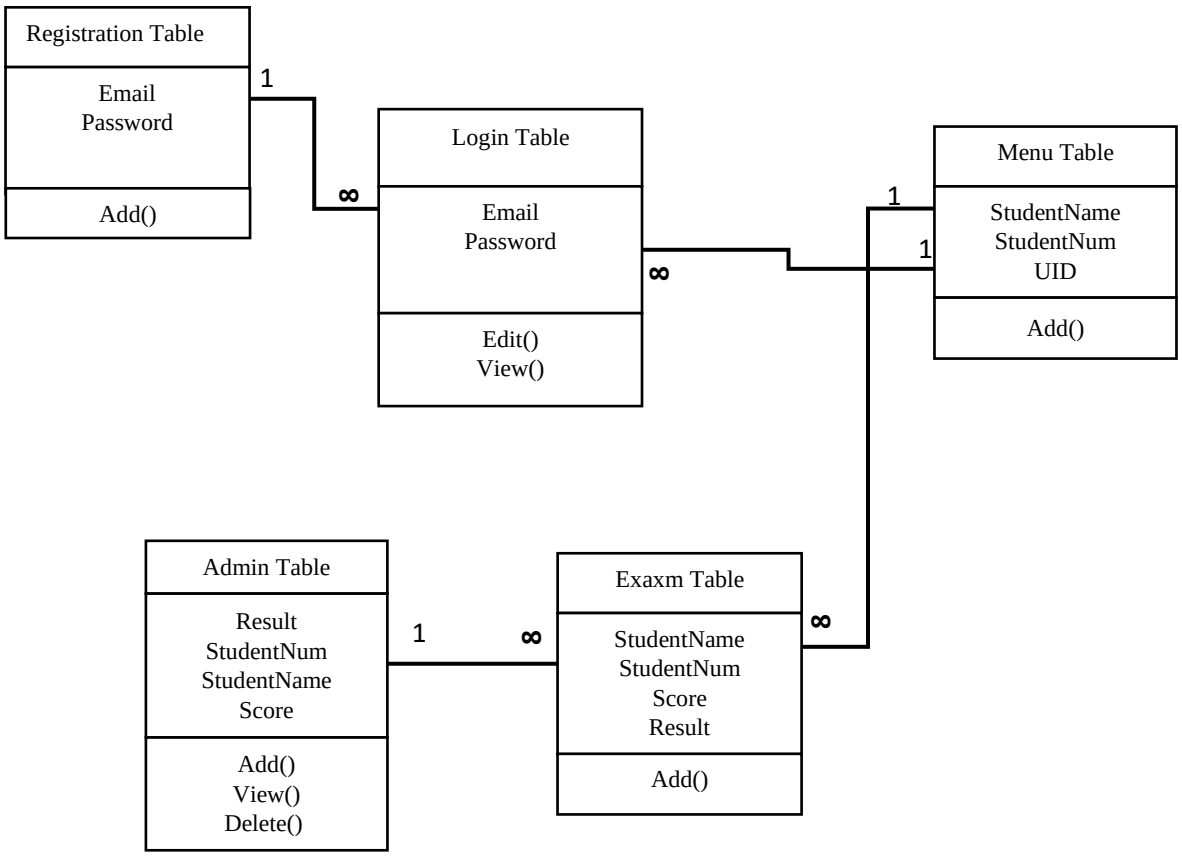


**Figure 2.2**
**STRACK UML Diagram**

## 2. Data Dictionary

A data dictionary is a collection of descriptions of the data objects or items in a data model for the benefit of programmers and others who need to refer to them.

| Field | Type | Size | Attributes | Null | Default |
|---|---|---|---|---|---|
| **Email** | String | 20 | | No | None |
| **Password** | String | 20 | | No | None |

**Login Authentication Table**

| Field | Type | Size | Attributes | Null | Default |
|---|---|---|---|---|---|
| **snum** | String | 20 | | No | None |
| **name** | Var | 50 | | No | None |
| **uid** | Int | 20 | | No | None |

**Menu Information Table**

| Field | Type | Size | Attributes | Null | Default |
|---|---|---|---|---|---|
| **score** | Var | 10 | | No | None |
| **snum** | Stirng | 10 | | No | None |
| **sname** | Var | 10 | | No | None |
| **result** | Var | 10 | | No | None |

**Examination Table**

| Field | Type | Size | Attributes | Null | Default |
|---|---|---|---|---|---|
| **StudentNum** | String | 20 | | No | None |
| **StudentName** | String | 50 | | No | None |
| **Score** | Var | 20 | | No | None |
| **Result** | String | 20 | | No | None |

**Administrator Table**

| Field | Type | Size | Attributes | Null | Default |
|---|---|---|---|---|---|
| **Email** | String | 20 | | No | None |
| **Password** | String | 20 | | No | None |

**Registration Table**

**Use Case Diagram**

According to Wikipedia, a use case diagram is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

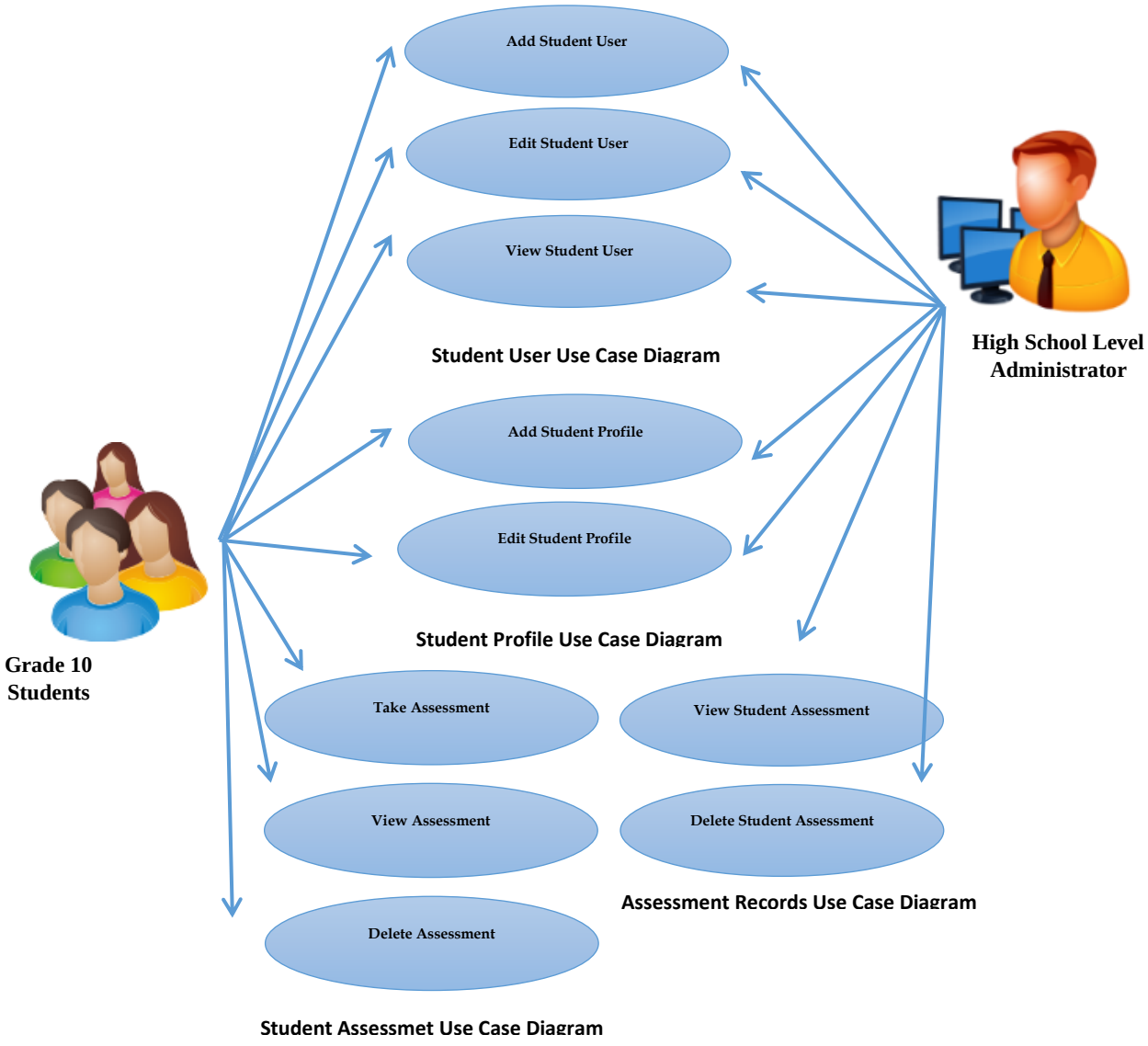


**Figure 2.3**
**STRACK Use Case Diagram**

2.1 Use Case Diagram Description

| | |
|---|---|
| Use Case ID: | 001 |
| Use Case Name: | Add User |
| Actors: | Grade 10 Students |
| Description: | The process allows the Grade 10 Students to add new user's information in the database. |
| Pre-Conditions: | The new user doesn't exist in the database. |
| Post-Conditions: | The system will save the new user information and allow the student to view and update it. |
| Normal Flow: | Student will enter the profile information. |

**Table 1: Add User**

| | |
|---|---|
| Use Case ID: | 002 |
| Use Case Name: | Edit User |
| Actors: | Grade 10 Students, High School Level Administrator |
| Description: | The process allows the Grade 10 Students and the Administrator to edit user's information in the database. |
| Pre-Conditions: | The user exists in the database. |
| Post-Conditions: | The system will save the new information of the user. |
| Normal Flow: | 1. The student and admin will edit the information of the certain user.<br>2. The student and admin will save the changes made. |

**Table 2: Edit User**

| | |
|---|---|
| Use Case ID: | 003 |
| Use Case Name: | View User |
| Actors: | Grade 10 Students, High School Level Administrator |
| Description: | The process allows the Grade 10 Students and High School Level Administrator to view user's information in the database. |
| Pre-Conditions: | The user exists in the database. |
| Post-Conditions: | The system will view the user's information. |
| Normal Flow: | The student and administrator will select the certain user by clicking the view button. |

**Table 3: View User**

| | |
|---|---|
| Use Case ID: | 004 |
| Use Case Name: | Add Student Profile |
| Actors: | Grade 10 Students, High School Level Administrator |
| Description: | The process allows the Grade 10 Students and the High School Level Administrator to add new student information in the database. |
| Pre-Conditions: | The student profile exists in the database. |
| Post-Conditions: | The system will save the new student information and allow the student and the administrator to view and update it. |
| Normal Flow: | Student and Administrator will enter the details of the student profile. |

**Table 4: Add Student Information**

| | |
|---|---|
| Use Case ID: | 005 |
| Use Case Name: | Edit Student Profile |
| Actors: | Grade 10 Students, High School Level Administrator |
| Description: | The process allows the Grade 10 Students and High School Level Administrator to edit student information in the database. |
| Pre-Conditions: | The student profile exists in the database. |
| Post-Conditions: | The system will save the new information of the student. |
| Normal Flow: | 1. The student and administrator will edit the information of the profile.<br>2. The student and administrator will save the changes made. |

**Table 5: Edit Student Information**

| | |
|---|---|
| Use Case ID: | 006 |
| Use Case Name: | View Student Assessment Record |
| Actors: | High School Level Administrator |
| Description: | The process allows the Director of the Student Affairs to view the assessment records of a certain student. |
| Pre-Conditions: | The student exists in the database. |
| Post-Conditions: | The system will display the result and can be able to print it. |
| Normal Flow: | 1. The administrator will select one student in the list.<br>2. The system will direct the administrator in the page of the student's assessment records. |

**Table 6: View Student Assessment Record**

| | |
|---|---|
| Use Case ID: | 007 |
| Use Case Name: | Delete Student Assessment Record |
| Actors: | High School Level Administrator |
| Description: | The process allows the Director of the Student Affairs to delete certain student assessment record in the database. |
| Post-Conditions: | The system will save the new assessment record information and allow the administrator to view and update it. |
| Normal Flow: | Administrator will delete the student assessment record. |

**Table 7: Delete Student Assessment Record**

| | |
|---|---|
| Use Case ID: | 008 |
| Use Case Name: | Take Assessment |
| Actors: | Grade 10 Students |
| Description: | The process allows the Grade 10 Students to take the examination; questionnaires are from the database. |
| Pre-Conditions: | Student Assessment records does not exist in the database. |
| Post-Conditions: | The system will save the assessment taken and compute the assessment results. |
| Normal Flow: | Grade 10 Students will check the questionnaires given and submit the answers. |

**Table 8: Take Assessment**

| | |
|---|---|
| Use Case ID: | 009 |
| Use Case Name: | View Assessment |
| Actors: | Grade 10 Students |
| Description: | The process allows the Grade 10 Students to view their assessment answers and results. |
| Pre-Conditions: | Student Assessment records exist in the database. |
| Post-Conditions: | The system will view or print the assessment results. |
| Normal Flow: | The student will click the button for the evaluation of the assessment and may print the record. |

**Table 9: View Assessment**

| | |
|---|---|
| Use Case ID: | 010 |
| Use Case Name: | Delete Assessment |
| Actors: | Grade 10 Students |
| Description: | The process allows the Grade 10 Students to delete the assessment taken in the database. |
| Pre-Conditions: | Student Assessment records exist in the database. |
| Post-Conditions: | The system will delete the student assessment record. |
| Normal Flow: | The student will delete the certain record by clicking the delete button. |

**Table 10: Delete Assessment**