



# COLUMBAN COLLEGE

Olongapo City

## College of Computer Studies



### Chapter 3

#### DESIGN PHASE

##### System Overview

The mobile application of the STRACK can be accessed by the students of the Columban College with the use of the Internet. It will help the incoming senior high students to choose what is the best strand and track for them. By answering sets of questions, student will be guided on the best track they should take for them to have a better future and career. This are composed of different arithmetic and general knowledge questions to test the capabilities of the students. The best strand or track suited for the student will be computed based on the score that they will get upon taking the exam and that score will be converted into percentage.

##### System Functions/Modules

The system process interface of the STRACK has four different modules which are as follows:

**The Account Users:** The account users are the information of the person who can access and used the input system.

**The Student Profiles:** The Student Profiles is about the information of the students of Columban College. The student can add their own information like their student ID number and name.

**The Examination:** The Examination is about the sets of questions that is composed of sets of arithmetic and general knowledge questions that will help determine and guide the students to better choose the best strand for them.

**The Results:** The Records will be for the student's examination results. The administrator can view the result to guide the student on choosing which strand or track to choose.



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### **System Development Methodology**

#### **SYSTEM DEVELOPMENT LIFE CYCLE**

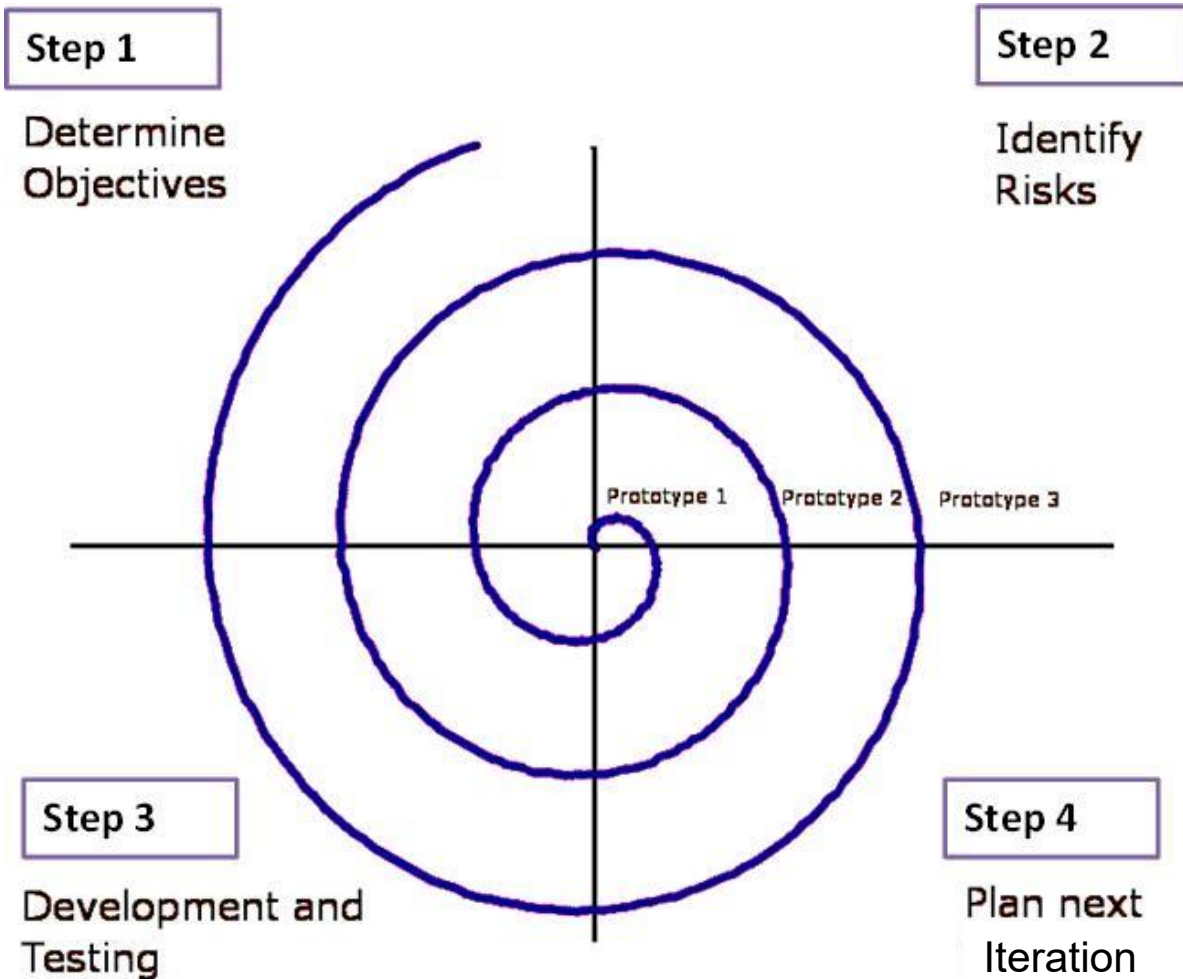
According to TechTarget, the System Development Life Cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project, from an initial feasibility study through maintenance of the completed application.

In order to create the proposed system successfully, the proponents use a system development life cycle model to serve as a guide on the phases of the system development they must undergo. The proponents carefully choose a model that will help them organize the appropriate tasks that need to be carried out to construct the proposed system in the best possible way. The Spiral Life Cycle Model was chosen by the proponents which suits to their proposed system.

According to Wikipedia, spiral model is a risk-driven process model generator for software projects. Based on the unique risk patterns of a given project, the spiral model guides a team to adopt elements of one or more process models, such as incremental, waterfall, or evolutionary prototyping.



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**Figure 3.1**  
**Spiral Life Cycle Model**



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**Determine Objectives.** To develop a system, it is a requirement to identify the purpose and objectives of the system. To determine the purpose and objectives of the system, the proponents need to identify the client's need and requirement.

In this phase, the proponents conducted an interview with the respondents to identify the problem and what they want to happen in the proposed system. It is a great helped in determining the detailed problems and client's requirements regarding the proposed system.

**Identify Risks.** In this phase, the technical and management risks are assessed. The proponents identify the possible problems that could be encounter in the design and development of the proposed system.

**Development and Testing.** In this phase, the proponents will build representations and construct actual system. They must also provide user support such as documentation.

The proponents must have computer technology knowledge and programming expertise to be able to develop the proposed system successfully.

**Plan Next Iteration.** In this phase, iterating or repeating certain action, phases or process will be planned until the condition is met or yields desired result.

### **Justification of the Model Used**

The Spiral Life Cycle Model was chosen by the proponents as a guide for the development of the software. The proponents choose the said model because for them it is the best tool that will help them develop the proposed system properly and systematically.

The proponents used the primary source in data collection which is interviewing the respondent's to identify the client's needs and requirements. The proponents need a System Development Life Cycle (SDLC) Model that has been explicitly designed to accommodate a system that evolves over the time. The proponents identify that the preliminary ideas for the proposed system is not fixed. The proponents take that along the development and design of the proposed system, new ideas may come up to make the proposed system much better in which additional features can be added upon the completion of the preliminary concept.



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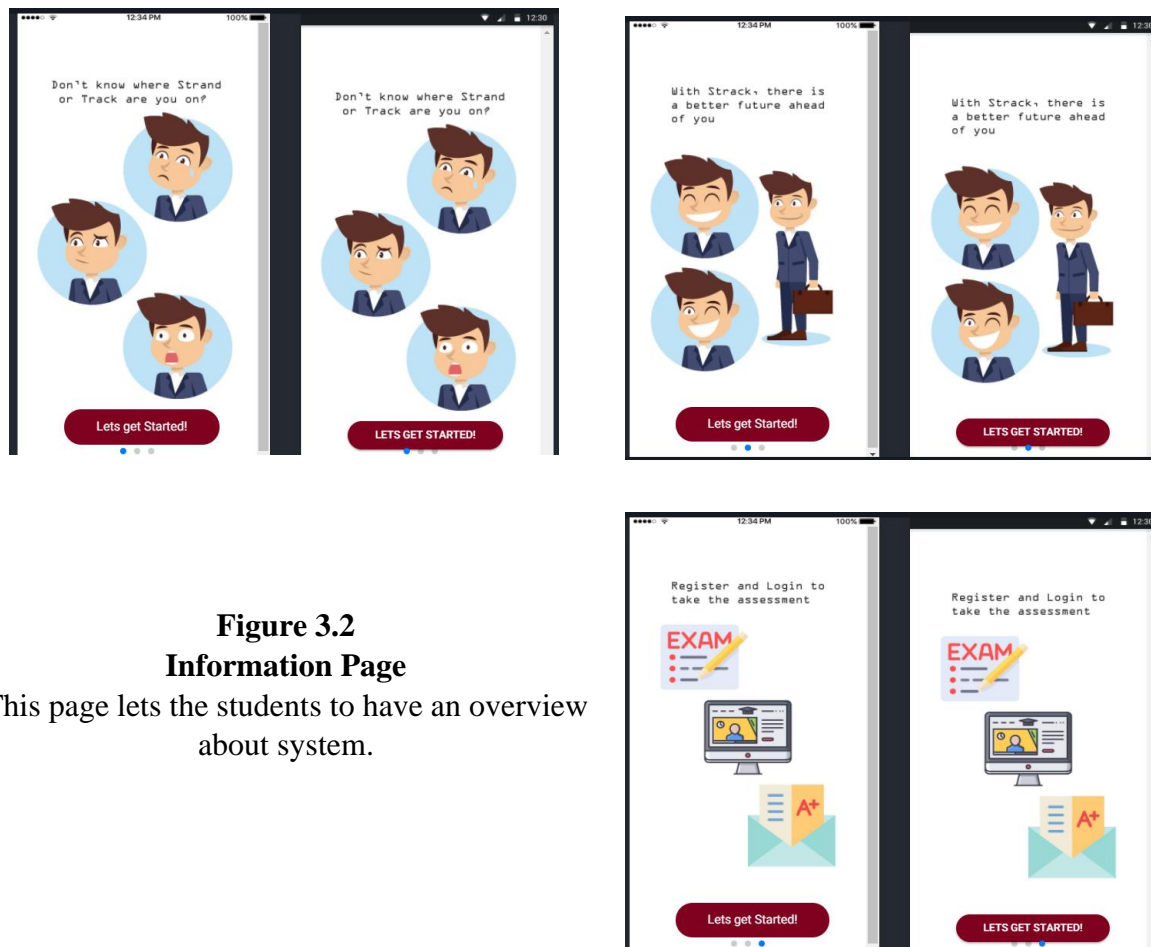
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The Spiral Life Cycle Model links the iterative nature of prototyping. A preliminary design is created for the proposed system. The first prototype of the proposed system is constructed from the preliminary design. The second prototype evolved from evaluating the first prototype in terms of its strengths, weaknesses, and risks, defining the requirements of the second prototype, planning and designing the second prototype, constructing and testing the second prototype. Another prototype would be developed if the condition is met or yields results successively closer to the desired result. During early iterations, the preliminary design release might be a prototype. During later iterations, increasingly more complete version of the proposed system is produced.

## User Interface Design

### System Input



**Figure 3.2**  
**Information Page**

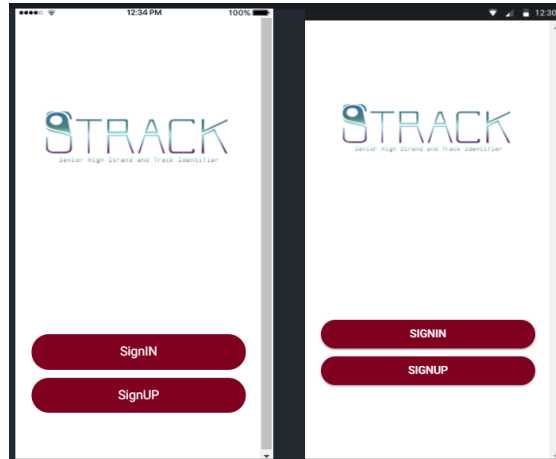
This page lets the students to have an overview about system.



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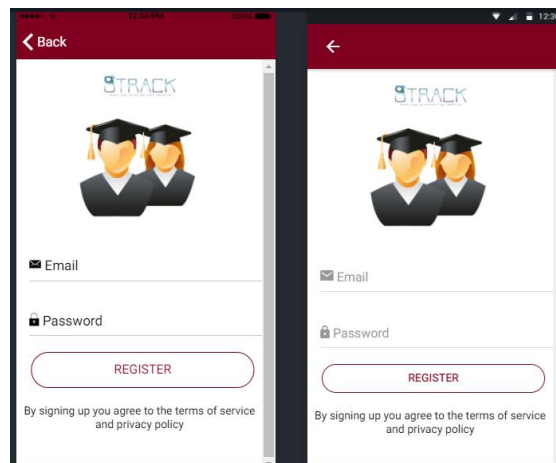
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**Figure 3.3**

### Home Page

This page lets the user to sign in with their email and password.



**Figure 3.4**

### Sign Up

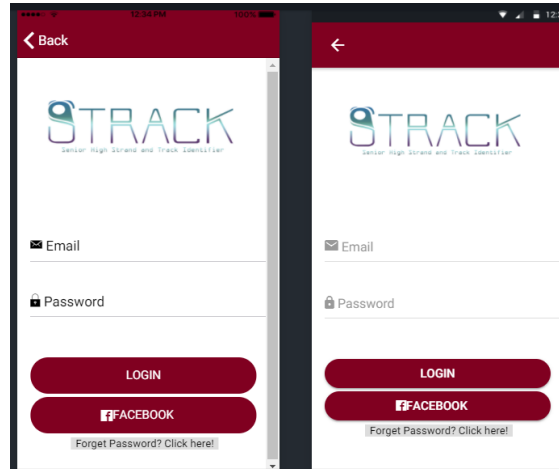
This page let the students to register via email to start the system.



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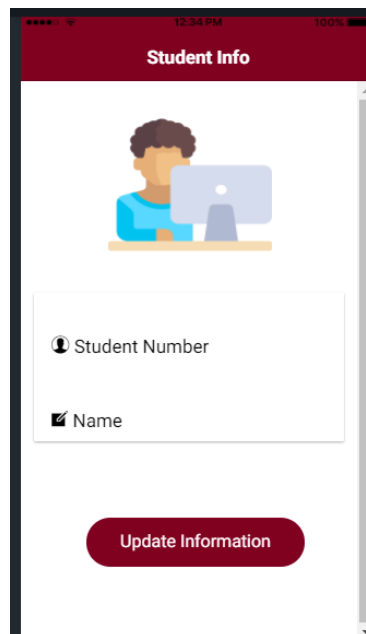
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**Figure 3.5**  
**Login**

This page let the students to enter their registered email and password to start the system.



**Figure 3.6**  
**Student Page**

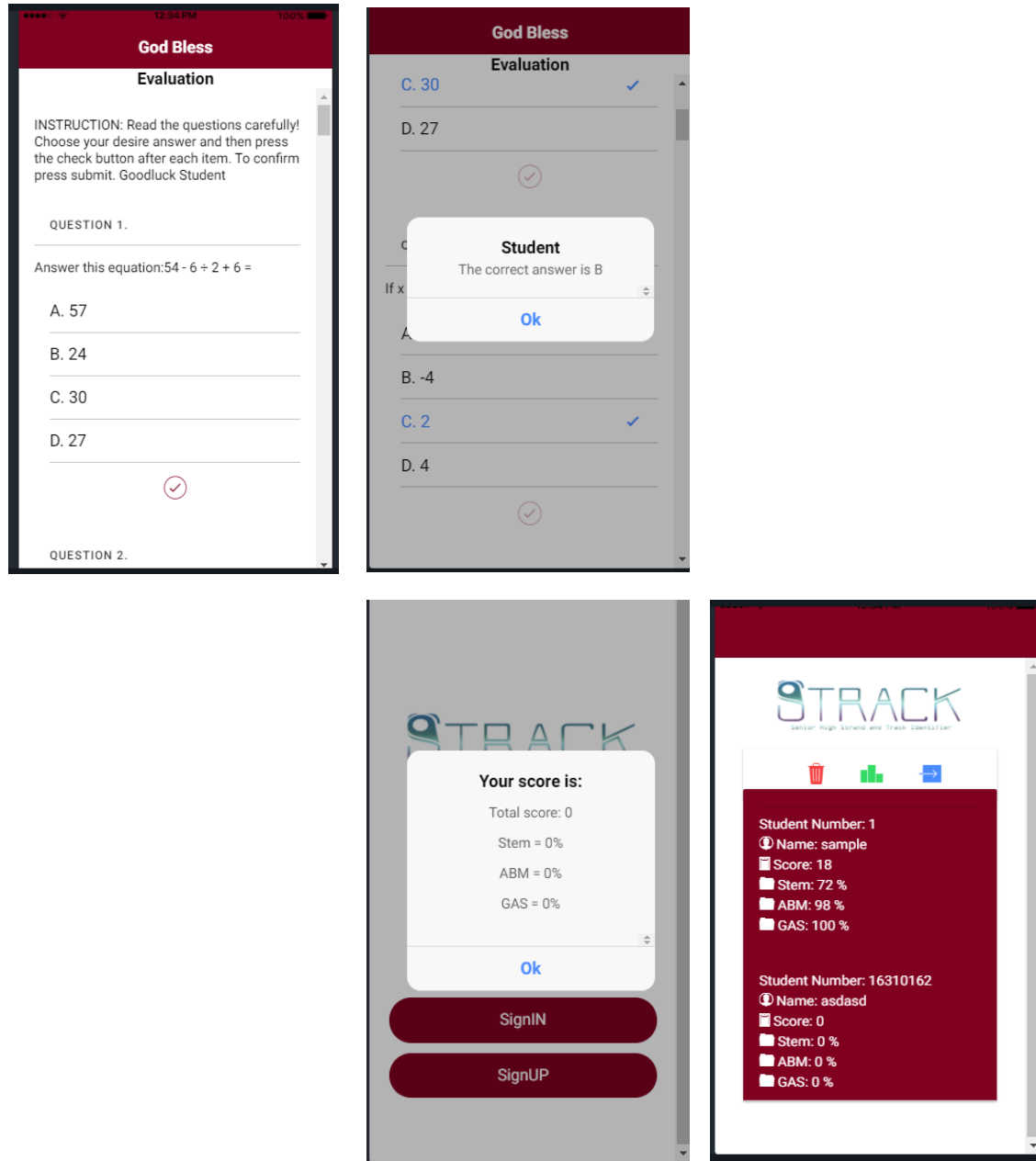
This page let the students view and update their information.





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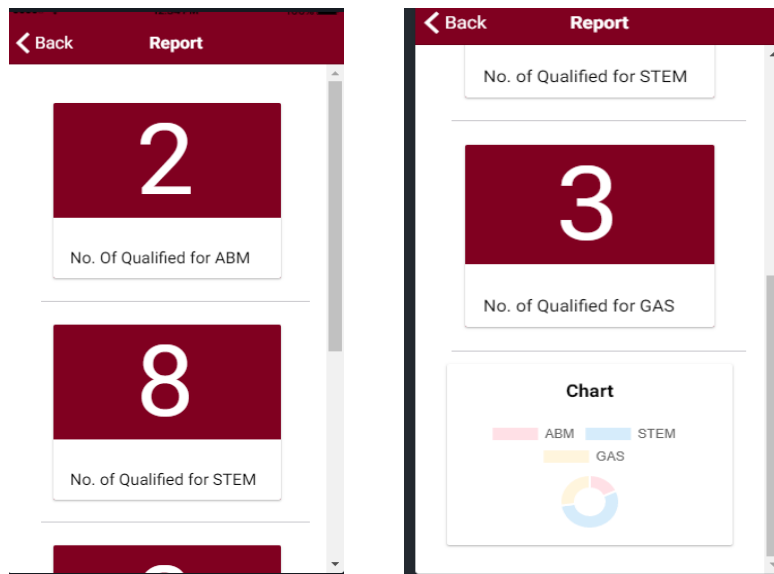
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**Figure 3.7**  
**Evaluation**

This page let the students view results and answer the assessments.





**Figure 3.8**  
**Admin Page**

This page let the administrators view the reports and student's exam results.

### **Feasibility of the Study**

According to the businessdictionary.com, Feasibility Study is an analysis and evaluation of a proposed project to determine if it (1) is technically feasible, (2) is feasible within the estimated cost, and (3) will be profitable.

### **Technical Feasibility**

In this study, it is the evaluation of the hardware and software and how it meets the need of the proposed system. According to Wikipedia, the technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system.

#### **Technical Feasibility – Hardware**

From the point of view of hardware the proposed system entitled STRACK can be implemented by the following Hardware requirements.



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**Table 1**

Hardware	Minimum Requirements	Recommended
RAM	4GB	10TB
Storage	8GB/16GB(with microSD)	32GB/64GB(with microSD)
Phone screen size	4.6 Inch	5.5 Inch
Phone Resolution	1024 x 768	1440 x 2560
CPU		Snapdragon 820/Exynos 8890

**Hardware Specification**

The hardware requirements is the required specifications to be able the user to use the proposed system. The stated requirements are available to the market but the requirements are just a basis for the user, they can use any specifications higher than the stated requirements.

**Technical Feasibility – Software**

From the Point of view of software the proposed system entitled “STRACK: Strand and Track Identifier Mobile Application System” can be implemented by the following software requirements.

**Table 2**  
**Software Specification**

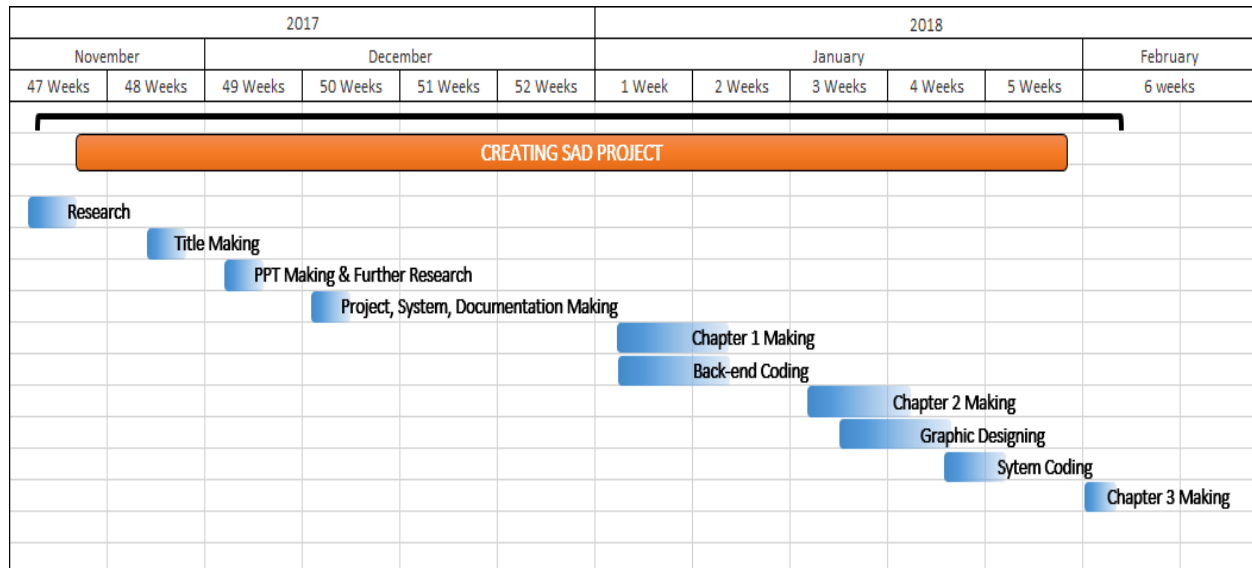
	Minimum Requirements	Recommended
Operating System	Android version 4.4.4	Android Version 5.0.0 or higher
	Apple IOS 7	Apple IOS 8 or higher
Development Language	HTML,CSS, AngularJS, Typescript, Ionic, NodesJS, JSON	
Web Development Tool	Visual Studio Code, Sublime	
Database	Firebase	



The software requirements is the required specifications to be able the user to use the proposed system. The stated requirements are available to the market and some are downloadable over the web but the requirements are just a basis for the user, they can use any specifications higher than the stated requirements.

### Scheduling Feasibility

Schedule feasibility is a measure of how reasonable the project timetable is. Typically this means estimating how long the system will take to develop, and if it can be completed in a given time period using some methods like payback period. Creating and developing a system is not easy. It requires time management in creating the title proposals, data gathering, system designing, system development and the testing of the proposed system. The Gantt chart in figure 6 illustrates the start and finish dates of the terminal and summary elements of a proposed system entitled “STRACK: Strand and Track Identifier Mobile Application System”



**Figure 3.6**  
**Gantt Chart**



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### **Economic Feasibility**

The economic feasibility is the main things to think when it comes to a project. Even companies want to adapt in the evolvement of the technology, the costs of it is the problem.

In the proposed system, given the scenario that they will need to purchase the requirements cited in Table 4.0, they will need to prepare a budget at least Php 43,000.00.

	<b>Specification</b>	<b>Estimated Costs</b>
Samsung J1 or any android phone with	Intel Atom® Processor Z2520 1.2 GHz, or faster processor	Php 4,500
Operating System	Android 4.4.4	Comes with phone
<b>TOTAL</b>		<b>Php 4,500</b>

**Table 3**  
**Specification Estimated Costs**

The Intangible Benefits for the Senior High school Administration in implementing the Strack are the following;

- The process of sorting the students into different tracks or strand will be easier.
- It can help them to guide the students on which strand they should choose.
- It would lessen the time in processing, checking and recording the results of exam of the students.

**Table 4**  
**Intangible Benefits**



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### **Operational Feasibility**

In this study, the proponents measure how well the proposed system entitled Strack solves the problems and take the advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development.

The first question we need to answer is that there is a sufficient support for the project from management? And the researcher's answer for that is yes, there is a management support for the proposed system, they are the one who set the user requirements for the improvements of their current system.

In terms of the user acceptability, the proposed system is easy to manage and operate, because of its user-friendliness, mobile application that is common in today's generation, and of course the users are equipped with the knowledge of the modern technology.

Since the proposed system really benefits the organization and overcome the problems encountered in the existing system and answer all the user requirements of the Student Affairs Office, now therefore the proposed system was considered to be operationally feasible.