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## I. Introduction / Overview

I embarked on this project with the aim of supporting my college friends who are considering their studies with part-time jobs. Many of them are tutors who often have difficulty managing their students' schedules and grades effectively. To ease their burden, I decided to develop a solution that would simplify the process for them. My goal was to create an application that would allow them to easily store class schedules, track student scores, and ultimately improve their overall productivity. By working on this project, I aim to provide them with a reliable tool to help streamline their responsibilities and help them succeed both academically and professionally.

A student management system (SMS) is a software application used by educational institutions to manage various aspects of student information, attendance, grades, etc. It simplifies tutors' tasks and improves efficiency in handling student-related processes. This system typically includes features such as student enrollment and registration, attendance tracking, grade management, planning, communication tools, and reporting capabilities. It helps streamline workflows, enables better communication between tutors, students, and parents, and provides valuable data for analysis and decision-making. Overall, student management systems play an important role in effectively managing and organizing student information in an educational institution.

The student management system will help tutors grasp the student's learning situation more easily and it will help parents get an overall view of activities, assignments, attendance and results. your child's learning in class. It also means that communication between parents and tutors becomes easier and more convenient because all can access a single source of accurate information about student performance.

To complete this project, I learned about some suitable technologies to develop my application that are popular in the current mechanism. First is the Framework: Some popular cross-platform frameworks are React Native, Flutter, Ionic, Xamarin. The second is languages such as Swift or Objective-C for iOS, Java or Kotlin for Android, and JavaScript for the mobile app platforms that use them. Next about databases like mongoDB or Firebase, SQLite.

Firstly, some framework popular frameworks are: React Native is a framework that is very helpful in making mobile applications. Using JavaScript and React, React Native allows developers to create mobile apps for Android and iOS platforms with efficiently reusable code. Flutter is a very famous framework in making mobile applications made by Google. Using the Dart programming language, Flutter allows developers to create mobile apps for Android, iOS, and even desktop platforms with a natively rich user interface. Native (Java/Kotlin for Android, Swift/Objective-C for iOS) Mobile app development using Native programming languages, such as Java or Kotlin for Android, and Swift or Objective-C for iOS, provides full control over platform features and optimal performance.

Secondly, Java is a widely popular programming language that has been used for years in a variety of fields, such as game creation, desktop apps, mobile app development, and web development. Kotlin, on the other hand, is a relatively new programming language that has become more and more well-known in recent years. With a large community and a wealth of

libraries, Java has been around for a while. Kotlin, on the other hand, is a relatively new language that provides modern capabilities and a clear syntax, which appeals to developers as a replacement. Both Kotlin and Java are fantastic programming languages, yet they have some key distinctions. While Java is a more well-known language with a huge community and numerous libraries, Kotlin offers contemporary features and a clear syntax, which appeals to many developers.

Thirdly, Database is an indispensable thing in the project. Therefore, choosing a suitable database is very necessary. Firebase hosts the database, services, authentication, and integration for the application. SQLite is a compact, complete relational database system that can be installed inside other applications.

I have researched and found some of the following reasoning methodologies to be suitable for my project.

Agile methodology is a collaborative, adaptable system that emphasizes early delivery and process improvement. It has its roots in software development but is now widely used for non-software items including computers, cars, medical equipment, food, apparel, and music. Unlike waterfall project management, agile is quick and adaptable, making it ideal for initiatives with a tight deadline, like marketing.

The waterfall methodology is a linear project management approach that follows a downward flow of phases, requiring only successful completion of each phase. It employs Gantt charts for planning and scheduling and is best suited for highly organized industrial and construction projects.

### *Key phrases*

The Management Student System, framework, Database, Agile, The waterfall.

## II. Aim

I built this mobile application to help those who are working as tutors manage their schedules and students more easily. To complete this project, I had meetings with my tutor friends to ask what their needs were. Then I choose the features that everyone wants to build the application.

First I want to create an attractive user interface. The user interface must be attractive to users and easy to use. An easy-to-see user interface will make it easier for tutors, students and parents to use during the teaching process.

Second, I want to build the right features: Make sure the project has the features that tutors need, such as attendance, grade management, tuition collection,... Features that students need Needs such as paying tuition, submitting assignments, chatting with tutor, etc.

Finally, there is the issue of safety and privacy: personal information of each account must be protected. Strict security measures need to be taken to ensure that user data is kept safe.

### III. Objectives

#### 1. Requirement

##### 1.1 Activities

Collect and record all requests from application users such as tutors, students, parents. Learn about the app's functions, features, and goals. Focus on user interface and user experience.

##### 1.2 Deliverables

The requirements of the system to be developed are recorded.

#### 2. Design

##### 2.1 Activities

Create architecture, design databases, and define overall system structure. Design the necessary functions for both tutors and students to be easy to see and use.

##### 2.2 Deliverables

Describe in detail the application structure including the user interface and data structures in the application.

#### 3. Development

##### 3.1 Activities

Use technologies and tools to create the system.

##### 3.2 Deliverables

Accomplish the development version of the system.

#### 4. Testing

##### 4.1 Activities

Test the requirements, application functions and application security. Fix errors according to test results so that the system works well.

##### 4.2 Deliverables

The application works well before the user uses it.

#### 5. Deployment

##### 5.1 Activities

The application is ready to deploy once it has passed the testing stages.

##### 5.2 Deliverables

The application is installed and provided to the end user.

#### 6. Maintenance

##### 6.1 Activities

Continuous monitoring and maintenance during application use, including fixing bugs found in production environments and deploying updates.

##### 6.2 Deliverables

The system works smoothly. Best user experience

## IV. Legal, Social, Ethical and Professional

### 1. Legal

Legally, I realize there are some problems as follows. First is the safety of personal information of students and tutors. Tutors must respect and protect the personal data of each of their students and their own personal data. Because the General Data Protection Regulation (FERPA) is a set of rules governing the protection of personal data, including personally identifiable information, the use of personal data for business purposes, use personal data to identify individuals and use personal data for business purposes.

Second, classroom safety is one of the most important issues that every tutor must pay attention to. The classroom is committed to maintaining student safety, so tutors need to be familiar with classroom safety procedures according to relevant procedures and ensure students comply with those procedures. If laboratory components are involved, contact the Safety Coordinator for safety procedures.

Third, learning materials must have clear origins. When creating and copying each student's materials, each tutor needs to consider copyright compliance issues.

Finally, all students must receive equal priority. Tutors are expected to maintain professional interactions with students and apply the same standards and opportunities to all students, including those participating in special programs such as sports.

### 2. Social

In terms of society, I have researched and raised some issues as follows. First, students are treated unequally due to different ethnic groups or customs. Each tutor's students may each have different customs or ethnicities. Classification to evaluate according to customs or ethnic groups is very wrong. So, every student must receive fair treatment. Next is the issue of unfair treatment. It is unfair for tutors to discriminate against stronger students and not give priority to weaker students. and based on cultural affiliation and income level, all students should have equal access to an education. Finally, sexism. All students, male or female, have the same right to education. All tutors are not allowed to discriminate based on gender.

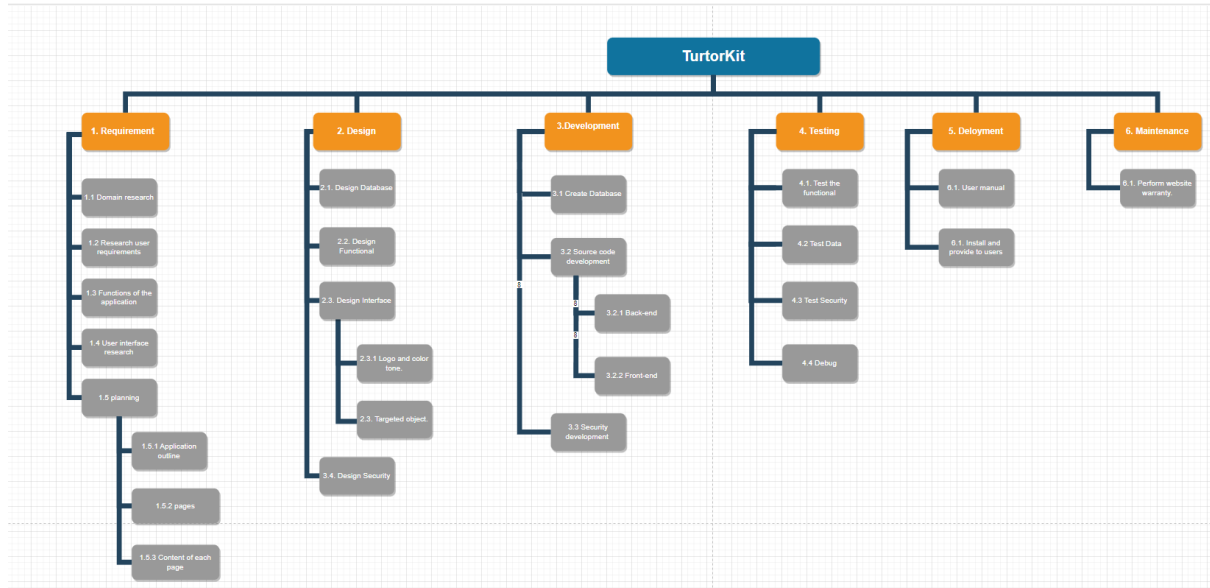
### 3. Ethical

I see a few ethical issues as follows. First are social and ethnic issues. Social and ethnic differences can leave some students behind. Therefore, each tutor needs to treat all his or her students equally. Second, prioritize certain students in the classroom. It should not happen that a tutor shows preferential treatment. A teacher may grade one student harshly while letting another student fail simply because they like that student more.

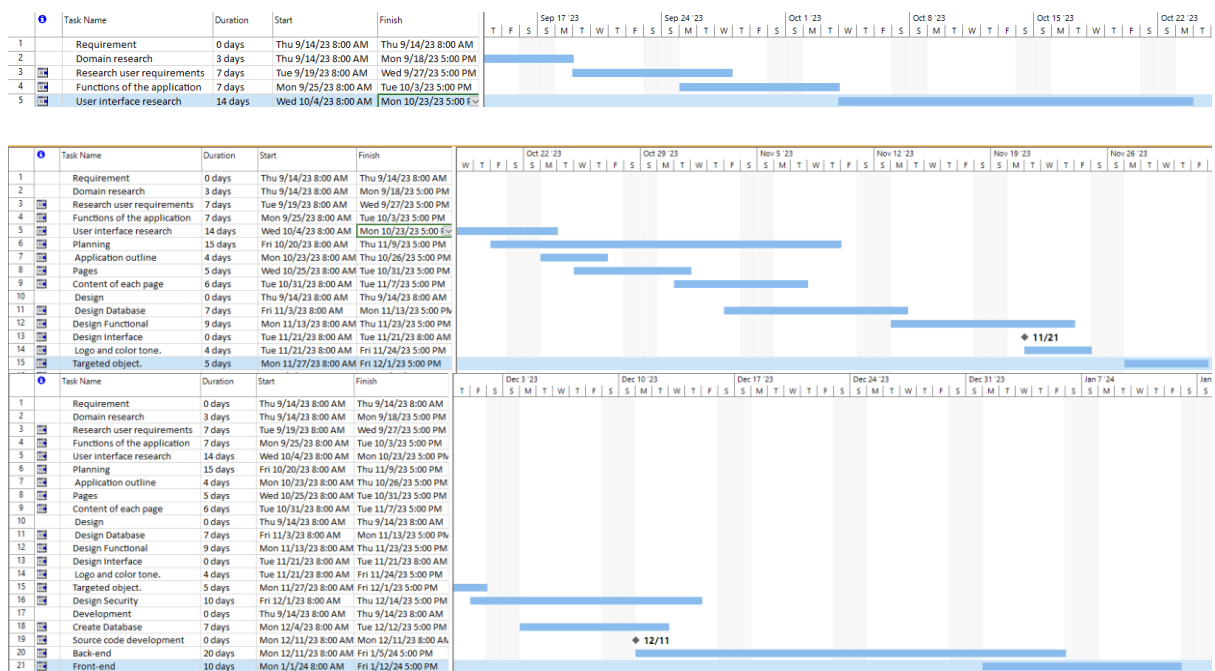
## 4. Professional

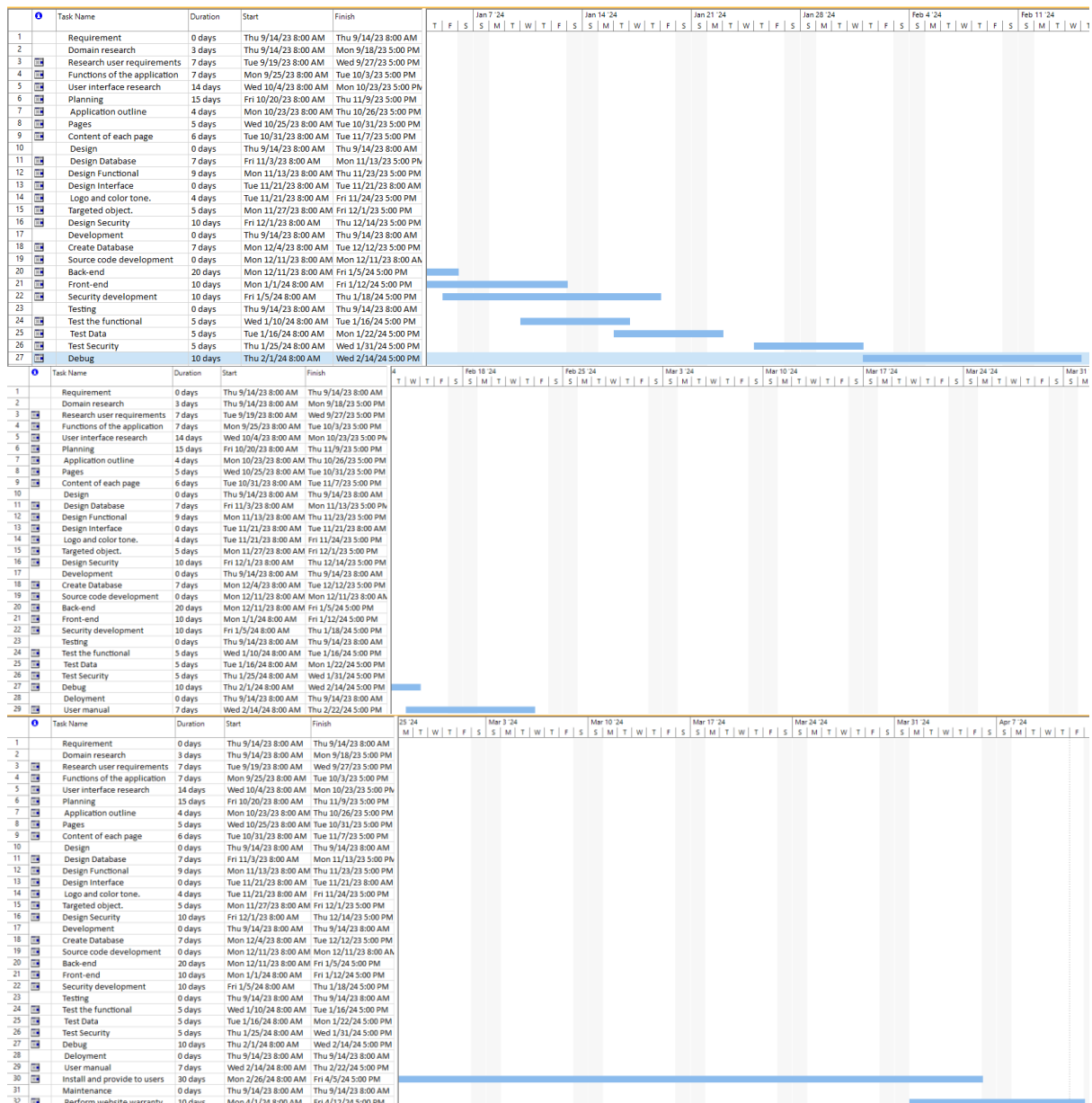
## 5. Plan

- WBS (Layer 0: Title of the project, Layer 1: Objectives, Layer 2: Activities)



- Gantt Chart





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