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PK Pak Tuition Centre Management System using Mobile Application

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Abstract: The PK Pak Tuition Centre Management System is a system which can use to manage the tuition centre in a computerized way. Nowadays, most of the tuition centre lacks a computerized management system for their tuition centre and still manages their tuition centre in a traditional way by using pen-paper and files based. Therefore, a computerized management system is needed to manage the tuition centre in a systematically way. The prototyping-based methodology is used as the methodology to develop this system. Besides, the development of the PK Pak Tuition Centre Management System will be done using Android Studio and Java programming language. Lastly, this proposed system will address the tuition centre's management problems by allowing administrators to manage the tuition centre more efficiently and reduce their workload and help them save more time and expenses in managing the centre.

Keywords: Tuition Centre, Tuition Centre Management System, Prototyping-Based Methodology, Android Studio, Java Programming Language

1. Introduction

Nowadays, the amount of registered tuition centres is twice the number registered ten years ago on the authority of industry analysts [1]. From this, we can know that the tutoring industry is very competitive. However, most of the tuition centres like PK Pak tuition centre are still managed conventionally. To design a tuition centre management system with significant usability and can fulfill its users' needs, Pak Phooi Kuen Sdn. Bhd. tuition centre is chosen as the target user. This project aims to develop a tuition centre management system using mobile application. The development will be conducted in the Android platform. This system is designed to provide a computerized management system for the tuition centre. There will be few main modules in the system which are user data management, timetable management, record payment, notification management, and admit tutor's account application modules. English will the main communication medium in this system. The target user of this mobile application will be the administrators, tutors, parents, and students of the tuition centre.

1.1 Problem Statement

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In PK Pak tuition centre, the student registration is conducted manually. If a student wants to register for a tuition class, they must directly go to the tuition centre and register by filling a form. This type of registration process may cause inconvenience for those parents who are busy working. Besides, the data of students is recorded in the traditional way (pen-paper and files). They are still using Microsoft Excel for keeping records or data of students. Therefore, the administrator may consume a lot of time in making the record of student data, subject registration, and to track student's fee payment status. Moreover, all updates on the information of tuition centre are carried out in manually. If there are any updates on the schedule or tuition fees, the administrator can only put on a notice paper in the tuition centre or inform the students by calling them one by one. And so, if the students have missed the call or the notice paper, they will attend in the wrong time, and it may cause inconvenience for them and waste their time.

1.2 Project Significance

The objectives of this project are to analyze and design a tuition centre management system using object-oriented structure, to develop a tuition centre management system based on mobile platform application, and to implement alpha and beta testing on the tuition centre management system to the target user. The system is designed to provide a better management system for the PK Pak tuition centre. All the modules provided in the system can bring more convenience and easy for the administrators, tutors, students, and parents. Especially the timetable management module, as it can allow administrators to list the subject provided in the tuition centre, tuition time for each subject and the tutors of the subject. Therefore, students and parents can look for the tuition lessons they need easily. Then, they can directly make a booking for the lesson. Besides, the data stored in this system is confidential and protected compared to keep data in paper and file by implementing the database feature. By using the database, the problem of data redundancy or duplicity can be reduced. Thus, creating a tuition centre management system using mobile application allows a transition from the previous management practice for the tuition centre to a computerized and systematic solution.

2. Related Works

2.1 Technology

In this technology era, mobile applications' use and production is a new field that is rapidly growing. Thus, the proposed system will be developed as a native mobile application that can developed using individual native languages such as Java, C, C++, and Python [2]. It does not support cross-platform development as it only targets for a specific platform which is Android. Android is a Linux-based operating system [3]. The Android programming code is easy to understand, and it is available for application development which is looking to develop a smartphone application project. Apps that support the Android platform can be built using the Java programming language.

The proposed system will be developed using Android Studio. It is a platform to develop Android application, and it supports two types of programming languages which are Java and Kotlin. Besides, the open-source software Firebase that acts as a BaaS (Backend as a Service) software development platform is chosen to manage the database the proposed system [4]. Next, the management information systems (MIS) that act as an interconnected series of components for data collection, keep and process data, and for dispatch data, documents, and digital services will be applied in this project [5].

2.2 Background of Case Study

The entire management system of PK Pak tuition centre is performed manually by using pen-paper and files. They must achieve their business processes by using Microsoft Excel to key-in all the tuition centre data such as tutor data, data of students, timetable, and students' payment status. The Microsoft Excel document, which contains the recorded data, is saved in a Personal Computer (PC) folder, placed at the reception's counter. The administrator can view and manage the recorded data's detail whenever she wants, but it is too waste time for her to insert data manually. Also, the manual management system is insecure because no database automatically creates a backup for this data, and this may cause problems such as loss of students and tutors records.

Besides, the current management system requires the students to register in the tuition centre by walk-in the centre to fill in the registration form. The tuition centre's timetables are printed on paper, so for students who want to view the latest class timetables, they must get the timetables papers from the tuition centre. Furthermore, the admin must write the receipt using a pen and a paper if students make the fee payment. Therefore, it is difficult for them when they want to trace back the student fee payment status. Moreover, the tuition centre admin does not have an appropriate notification method to notify all the students about the emergency update of the tuition centre. The current management system, which is conducted manually, is time-consuming and increases the administrator's workload. Therefore, the process needs to be supported by a computerized system that can perform efficient record keeping, data storing and retrieval, analysis, notifications, and others that improve the management process's efficiency.

2.3 Existing Systems Review

There are some existing tuition centre mobile applications that are ready for use. In this section, the characteristics and features of the existing systems are reviewed and compared. The selected existing systems are TutorSathi Tuition Class Management System [6], Manage Coaching & Tuition Center [7], and Tuition App Tuition Class Management System [8].

The existing application TutorSathi Tuition Class Management System has an advantage which is it offers the attendance management. This function will allow administrators to record student's attendance through this application. Therefore, it can reduce proxy attendance of students, and it is easy to trace back the record.

The existing application Manage Coaching & Tuition Center has an advantage which is it provides the function that can allow administrators to contact a student by phone or email directly from the application. Thus, admin can directly contact a student if there are any important or urgent notifications.

The existing application Tuition App Tuition Class Management System has an advantage in which it can generate ID card for all the students prospectively. Therefore, all the student's personal information can be recorded more structurally. Table 1 shows the comparison between the existing systems and the proposed system.

Table 1: Comparison between existing system and proposed system

Features of System	TutorSathi Tuition Class Management System	Manage Coaching & Tuition Center	Tuition App Tuition Class Management System	PK Pak Tuition Centre Management System
Student login & logout	X	X	√	√
Admin login & logout	√	√	√	√
New registration	√	√	√	√
Timetable management	X	X	X	√
Make class booking	X	X	X	√
Attendance management	√	√	√	X
Student management	√	√	√	√
Tutor management	X	X	√	√
Record exam mark	X	X	√	√
Record payment	√	√	√	√
Send update notification	X	√	√	√

Based on the Table 1, the proposed system will not provide the attendance management feature. However, the proposed system provides the subject scheduling feature, which is not provided by other existing systems. This feature allows admin to create, view, and delete the timetable of the tuition centre. Therefore, the timetable of the tuition centre can directly show in the system so that the student can directly view and check for the timetable without walk-in the tuition centre to get the paper-based timetable. Then, they may choose the time and subject they want to attend. After a student makes their

choice, they can directly book the desired subject in this application. Lastly, the proposed system centralized all function in one system platform which will help to reduce the admin's workload and bring convenience to admin, tutors, students, and parents.

3. Project Methodology

The methodology used for the proposed project is the prototype model. The prototype model is a system development method in which a prototype is designed, tested, and then refined as required until an appropriate result is reached from which to build the full system [9]. The whole development process of prototype model can be visualized as shown in Figure 1.

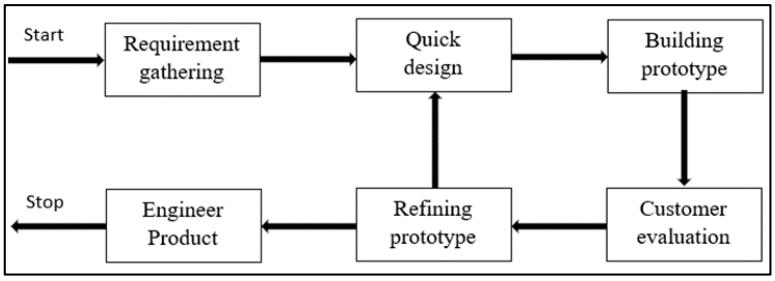

Figure 1: Prototype model software development life cycle [10]

Based on the Figure 1, it clearly shows that the prototype model software development life cycle consists of six phases. In requirement gathering and analysis phase, an interview was conducted with PK Pak tuition centre to collect their desired needs towards the system for analysis purposes. Then, the requirements of PK Pak Tuition Centre Management System are described and documented. The design phase will design PK Pak Tuition Centre Management System and identify how the system will operate, such as interface and database. In the third phase, the initial prototype is developed. This prototype will present to the users to show how the system looks and feels to them. Then, the second and third prototypes will be built after the customer evaluation phase. The prototype will undergo evolution every repetition of quick design, building prototype, customer evaluation, and refining prototype. In the last phase, a satisfied system is developed, and the actual application will be built based on the prototype. Besides, the implementation and testing of system will be done in this phase.

3.1 System Development Workflow

There are total of six phases from the prototype model. As shown in Table 2, each phase has its own assignment and output that need to produce during the entire project development.

Table 2: Software development activities and their task

No	Phase	Tasks	Outputs
1.	Requirement Gathering and Analysis	• Proposed the project. • Define the target user. • Interview with the owner of the tuition centre. • Determine the project activities and output.	• Project proposal • UML diagrams (use case, sequence, activity, and class diagram) • Gantt chart
2.	Quick Design	• Choose the suitable hardware and software used. • Design the user interface for the system. • Define the data needed to record by the system.	• Hardware and software requirements • User interface • Database schema and data dictionary
3.	Building Prototype	• Develop the initial prototype.	• Initial prototype

Table 2 (continue)

4.	Customer Evaluation	• The initial prototype is presented to customer and collect their feedback on the system.	• User's evaluation is gathered and recorded.
5.	Refining Prototype	• Improve the system based on the user's evaluation.	• A satisfied prototype
6.	Engineer Product	• Implement all the function and features designed by developing the system.	• An actual complete system • Functional testing

According to Table 2, it a summarization for the six phases for the system development. This summarization table clearly described every activity and the related output for each phase in the prototype model development lifecycle.

4. Analysis and Design

This chapter discusses the findings of the PK Pak Tuition Centre Management System's analysis and design process. All the analyzed data collected from this phase will be translated into physical system designs. In this project, the object-oriented approach is chosen to present the analyzed data. The UML diagrams for the proposed system are designed in this chapter.

4.1 System Requirement Analysis

Requirement analysis is a process to determine user expectations outcome from the proposed system. A functional requirement defined what has been done by identifying the necessary activity, task or action that must be accomplished [11]. It describes the process of inputs transformation to the desired output for the user. The functional requirements of the proposed system are shown in Table 3 below.

Table 3: Functional requirements of the proposed system

No	Modules	Functionalities	Users involved
1	Registration module	• The system shall allow the user to register a new account in the system by fill in their personal details. • The system shall ensure the user to input their personal details in a valid format. • The system shall alert the user for any invalid input. • The system shall inform the user one successful registered.	• Tutor • Student/parent
2	Login & logout module	• The system shall allow the user to login into the system using email and password. • The system shall allow the user to input the valid email and password to be logged in as user. • The system shall alert the user for any invalid input. • The system should redirect user to dashboard once successful login.	• Admin • Tutor • Student/parent
3	User data management	• The system shall allow the user to input, edit, and update the user info.	• Tutor • Student/parent
4	Timetable management	• The system shall allow the user to view, create and delete the timetable of the tuition centre.	• Admin
5	View timetable module	• The system shall allow the user to view timetable.	• Tutor • Student/parent
6	Class booking management	• The system shall allow user to make a tuition class booking.	• Student/parent

Table 3 (continue)

7	Record payment module	• The system shall allow the user to view and record the students' payment status.	• Admin
8	Student's exam mark management	• The system shall allow the user to input students' exam mark.	• Tutor
9	View student's exam mark module	• The system shall allow the user to view student's exam mark.	• Student/parent
10	Notification management	• The system shall allow the user to generate a notification.	• Tutor • Student/parent
11	View notification module	• The system shall allow the user to view notification generated by admin/tutor.	• Student/parent
12	Admit tutor's account application module	• The system shall allow the user to admit or reject the tutor's account application.	• Admin

According to Table 3 above, the modules of the proposed system are clearly listed. Besides, the functionalities of each module and the user involved in each module are also described in the table.

4.2 Use Case Diagram

Use case diagram is used to illustrate the main functions of the system and different types of users that interact with it in a simple way. Figure 2 below shows the use case diagram for PK Pak Tuition Centre Management System.

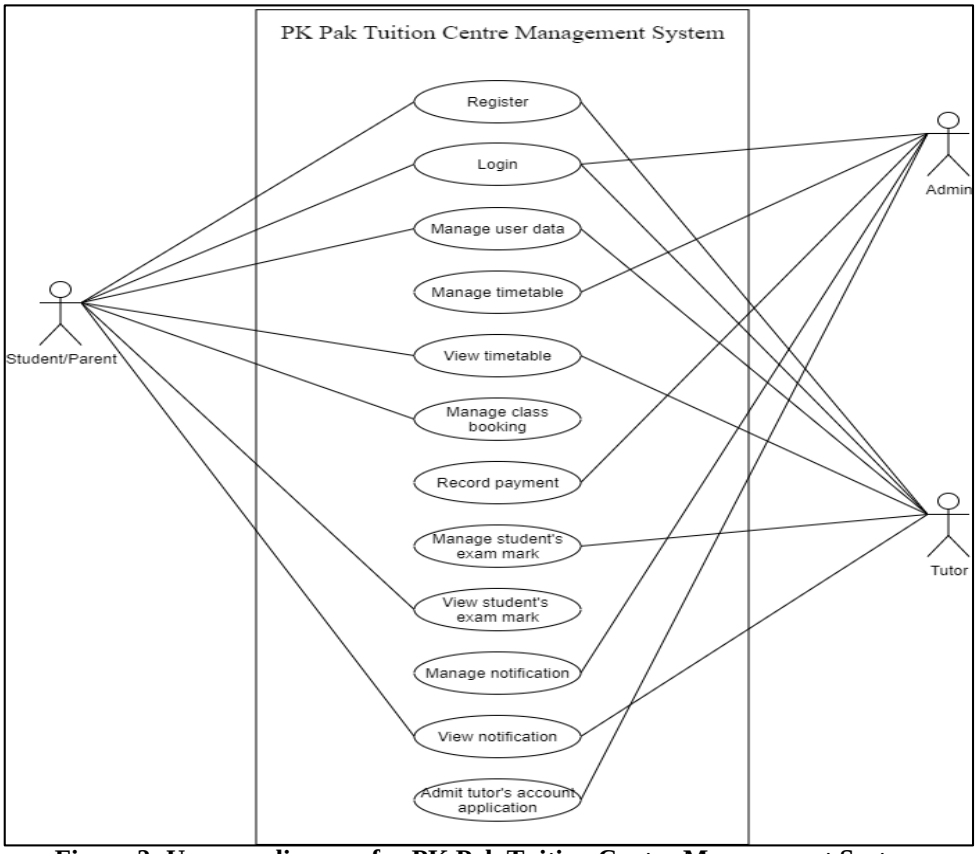

Figure 2: Use case diagram for PK Pak Tuition Centre Management System

According to Figure 2, the use cases involved in the proposed system are register, login, manage user data, manage timetable, view timetable, manage class booking, record payment, manage student's exam mark, view student's exam mark, manage notification, and view notification. In the above use case diagram, there are three actors named student/parent admin, and tutor. There are a total of twelve use cases that represent the specific functionality of a PK Pak Tuition Centre Management System. Each actor interacts with their specific use case. A student/parent actor can register, login, manage user data, view timetable, manage class booking, view student's exam mark, and view notification on the system. The second actor named admin can login, admit tutor's account application, manage timetable, record payment, and manage notification. The third actor named tutor can register, login, manage user data, view timetable, manage student's exam mark, and view notification. The interactions of the student/parent, admin, and tutor actor together summarize the PK Pak Tuition Centre Management System.

4.3 System Design

A flowchart is a graphical representation of the sequence of steps and decisions needed to perform a system process. Figure 3 below shows the flowchart for admin.

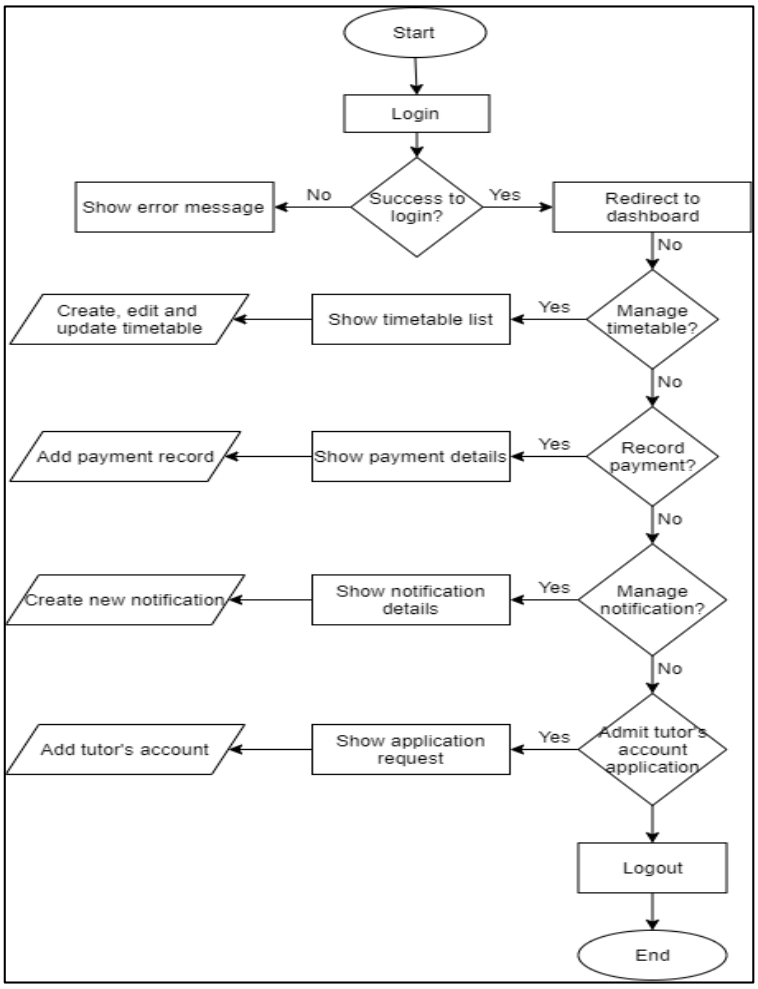

Figure 3: Flowchart for admin

Figure 3 above shows the flowchart for admin. The modules support this system are login & logout module, timetable management, payment management, notification management, and admit tutor's account application.

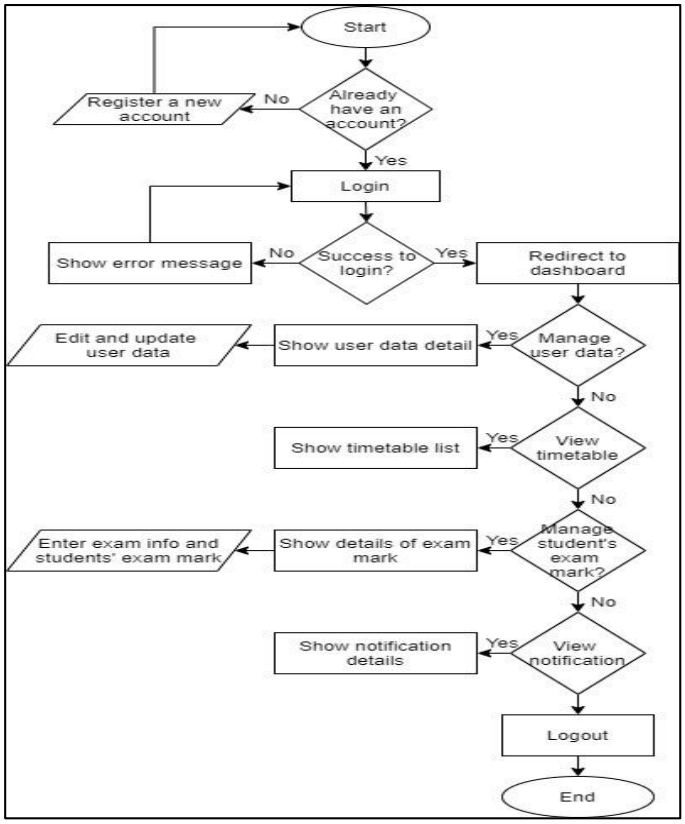

Figure 4: Flowchart for tutor

Figure 4 above shows the flowchart for tutor. The modules support this system are registration module, login & logout module, user data management, view timetable, student's exam mark management, and view notification.

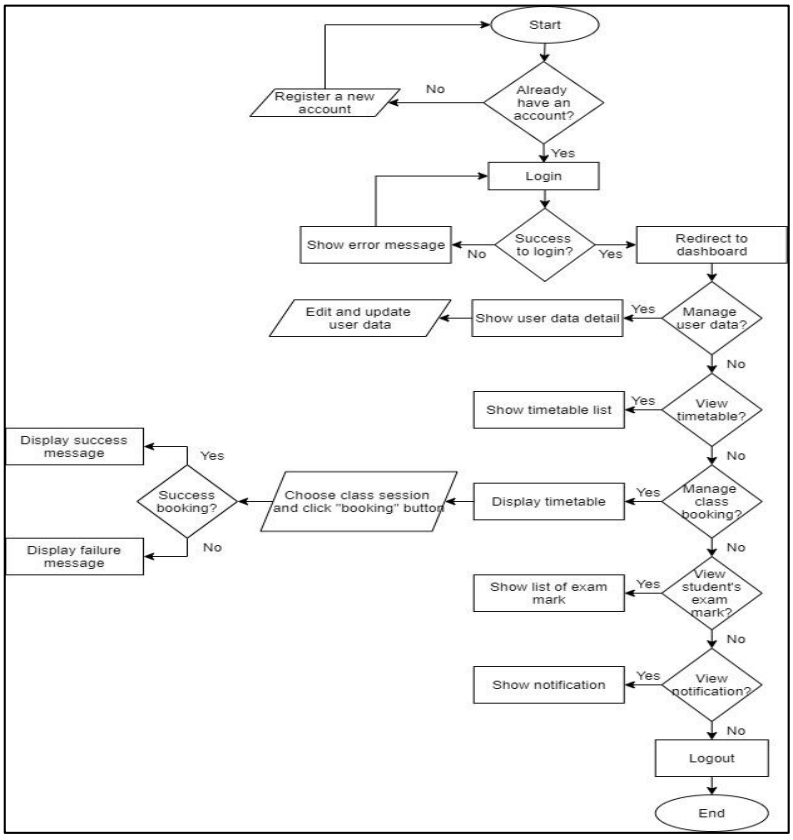

Figure 5: Flowchart for student/parent

Based on the Figure 5, the modules support this system are registration module, login & logout module, user data management, view timetable module, class booking management, view student's exam mark module, and a view notification module.

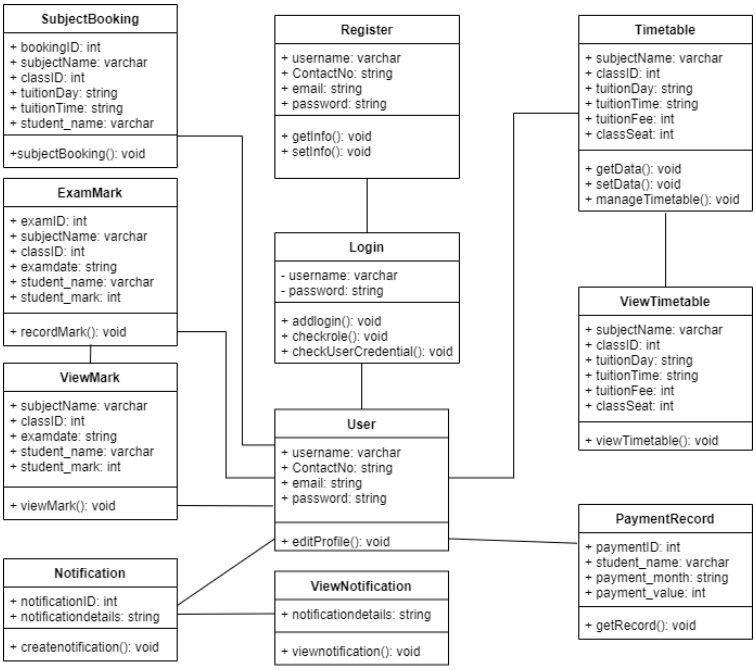

Figure 6: Class diagram of system

Next, the class diagram of PK Pak Tuition Centre Management System is designed as shown in Figure 6 above. It shows all the classes, attributes, methods, and their relationships. Based on the figure, there are 11 classes in the class diagram which are Register, Login, User, SubjectBooking, ExamMark, ViewMark, Notification, ViewNotification, Timetable, ViewTimetable, and PaymentRecord. Each class holds its attribute value and can be linked to another class. While the user login the system, there will be a "checkrole" method which is used to check whether the account user is admin, tutor or student/parent. Based on their user role, the system will redirect them to their specific dashboard. After that, the user may start to access the functions provided in the system.

A database schema is a metadata group that illustrates the relations between objects and information in a database. The database system used to implement the PK Pak Tuition Centre Management System's database is Firebase database. The structure of the data tables in the database is shown in the list below.

i. User (userID, username, phone, email, password, userRole)
ii. Class (classID, subjectName, subjectDay, subjectTime, subjectFee, subjectForm, subjectTeacher, userID)
iii. TestScore (testID, examDate, fileName, fileURL)
iv. Notifications (notificationID, notificationMessage, notificationTitle, notificationDate)

For the data table's structure, the underlined properties represent the primary key in the data table. In contrast, the dashed underlined properties represent the foreign key in the data table. The details above give a clear explanation of the database of PK Pak Tuition Centre Management System.

5. Implementation and Testing

This **se**ction discusses about the implementation and testing phase that have been performed for this project. For the implementation phase, all the specifications and functions of the PK Pak Tuition Centre management system listed in the analysis and design phase will be implemented. The purpose of the testing phase is to test the usability and functionality of the PK Pak Tuition Centre Management System.

5.1 Implementation Phase

System implementation needs to meet the system characteristics set in the analysis and design so that the developed system can meet the user's needs. Integrated Development Environment (IDE) used to create PK Pak Tuition Centre Management System is Android Studio, where the programming languages used are Java and extensive mark-up language (XML). Java programming language is used for querying databases for information and processing any logic that the system requires.

```
btn_student_apply.setOnClickListener((v) → {
        studentRef.addValueEventListener(new ValueEventListener() {
            @Override
            public void onDataChange(@NonNull DataSnapshot snapshot) {
                if (snapshot.exists()) {
                    final String studentName = snapshot.child("username").getValue().toString();
                    final String studentPhone = snapshot.child("phone").getValue().toString();
                    String RandomKey = current_user_id;

                    HashMap applyMap = new HashMap();
                    applyMap.put("name", studentName);
                    applyMap.put("phone", studentPhone);

                    if (totaluser < 12){
                    timetableRef.child(class_key).child("students").child(RandomKey).updateChildren(applyMap)
                            .addOnCompleteListener((task) → {
                                if (task.isSuccessful()) {
                                    Toast.makeText( context: Student_timetable_extend.this,  text: "You have successfully apply.", Toast.LENGTH_SHORT).show();
                                } else {
                                    Toast.makeText( context: Student_timetable_extend.this,  text: "You have unsuccessfully apply.", Toast.LENGTH_SHORT).show();
                                }
                            });
                    }else{
                        Toast.makeText( context: Student_timetable_extend.this,  text: "Class full.", Toast.LENGTH_SHORT).show();
                    }
                }
            }
            @Override
            public void onCancelled(@NonNull DatabaseError error) {

            }
        });
});
```

Figure 7: Code segment of class booking management

Figure 7 shows the part of the code segment for the main module in the system using Java which is class booking. The code segment shows how the apply activity execute when the user clicks on the "Apply" button. If the number of students in the class is less than 12, the user can apply to the class and vice versa. Once the user is successfully applying for the class, their user id, name, and phone will be stored in the Class object in the Firebase Realtime Database. Then, their name will show in the student list of the class.

Furthermore, extensive mark-up language (XML) is used to design the layout of the system interfaces. The database platform used for the system is Firebase. Firebase Authentication and Firebase Realtime Database are used to handle the database of the system. Firebase Authentication integrates with the Firebase Realtime Database to allow the developer to control data access on a per-user basis operating conditions.

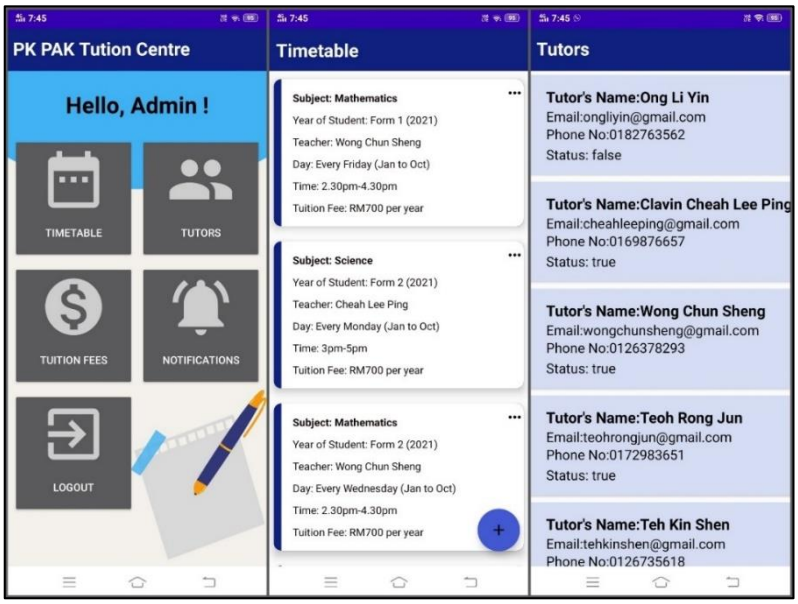

Figure 8: User interfaces of admin account

Figure 8 shows some of the user interfaces for the admin account. The figure on the left is the interface of the admin homepage, which includes a total of five buttons. Each button represents different functions that the admin can use. The figure in the middle is the interface of the timetable list. Each holder represents one class, and all the class information are shown in the holder. If the admin wants to create a class, he/she may click on the floating button. The figure on the right is the interface of the tutors' account list. The admin can view all the account that registered as a tutor. All data of the account are shown in the recycler view holder. Admin can verify their tutor's identity based on the data.

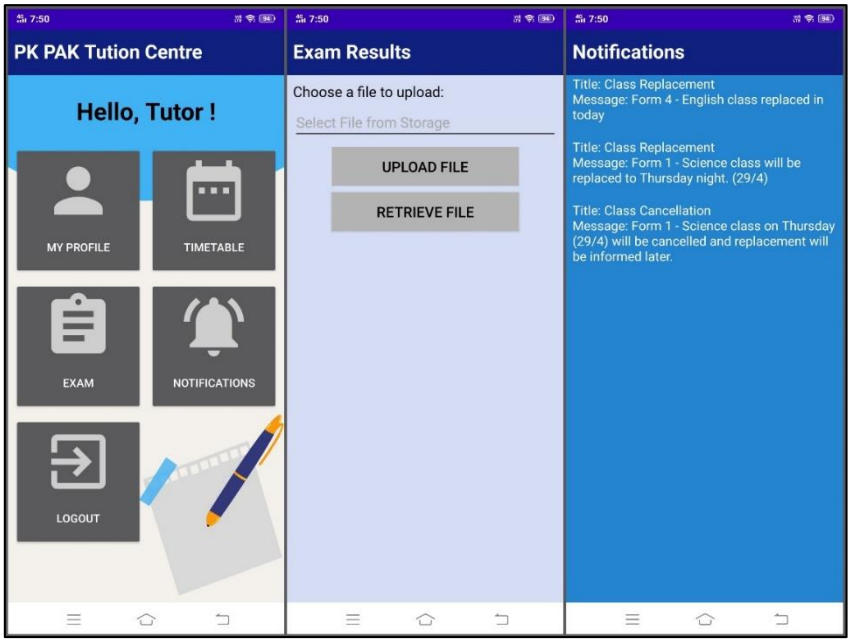

Figure 9: User interfaces of tutor account

Figure 9 shows some of the user interfaces for the tutor account. The figure on the left is the interface of the tutor homepage. Each button in the page represents different functions. The figure in the middle is the interface of the upload exam result file. The tutor can click the "Upload File" button to upload the excel file into Firebase Storage. If the tutor wants to view all the uploaded file, the tutor can click on the "Retrieve File" button. The figure on the right is the interface of the notifications list.

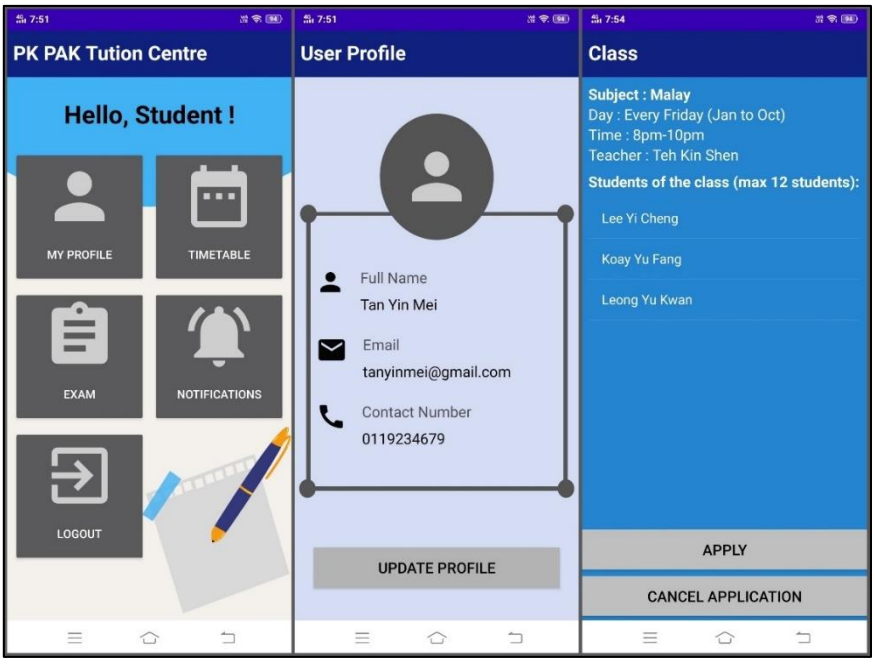

Figure 10: User interfaces of student/parent account

Figure 10 shows some of the user interfaces for the student/parent account. The figure on the left is the student/parent homepage interface, which includes a total of five buttons. Each button represents different functions that the student can use. The figure in the middle is the interface of class booking. The student/parent can click the "Apply" button to enrol on the class or click on the "Cancel Application" button to cancel the enrollment. The figure on the right is the interface of the user profile. The student/parent can update their personal information by click on the "Update Profile" button.

5.2 Alpha Testing

Alpha testing is performed by developer, and it is performed in virtual environment. The test table is done to review the test made to the system. This test is done according to the test case that has been designed.

Table 4: Test case summarisation

Test Case ID	Test Description	Expected Result	Actual Result Status
Test Case Registration (TEST_01) (User: Tutor and Student/parent)			
TEST_01_01	User enters full name, contact number, email, user role, and password to register an account.	User is success to register an account. System will display a "Registered Successfully" message.	PASS
TEST_01_02	User does not enter all the required data in the provided columns.	System will display an alert message.	PASS
TEST_01_03	User enters invalid email format.	System will display a "Please provide a valid email" message.	PASS
TEST_01_04	User enters weak password that less than 6 characters.	System will display a "Min password length should be 6 characters" message.	PASS
TEST_01_05	User enters email that had been registered before.	System will display a "Email is registered before." message.	PASS
Test Case Login (TEST_02) (User: All)			
TEST_02_01	User enters correct email and password to login.	User is success to login and will redirect to their user homepage.	PASS
TEST_02_02	User enters wrong email and password to login.	System will display an error message.	PASS
Test Case Manage User Data (TEST_03) (User: Tutor and Student/parent)			
TEST_03_01	User can edit and update their user information.	The latest user information will be updated and stored in the database.	PASS
Test Case Manage Timetable (TEST_04) (User: Admin)			
TEST_04_01	User can create a class in timetable.	System will display a form for user to create a new class in timetable. The data of new class will store in database and show in timetable list.	PASS
TEST_04_02	User can delete a class in timetable.	The data of selected class will delete from the timetable list and database.	PASS

Table 4 (continue)

Test Case View Timetable (TEST_05) (User: Tutor and Student/parent)			
TEST_05_01	Users can view the timetable list.	The timetable list will display to user.	PASS
Test Case Manage Class Booking (TEST_06) (User: Student/parent)			
TEST_06_01	User can apply for the class show in the timetable list if the number of students in class is less than 12.	The user is success to apply for the class and their name will be added in the student list of the class and database.	PASS
TEST_06_02	User applies for the class show in the timetable list when there is already have 12 students in the class.	System will display a "Class full" message.	PASS
TEST_06_03	Users can delete their application for the class show in the timetable list.	The name of user will delete from the student list of the class and database.	PASS
Test Case Record Payment (TEST_07) (User: Admin)			
TEST_07_01	Users can view the students' tuition fees payment status.	The students' tuition fees payment status will display to user.	PASS
TEST_07_02	Users can update the students' tuition fees payment status.	The students' tuition fees payment status can be updated and stored in database.	PASS
Test Case Manage Students' Exam Mark (TEST_08) (User: Tutor)			
TEST_08_01	User can upload students' exam mark file.	The students' exam mark file can be uploaded and stored in database.	PASS
TEST_08_02	User can delete students' exam mark file.	The students' exam mark file can be deleted from the database.	PASS
Test Case View Students' Exam Mark (TEST_09) (User: Tutor and Student/parent)			
TEST_09_01	User can view students' exam mark file.	The students' exam mark file can be viewed by user.	PASS
TEST_09_02	User can download students' exam mark file.	The students' exam mark file can be downloaded by user.	PASS
Test Case Manage Notifications (TEST_10) (User: Admin)			
TEST_10_01	Users can generate a notification.	The content of notification will be stored in the database.	PASS
Test Case View Notifications (TEST_11) (User: Tutor and Student/parent)			
TEST_11_01	Users can view the notifications.	The notifications will display to user.	PASS
TEST_11_02	The notifications in the list are ordered in descending order.	The sort of the notifications display to user will be most recent notification to the oldest notification.	PASS

Table 4 (continue)

Test Case Admit Tutor's Account Application (TEST_12) (User: Admin)			
TEST_12_01	User can view data of all the account that registered as tutor.	The data of all the account that registered as tutor will display to user.	PASS
TEST_12_02	User can approve the application by activate the tutor's account.	The status of the account will change to true in database. The account's owner will be able to login with the account.	PASS
TEST_12_04	User can delete the tutor's account.	The data of the account will delete from the database.	PASS

Table 4 shows all the test cases that had been conducted for each module in the system. The test description and expected result of all test cases had also listed in the table. Besides, the actual results of the test cases are also recorded in this table.

5.3 Beta Testing

The end-users perform beta testing, and it is performed in a real environment. The testing is done by using the user acceptance form created using google form for the beta testing. This testing is done to identify the effectiveness of the functionality of this application and the user's point of view. The form is divided into three components. Component A is the functional application assessment., Component B is the user interfaces assessment., and Component C is the user satisfaction assessment. This test was performed based on a scale of 1 to 5, i.e., 1 for the very disagree option and 5 for the very agree option. The test involved a total of 10 responders, which includes the admin of the tuition centre and other people that ages between 12 to 55 years old.

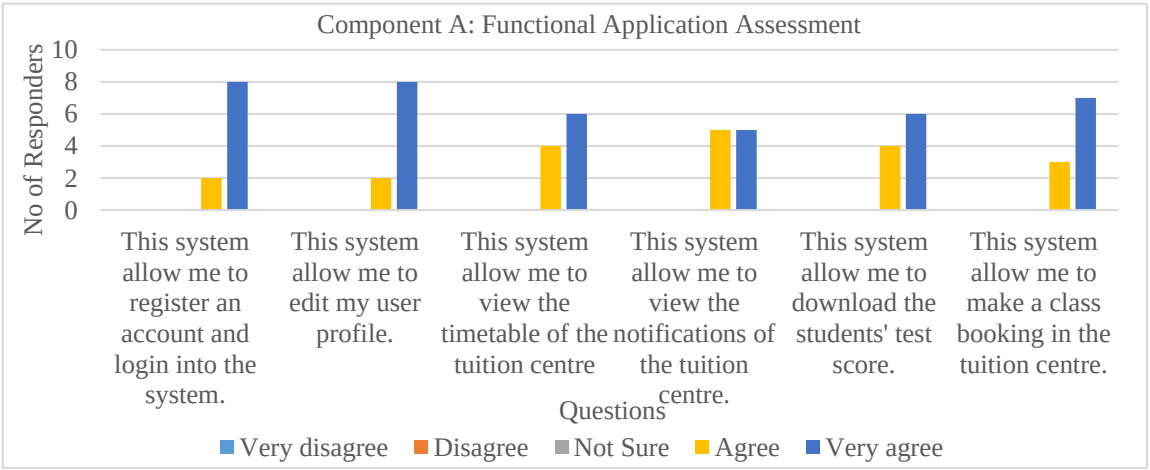

Figure 11: Survey result for functional application assessment

Figure 11 shows that most responders choose the agree option and very agree option in the functional application assessment. These results prove that the functions provided in the PK Pak Tuition Centre Management System had met the user's need and the functional requirements stated earlier.

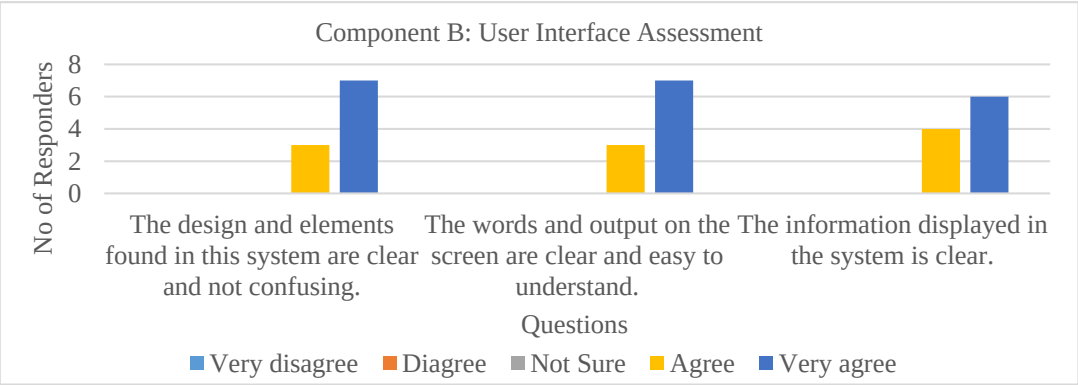

Figure 12: Survey result for user interface assessment

Figure 12 shows that most responders choose the agree option and very agree option in the user interface assessment. These results prove that most of the responders are agree that the user interfaces of the PK Pak Tuition Centre Management System are clear and easy to understand.

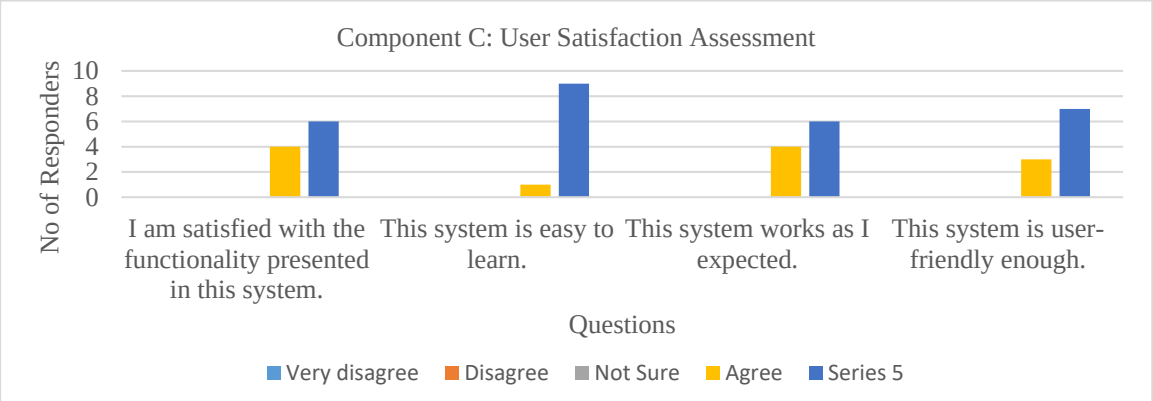

Figure 13: Survey result for user satisfaction assessment

Figure 13 shows that most responders choose the agree option and very agree option in the user satisfaction assessment. These results prove that most of the responders are satisfied with the PK Pak Tuition Centre Management System.

6. Conclusion

This project aims to design a computerized management system for the tuition centre named PK Pak Tuition Centre Management System. The system's target users are the admin, tutor, and student/parent of the PK Pak tuition centre. The development of the system is completed and has achieved its objective, which can help reduce the workload and user effort of the tuition centre and systematically store all the data of the tuition centre in a database. Although the system has achieved its objective, it is still lacking in the feature and can be improved in the future. Some suggestions are proposed to improve the system, such as sorting the timetable list by the student's year, creating a notification button with an alert icon, and adding a feature that can link the phone number of users to the phone call of the device. All the suggestions on the future improvements of the system will be used as a guide and references for producing a more efficient and user-friendly system in the future.

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