

## Let's Tajwid Application

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**Abstract:** The application 'Let's Tajwid' is developed using android studio to solve the problem that faced by some people. People were not initially exposed to the laws of tajwid. There are layers of society that thought they are too old to learn tajwid. After that, some of them feel lazy to learn because they think learn tajwid need a lot of work. This application provided notes about basic tajwid so user can learn through it. This application has voice tutor as well. This application also has questions that will be given to the users. The questions are mostly about what users have learned and user will get marks. The users can set the environment like sound volume and font size on setting menu. The methodology that used during this application development is prototype model. Mostly we used java programming as our program language and Firebase as our database platform.

**Keywords:** Application, Tajweed, Learning Online

### 1. Introduction

Tajwid is a familiar thing among Muslims. This is because Muslims are taught to study the Qur'an and understand it. Tajweed means how to recite the Qur'an well and correctly or it is called the science of tajweed. When talking about the law of tajwid, it is a matter that may sound easy but it is a complex matter. Among them are the law of reading nun, mim mati and tanwin. There is more than one law of reading nun, mim mati and tanwin. Among them are Izhar Halqi, Idgham Bila Ghunnah and many more. Based on a report in a newspaper clipping, there are those who still do not want to study, let alone know the law of tajwid. Regardless of the young or the elderly should start to learn tajwid[1].

One of the ways that to some extent can help to cultivate the knowledge of tajwid in the community is to develop an application that can teach them a little bit of tajwid knowledge. This application will focus on the law of reading nun, mim mati and tanwin. Will be told how to recite the law of a tajwid law, harqat, has a voice that shows the correct way of recitation and has questions that need to be answered. Then the already answered questions and answers will be saved as progress for that user. This application can be used by people who can read and know how to use the application in general. Ustaz and ustazah will be used as a guide throughout the process of developing this application. This Tajwid Learning application has two main scopes, namely the scope for users and the scope for admins. The user is the person who will use this application while for the admin it is for the person to have access to change the content in this application.

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## 2. Literature Review

A literature review demonstrates to your readers that you have a thorough understanding of your subject and that you recognize how your study fits into and contributes to an existing body of knowledge[5]. In this chapter also make some comparisons between all those existing applications that related to this application. This method can help developer to develop a better application from those existing application.

### 2.1 Case Study: Learning Application

A smartphone may be used to access an online learning app. It's a technology-based study tool that allows people to share information[3]. It's also known as educational mobile application. A wonderful learning tool for folks who wish to learn more quickly is an online learning app. It is beneficial to learners who are working professionals that want to improve their skills[4]. The easiness of instruction is one of the numerous advantages of this way of learning. On the smartphone, there is an online learning app that may be utilized at any time. Students can attend live sessions as well as pre-recorded lesson. Trainers educated in an audio-visual format.

### 2.2 Android Application

An Android app is a piece of software that runs on the Android operating system. A typical Android app is intended for a smartphone or tablet PC running on the Android OS since the Android platform is built for mobile devices. Although developers can make Android apps available through their websites, the majority of Android apps are uploaded and published on the Android Market, a specialised online marketplace for these applications. Both free and paid apps are available in the Android Market.

Android apps employ Java core libraries and are created in the Java programming language. They're initially compiled into Dalvik executables, which operate on the Dalvik virtual machine, which is a mobile-specific virtual computer. The Android software development kit (SDK) is available for download from the Android website. For developing Android apps, the SDK offers tools, sample code, and essential information.

The App Inventor is a useful tool for inexperienced developers that wish to experiment with Android development. As though fitting together jigsaw pieces, a user may build an Android app using this online programe.

### 2.3 Study of Equivalent System

System equivalence is the behaviour of a component or feature of two separate systems or more that is comparable. For example, the function of a damper in a mechanical system is similar to that of a resistor in an electrical system in that both provide resistance to the system. Equivalent systems might be thought of as a functioning model for one another. The term "similarity" refers to the mathematical parameters' equivalence. This analogous system analysis aids in the comprehension of complicated system behaviour, minimising the risk of deploying a newly developed product.

There are several apps that can be compare with “LET’S TAJWID” application. The characteristics to be compared are system functionally, the interface on the application and database used.

**Table 1 Comparison Table**

	<b>LET'S TAJWID</b>	<b>JOM TAJWID</b>	<b>Belajar Tajwid Lengkap &amp; Audio</b>	<b>Tajwid</b>
<b>Log in module</b>	Yes	Yes	No	No
<b>Audio Module</b>	Yes	Yes	Yes	Yes
<b>Question Module</b>	Yes	No	No	No
<b>Tajwid Module</b>	Yes	Yes	Yes	Yes
<b>Pay Module</b>	No	Yes	No	No

<b>Ads Module</b>	No	Yes	Yes	Yes
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**3. Methodology**

The conceptual framework within which the study is done, or the basis upon which the research is built, is referred to as methodology. In detail, highlighting those employed throughout the study, explaining my choice by outlining the benefits and drawbacks of each technique and design while considering their practical usefulness to our research [6]. A methodology is described as "a set of practises, techniques, processes, and regulations utilised by people who work in a certain profession". They are simply procedures that try to provide project managers with assistance and step-by-step instructions for performing tasks. Different approaches have different ways for dealing with problems that may develop throughout the project's execution.

3.1 Prototype Model

Methodology that will be used in this project development is Prototype Methodology or also known as evolutionary design or incremental development. They are essentially proceses that aim to provide project managers with guidance and instructions for completing tasks throughout the project. Different methodologies employ different strategies for dealing with problems that may arise during the project's execution. The prototyping model is a software development method in which a prototype is created, tested, and changed until it is acceptable.

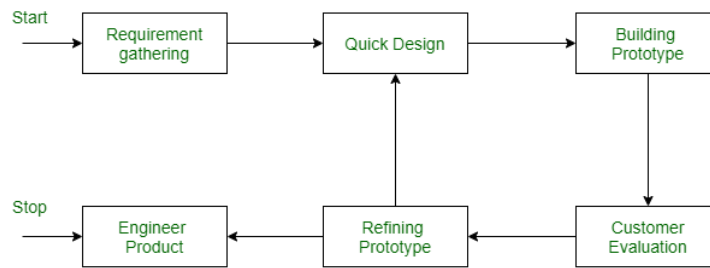


Figure - Prototype Model

Figure 1: Prototype Model

3.2 Project Planning

Project planning part is a part that will explain all activity and time estimation that needed in the project development for “JOM TAJWID”. This part is really important because it is can be so useful for developer to plan wisely throughout project development. This project will start on October 2021 and estimated to be done on Jun 2022. Table 2 will show the work flow that followed the methodology phase one by one.

Table 2 Activity according to phase in methodology

Phase	Activity	Result
<b>Analysis</b>	- Get to know the problem statement - Identify other existing application - Struct activity	- Preparing proposal - Features to be add into the application.
<b>Quick Design</b>	- Develop the interface	- User interface has been developed
<b>Development</b>	- Start to develop the application	- The database has been implemented
<b>User Evaluation</b>	- Give the prototype application to the user to be test.	- Get feedback from the test.
<b>Refining</b>	- Refining the application according to the feedback	- Refined application

<b>Maintenance</b>	- Always check and do maintenance on the application	- The application will always up to date.
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#### 4. Analysis and System Design

Analysis system need is very important because it used to know system requirements in detail in this “LET’S TAJWID” development project. All information that needs in this project can be collect and then can be analyzed for this development project used. We need to know the input and output data, processed data, what data need to be stored and many more. Flow chart, Entity Relation Diagram, Data Flow Diagram are some of the analysis that need to be done to have details system requirements.

##### 4.1 Context Diagram

In diagram shown below, it shows an overview of this application through context diagram. Context diagram can display the system in question as a single high-level process, followed by the system’s connection with various external entities. Figure 2 will show a context diagram for ‘LET’S

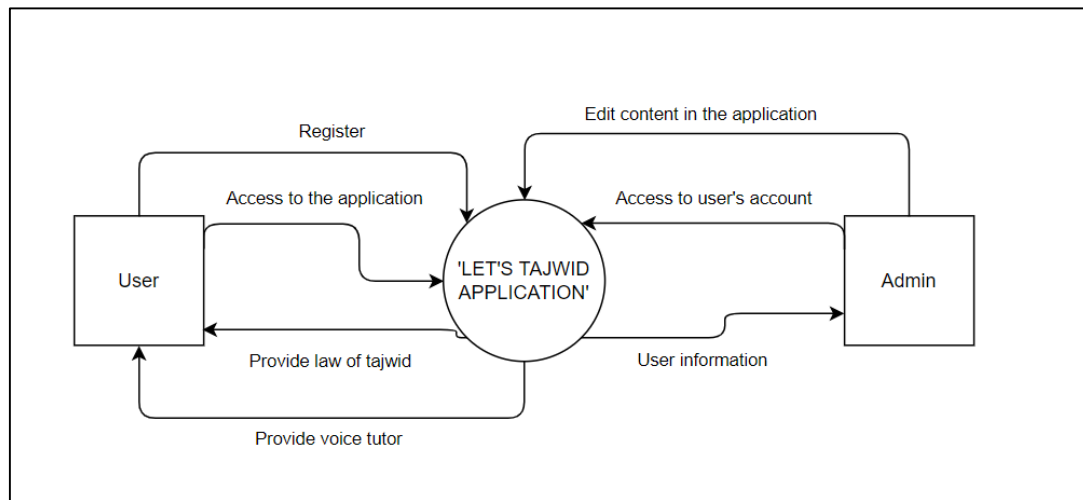
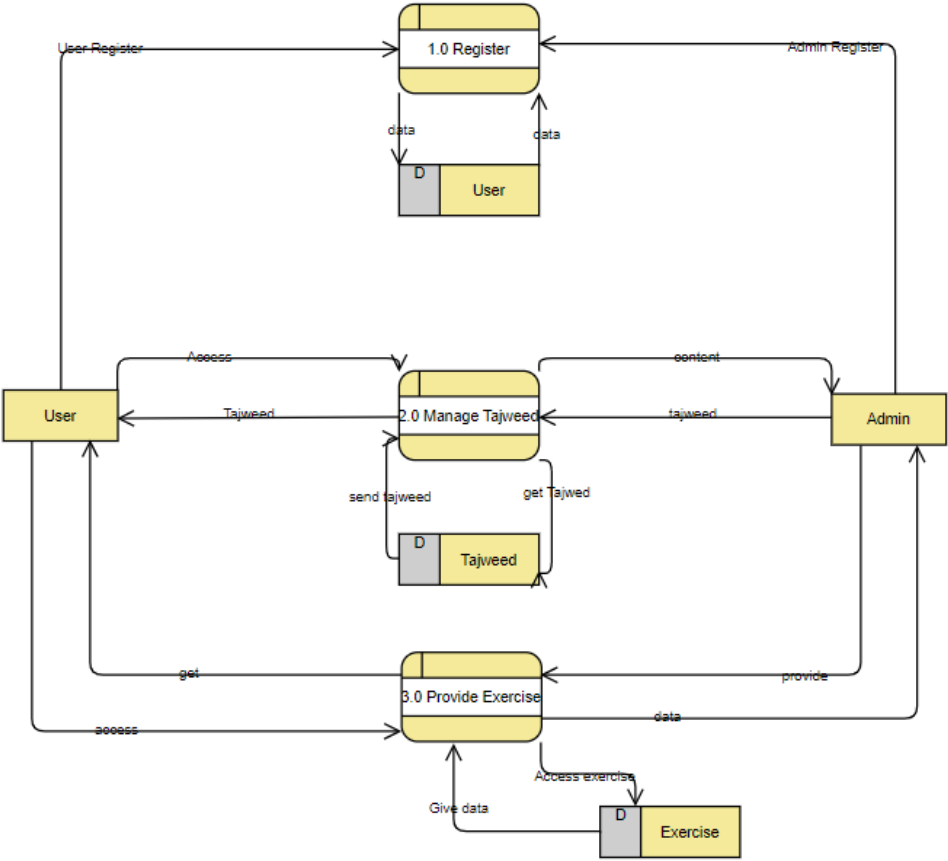


Figure 2: Context Diagram

##### 4.2 Data Flow Diagram Level 0

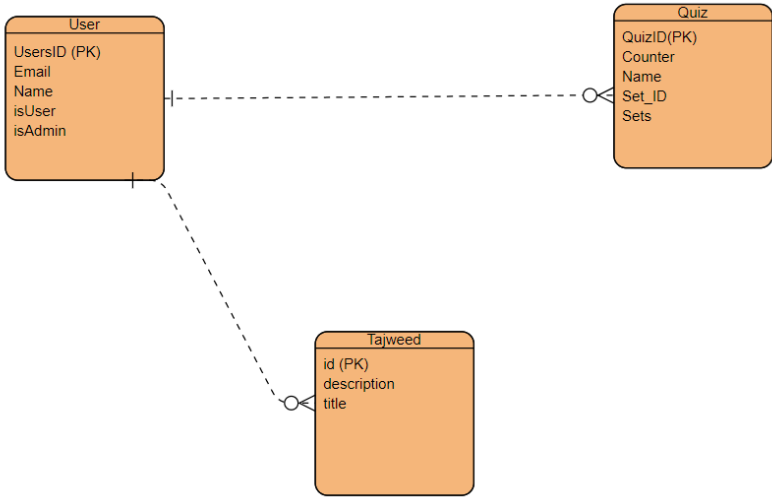
On Figure 3 will shows data flow diagram level 0. It will give a detail overview on how this application flow and work. All the main functions and processes will be show here. From the diagram above, there are 4 main processes in this application which are 1.0 Register, 2.0 Manage Tajweed Content, 3.0 Provide Exercise.



**Figure 3 Data Flow Diagram Level 0**

4.3 Entity Relation Diagram

This diagram is an entity relation diagram. It will shows in detail about how our database will develop. The diagram 4 is an entity relation Diagram for our application ‘LET’S TAJWID’.



**Figure 4 Entity Relation Diagram**

## 5. Testing

This Testing is really important to test the maximum potential of certain softwares. It can monitor, produces report until software achieve certain criteria that wanted by the developer. Many developers use RTM to track the requirement. In most situations, testing is an ongoing component of the project throughout the SDLC. As a result, regardless of which phase you are in, it is always included in SDLC in some form.

### 5.1 Test Case

In this phase, test cases are based on Requirement Traceability Matrix in Chapter 4. All the result from the test will be shown below.

**Figure 5: Requirement Traceability Matrix (RTM)**

Process Name	No. Requirement	Requirement Detail
1.1 Register	REQ_110	1. User will register new account (REQ_111) 2. The system will store the data inside the database (REQ_112)
1.2 Log in	REQ_120	1. Enter the email and password to log in (REQ_121) 2. The system will make sure email and password are the same with data in the database (REQ_122)
2.1 Manage content tajweed	REQ_210	1. User be able to see content about tajweed (REQ_211)
2.2. Create, read, update and delete in tajweed content	REQ_220	1. Admin be able to make C,R,U,D activity in this section (REQ_221)
3.1 Answer exercise	REQ_310	1. User have access to the exercise (REQ_311) 2. User answer all the questions given (REQ_312)
3.2 Marking answer	REQ_320	1. The system will mark the answers (REQ_321) 2. User get the mark (REQ_322)
3.3 Create, read, update and delete in question content	REQ_330	1. Admin be able to make C,R,U,D activity in this section (REQ_331)
4.1 Fetch data to the profile	REQ_410	1. User's data from the register form will be fetch to the profile. (REQ_411)

**Figure 6 Result Table**

No.	Modul	Test Case	Expected Result	Test Result	User
1.1	Register	User will fill the register form	User's detail store in database	Pass	Admin and User
1.2	Log in	Enter email and password to log in	User can log into the application	Pass	Admin and User
2.1	Tajweed	Click button to the Tajweed	User can see the Tajweed list provided	Pass	User
2.2	Tajweed	Manage Tajweed content	Create, read, update and delete in tajweed content	Pass	Admin
3.1	Exercise	Answer exercise	User answer all the questions given	Pass	User
3.2	Exercise	Marking exercise	System be able to mark the answer from the user	Pass	Admin
3.3	Exercise	Manage exercise	Create, read, update and delete in question content	Pass	Admin
4.1	Fetch Data	Fetch data to the profile	User can see their detail in the profile.	Pass	User

## **6. Conclusion**

This application will help people to learn tajweed easily with their smart phone. People who have some problems to learn tajwid can use this application. People will reduce time and effort to learn tajweed when they use this application. In the future, we hope that this application can be used by more people and help them to learn basic tajweed.

## **Acknowledgment**

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**Appendix A**

No	Activity	Duration	Start Date	End Date
1		Analysis		
1.1	Get to know the problem statement	2 Days	10/10/2021	12/10/2021
1.2	Identify other existing application	5 Days	13/10/2021	17/10/2021
1.3	Struct activity	1 Days	18/10/2021	19/10/2021
2		Quick Design		
2.1	Develop the interface	7 Days	20/10/2021	26/10/2021
3		Development		
3.1	Start to develop the application	8 Months	27/10/2021	27/6/2022
4		User Evaluation		
4.1	Give the prototype application to the user to be test.	2 Weeks	7/4/2022	21/4/2022
5		Refining		
5.1	Refining the application according to the feedback	2 weeks	22/4/2022	6/5/2022
6		Maintenance		
6.1	Always check and do maintenance on the application	2 weeks	7/5/2022	21/5/2022



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