FINAL YEAR PROJECT REPORT

BS (SOFTWARE ENGINEERING)

KINDER LEARNING APPLICATION

SUBMITTED BY

FATIMA ABRO	**45154**
TALHA SHAHID	**47076**
SYEDA SUMBUL KAZMI	**49569**
MUHAMMAD BILAL ASHRAF	**47083**

SUPERVISOR

DR. SYED ASIM ALI RIZVI

COORDINATOR

DR. ATIYA MASOOD

FACULTY OF ENGINEERING, SCIENCE AND TECHNOLOGY

IQRA UNIVERSITY, KARACHI

MARCH 2022

FACULTY OF ENGINEERING, SCIENCE AND TECHNOLOGY

DEPARTMENT OF SOFTWARE ENGINEERING

FINAL YEAR PROJECT REPORT

BACHELOR OF SOFTWARE ENGINEERING

FATIMA ABRO (45154)

TALHA SHAHID (47076)

M. BILAL ASHRAF (47083)

SYEDA SUMBUL KAZMI (49569)

PROJECT:

KINDER LEARNING APPLICATION

SUPERVISOR:

DR ASIM ALI RIZVI

MARCH 2022

ABSTRACT

The literate and pictorial level of students are essential for their effective operation as adults in the community. Many children, particularly those from lower social origins that are not able to receive the quality education or needed help to develop a high extent, are at danger of not achieving adequate level of expertise, and supervision. The overarching goal of this project is to develop original Android apps and observe how they help parents generate high household education systems and have a favorable impact on children's short- and long-term competency development. The goal of this app is to determine the impact of an Android-based family intervention on children's learning, development, inclusivity, and well-being.

This application uses modern innovation sources for successfully visualizing and digitalizing material from books and other academic subjects. Immersing students in the real world and having them engage with it is rarely possible. Even though the natural world is three-dimensional, we choose to teach with two-dimensional media since it is more practical, familiar, flexible, portable, and economical. It is, however, static and does not provide dynamic material. Computer-generated three-dimensional virtual environments can also be used, although these scenarios require high-performance computer graphics, which is more expensive than other options. Our application recognizes the alphabet or picture and displays the relevant information about an object. It makes kindergarten learning easy and interactive because the interface of our app is effective and interesting to use and diverts kids' attention from games to learning. The other main window of the application is the learning window, where visual and audio learning base is used. Children can learn while having fun, while the parents can navigate the learning progress of the children through the analytic graph option.

We have approved this manuscript for submission and presentation as fulfillment of Bachelor of Software Engineering/ Computer Science.

_____

Supervisor: Dr. Asim Ali Rizvi
Date: 29-03-2022

_____

Project Coordinator: Dr. Atiya Masood
Date: 29-03-2022

DECLARATION

I hereby declare that the work has been done by myself to fulfill the requirement of the BS (Software Engineering) and no portion of the work contained in this report has been submitted in support of any application for any other degree or qualification of this or any other university or institute of learning.

I hereby further declare that in the event of any infringement of the provision of the Act whether knowingly or unknowingly the university shall not be liable for the same in any manner whatsoever and undertake to indemnify and keep the university indemnified against all such claims and actions.

_____

© FATIMA ABRO [45154]

_____

© TALHA SHAHID [47076]

_____

©MUHAMMAD BILAL ASHRAF [47083]

_____

© SYEDA SUMBUL KAZMI [49569]

ACKNOWLEDGEMENT

First, we thank Almighty Allah who praise us with the ability to think, work and deliver what we are assigned to do. Secondly, we must be grateful to our supervisor **"Dr. Asim Ali Rizvi"** who helps us in this project. We also acknowledge our teachers that throughout our studies helps us and guides us, departmental staff, university staff or other then this. We are also thankful to the FYP instructor **"Dr. Mansoor Ebrahim" and "Dr. Atiya"** for his precious support throughout the tenure as he is the best instructor for FYP who makes every student to be updated with the project progress and lead to the completion with great success within the time period given. We are also grateful to our family and friends, for supporting and encouraging us to complete this project. Finally, we would like to thank all the colleagues of IQRA University who have been with us in all difficult times with suggestions and supportive words which carry us to make this project a reality.

LIST OF ACRONYMS

1. VC = visual core
2. AR= Augmented Reality
3. 2d= two dimensional
4. 3d= three dimensional
5. RA = Rural Area
6. IV = internet violations
7. LIS = lack of internet services
8. ASPA = Android Smartphone App
9. CL = Child learning
10. HB-E = Home based Education
11. MG = Mobile Gadgets
12. KLA = kinder learning app
13. IR = Illiteracy rate
14. LS = Literature Survey
15. SDL = Self Directed Learning
16. LE = Learning Environment
17. IA = Interactive Application
18. MP = management position
19. AR= augmented reality

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER – 1

1.0 Introduction

Education is a key to success. In the current era, we are using modern technologies in our daily routine and also in education to make learning easy and interesting. As we know that the kids have a problem understanding the teacher's thoughts and face difficulties understanding the content. New technology is being used to teach and enhance content areas. Certain abilities are required for successful learning, while learning skills are required for acquiring a variety of more particular skills.

According to studies, mobile devices are one of the most effective learning technologies since they are considered feasible and simple to use, especially for kids who are facing learning difficulties. Nowadays kids' interaction with mobile devices is highly noticed that's why we need to develop some advance and engaging applications to bring their attention towards education. Children explore and learn with mobile devices in a way that is easy for them. With the increased use of smartphones in homes and classrooms, concerns about their value for play based learning have developed. Despite this, we are aiming to explore how mobile applications might be used to evaluate children's basic skills in kindergarten classrooms. It analyses the importance of mobile learning in children who require special education, as well as the use of digital technologies in learning [1].

Various studies in kindergarten education claim that well-designed digital teaching methods can become a significant educational technique for efficient and productive learning, specifically in the field of early reading or learning skills. A growing number of mobile application areas are becoming acknowledged as developmentally suitable educational content for children's both spoken and written language learning. Children learn through this engaging and interactive app by using an easy-to-use and interesting interface which is easy for students as well as parents, and teachers because our early birds are good at visualizing rather than learning it physically present in the classroom.

This application uses modern innovation sources for successfully visualizing and digitalizing material from books and other academic subjects. Immersing students in the real world and having them engage with it is rarely possible. Even though the natural world is three

dimensional, we choose to teach with two-dimensional media since it is more practical, familiar, flexible, portable, and economical. It is, however, static and does not provide dynamic material. Computer-generated three-dimensional virtual environments can also be used, although these scenarios require high-performance computer graphics, which is more expensive than other options. Our application recognizes the alphabet or picture and displays the relevant information about an object. It makes kindergarten learning easy and interactive because the interface of our app is effective and interesting to use and diverts kids' attention from games to learning. The other main window of the application is the learning window, where visual and audio learning base is used. Children can learn while having fun, while the parents can navigate the learning progress of the children through the analytic graph option.

1.1 Problem Statement

Working parents are occupied and at times do not have time to teach them. At the nursery, the children's time is wasted during playtime. Most of the academic course nowadays is more critical and harder to understand for kids and they need assistance in both school and college. They could be learning while having fun and don't have any proper platform to use gadgets properly. There is a high normality of gadget usage however it was not concerned with academic concerns. However, After the first wave of covid-19, many schools have learning aids like books, materials, cardboards, and other toys but do not has interactive screens/mobiles/tablets that a kinder can easily utilize for more enhanced and effective learning. Though science has proved that a motion picture and 100 times more impact than a voice. Keeping in view, where mobile phones, tablets are common, the use of these so-called smart devices for learning can be more effective to any kid that can be more attracted towards it.

1.2 Motivation

According to a survey, people or students spend 24 hours on mobile due to which they are not focusing on learning. In a rural area, people, can't afford expensive studies for their children and don't even know how to use the internet and mobile in the right way to study and don't allow little girls to go out and study due to which illiteracy rate is increasing. So the usage of the mobile gadget is not positively or properly and children play a lot of game that harm students so the motivation and need behind this app to restrict students in studies rapidly in an

interesting and engaging. So in this way, students learn how to interact with technology positively.

Education is a key to success. Our goal is to teach students in a right and interesting way by providing mobile gadgets using the app. Due to Covid interaction between teachers and students become rare and this affect education and to identify the level of students and start interaction through our app. To attract children toward learning by providing them an interesting platform. This self-directed learning helps in increasing their focus as well as information retention. It also motivates and engages children of all abilities to learn. It is also beneficial for teachers and parents as they can quickly create a fun learning environment at a relatively low cost. Kinder Learning App is easily implemented, easy to learn, and also easy to understand.

We believe that our system/application is as good as other systems because it is an educational application. It will help in improving the education system especially nowadays as there is an online system of education and is preferred so it will be very helpful for institutions, teachers and most importantly for students. It is a knowledge-based system and will surely benefit its users. So, we think that it is considered to be a valuable system. We need modern day technology because it is qualified to be utilized in educational institutes and we distinguish our application effectively by applying various innovative techniques to progress learning: language education. [2]

1.3 Objective

Our project aims to help students of kindergarten to primary class in the study and classify several students by their ages and distribute their learning outcomes according to their classes and show them features. The concepts of students about their related chapters are not cleared. So we made an application for students so they prefer the interesting way of studying. The basic objective is to translate the learning of new ones from interactive teaching methods at home. This requires only a mobile application (installed app) and a camera. The parents do not need to run behind kids for making them learn from books. Kids can run this app and start learning interestingly and effectively and also easy for students, teachers, and parents to operate the app. [3]

The concept is to develop a mobile application for students with animation on the offline database so that students can use this application easily. This application is very simple so that students of classes primary to 4 can easily communicate with this application.

i. To identify the class and subject of the student and start interacting through mobile learning app.
ii. To run interactive learning application through a mobile app for Kindergarten.
iii. To provide support in home-based learning of students.

Research Objectives:

By our literature survey, the purpose of choosing this is to seek people's attention toward our application and also change the people's way of thinking towards technology and make learning easier and interesting to students and understand the impact of learning on society and students

Academic Objectives:

To make learning easier, interesting, and interactive to students of class from primary to kindergarten. So, then they start participating in learning by using simple and interactive applications [4]. Early education is a key element for the future success of the students in the education system.

Management Objectives:

The main objective of the management position is to organize the meetings for discussions, check the status of the project, and submit the project on time.

1.4 Challenges

Mobile applications have been something nearly incredible until some decades back. Early age users misuse mobile in playing games, watching video and parents also give mobile to children to ease themselves and children's studies are distracted and their whole focus is on mobile and internet games and the learning outcome becomes zero and they can be targeted by the internet violation. In rural areas they don't have facilities to studies higher due to lack of money and internet or mobile gadget issue and people mentality toward technology is negative they don't

accept mobile application due to lack of knowledge .so, it's a big challenge for us to provide a mobile app that restricts student to focus on their studies interestingly.

i. A large number of people are not aware of how to use a smartphone. ii Kids misuse the smartphone and can be targeted by internet violation.
ii. Lack of internet services in many areas iv A large number of people cannot afford a smartphone or a tablet.
iii. Many people don't know how to use the app.
iv. Developing mobile application. vii Mobile application compatibility with maximum devices.
v. Minimum mobile application size to avoid extra burden on mobile storage. ix Minimum running processes to avoid extra usage of RAM.

1.5 Structure of Report

This marks the completion of chapter one of the Kinder learning project. This chapter highlighted the overall concept of the kinder learning application. The introduction section provides a detailed review regarding major details of idea hunting. The problem statement specifies, what kind of issue we are tackling with this application and how it will be beneficial for the society. The motivation heading provides a clear definition of what motivated us to come up with the idea of kinder learning application.

As we go further into the content of chapter one the major descriptions regarding the objective of the project can be seen. This is where you will find vital information such as research objectives, academic objectives as well as management objectives. Furthermore, we have provided content regarding the challenges that can occur with the progression of the application as well as in the usage of the application. Lastly, the remaining structure of the project report is given as follows:

1.5.1 Chapter 2: Technology Background

This chapter will consist of our well researched literature review regarding all the related prior work of our project subject and technologies.

1.5.2 Chapter 3: Requirements & Methodology

This Chapter will discuss basic models of the system, in addition to that the chapter will also host functional and nonfunctional requirements of our project.

1.5.3 Chapter 4: Project Plan & Initial Design

This chapter will consist of all the detailed designs of the project that will help the developer in understanding the project implementation and creating an easy route in development of the system.

1.5.4 Chapter 5: Project Design & Development

This is the most significant chapter since it details the actual design and implementation of the concept. i.e., the phases of design and development.

1.5.5 Chapter 6: Testing

We will construct test cases in this chapter.

i. Perform front end (design testing), which may include user control testing, spelling checks, and alignment, among other things.
ii. Carry out backend testing (source code)
iii. Use a tool to conduct testing and incorporate the results in report.

1.5.6 Chapter 7: Conclusion

In this last chapter, we will conclude our work, share results including facts and figures, tables, and graphs to show your findings.

i Discuss limitations and challenges.
ii Discuss the work that will be done in the future.

CHAPTER – 2

2. Technology Background

In this chapter, we are going to discuss the technologies used in our final year project. We are also discussing problem solutions related to the domain and discussing the advancement of popular technology such as mobile phones and visual and audio data setup. We prefer to use two-dimensional media in education which is very coefficient and flexible to users and also its increased demand for real-time applications. These applications require up to the seconds information by the users as well as they perform multiple tasks along with the speed of the actual application.

The app will help children with slow learning, and will provide a progress chart of how much and in what fields the child has progressed. The game feature is indulging the children to learn more and have fun all at once. We have used a mixture of modern-day technology and conventional academic technique to provide ease of learning for the students. This app is functionally easy to use as compared to other already-existing applications within the market. Below is the overview of all the technical detail of our project.

2.1 Background of the technology:

Application overview starts with a display screen that consists of a character and also the login and camera buttons, the login button which makes the user to login screen, where the user can login or register while the camera button makes the user move towards the scanning image. The camera connected to the button is free to use by any person at any time but if the person wants to take a test or wants to see his or her Progress then it must have to login first then he will be able to attempt a quiz or be able to see his or her progress. The main learning window provide many option of studying and test, the progress can be navigated through the progress graph.

2.1.1 Android Studio

Android studio is chosen because it is more feasible for the mobile application development in comparison of Unity because unity is only a software that can develop are came easily or 3d game. while in comparison to Android studio works for mobile application and also have a more response time for the application because in unity when we try to open the application

there it took some time to response was the user in Android application the response time is almost negligible time so that's why we are using Android studio

For camera we are using ML Technology machine learning Technology that's why we are using Android studio because Android studio is very supportive and have default plugins for this while in unity we have to specify each and every plugging along with their parameters separately [7].

Supported platforms

i. Mobile platforms ii Internet platform
ii. Console platforms PlayStation
iii. Virtual/Extended reality platforms

2.1.2 Java

Java is free, basic, and object-arranged, appropriated, upholds multithreading and offers media and network support. It is secure, quick and amazing Java offers higher cross-usefulness and convenience as projects written in one stage can stumble into work areas, mobiles, implanted frameworks. Specifically, programming language: Java is specifically, e.g., the sorts of the preowned factors should be pre-characterized and change to different articles is moderately exacting, e.g., should be done by and large by the software engineer. Programmed memory the executives: Java deals with the memory distribution and de-designation for making new articles. Java is preferred for many reasons for developing android applications [8].

Identifying Features:

i. Java is secure (no threat to security because nothing gets executed outside the JVM)
ii. Object oriented paradigms.
iii. Rich set of core features (java's core features are complete and vast. Also, they're regularly updated and maintained by oracle).
iv. JVM (optimized for android): a virtual machine makes life of a developer /programmer
v. Easier. And android uses dalvik, a VM optimized to suit android needs.
vi. Frameworks & Classes: outside the core library, java has many frameworks and classes
vii. For features like networking, threading, and IO operations and thus, programmers can
viii. Leverage these qualities in their apps.

ix. Open-source nature of java and android.

2.3 Literature Review:

In recent years, there has been a growing interest in the usage of augmented truth (AI) to create specific educational settings. This paper reviews literature evaluations about the unpopular truth of taxpayers that we see in instructional settings thinking of factors along with usage, blessings, features, and the effectiveness of non-digital fact in academic applications. In general, 55 research published between 2011 and 2016 within the Social Sciences citation Index database have been analyzed. The important findings of this review offer the contemporary nation of the artwork in AR/AI research in schooling. Similarly, this paper discusses developments and imaginative and prescient for the future in addition to opportunities for similarly research on augmented fact in instructional settings.

Advanced technical learning, using a variety of content representation novels and the delivery of educational services by improving the visual perception of the real user environment, is particularly appealing to proponents of educational inclusion for students with physical disabilities. Such an advanced virtual computer learning program has been developed as part of an EU-funded research project, which is a CONNECT project. The CONNECT project brings together schools and science institutes, and generates new information and communication technologies based on virtual reality taxpayers (AR/AI) and web-based broadcasts and communications, to support learning in a variety of settings. The CONNECT AR collaborative learning environment can help users improve and strengthen their learning in school and other settings where people learn (i.e. science and home institutions). The concept of CONNECT and related technologies encourages users to visit science centers and perform tests that do not take place at school. They can also build on this school and home experience by adding visual effects to web-based broadcast technology. This paper focuses primarily on the user-focused test method of human touch and teaching features of the CONNECT system, as it is used in a group of users with special needs. The main focus of the paper is to highlight the issues and challenges of the individual, regarding the wearing and acceptance of the technology, while elaborating on certain aspects of the quality of teaching methodology offered by AR and AI technology in this group of students [6]

The purpose of this study was to record how teachers and students describe and understand ways to participate in augmented reality as well as artificial intelligence (AR/AI) simulation or impediments for teaching and learning. As a virtual multi-user interface (MUVE) based on online gaming, AR and AI is a great way to simulate rooted engagement, but has different

strengths and limitations than MUVE. Within the project-based research project, researchers conducted several quality studies at two middle schools (grades 6 and 7) and one high school (grade 10) in the northeastern United States to document the strengths and limitations of imitation. AR/AI from the reader. and the teacher's point of view. Researchers collected data through formal and informal interviews, direct observations, posted on websites, and website documents. Teachers and students reported that technology-related and collaborative narrative, which, in turn, was able to solve the problems of AR simulation interaction was very involved, especially among students who had previously presented ethical and educational challenges to teachers. However, although the imitation of AR provided a potentially transformative value, it simultaneously presented unique technical, administrative, and psychological challenges to teaching and learning.

The study used excavation techniques to evaluate 2,997 international research essays published between 2000 and 2010 in six journals included in the Social Science Citation Index in the field of Education Technology (EDTECH). A total of 19 collections of study sites were identified, and these collections were further analyzed by country and journal production. The analysis reveals research areas with growing styles, stability, and low attention. The study also identified areas of research emphasis by journal and research power by country. A discussion of the results using the Critical Theory of Technology lens is also included. The authors hope to inform the EDTECH community about the trend of EDTECH research on topics and regions of research contributions. The authors also believe that such an exploration of trends could help advance fruitful discussions of future research guides, as well as possible international collaboration in various regions of the region [9].

CHAPTER – 3

3.1 Introduction:

In this chapter we will discuss about how much work is done on the development of our project according to the project plan. This chapter will cover the in-detail process and objective of the project. As our app is built on windows that are being reused within the system itself the developers had to take a systematic approach for the app to work smoothly. Our project plan is strategically planned with the Gantt chart and other organizational tools. Each activity has specific time period allotted according to the complexity of the task, which is why the days in work may vary.

We will also discuss in detail about the Functional, Non-Functional and Hardware requirements of our project. The functional requirement are taken in to full consideration as they are the necessary part in order to get the basic requirement by the project such as, camera detection and learning objective, while on the other hand, the non-functional requirement such as, settings and feedback are also thoroughly planned.

3.2 Project Plan:

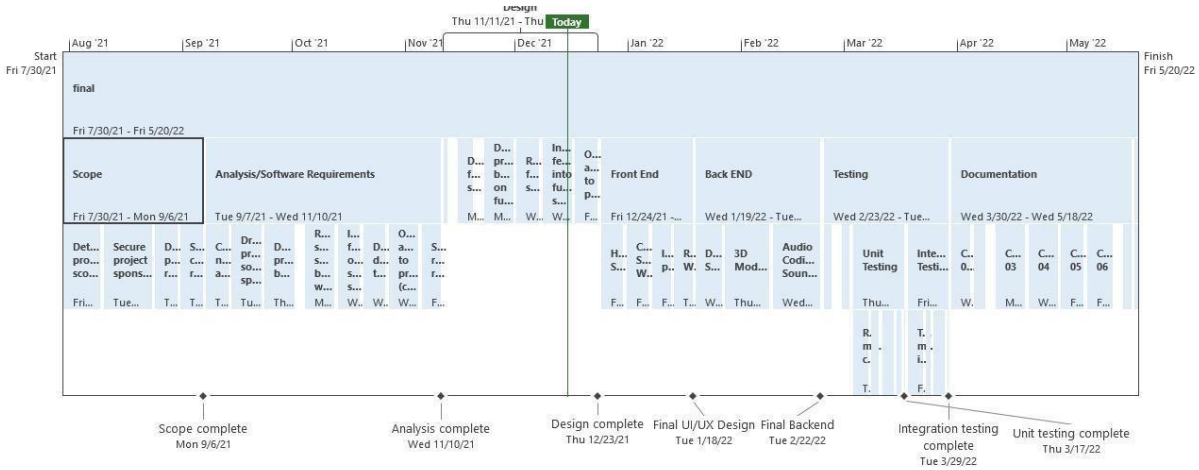


Figure 1: Project Plan

Figure 2: Gantt Chart

3.3 Functional Requirements:

3.3.1 User Panel:

1. **Register:** User using for the first time have to register into the app by entering their email, username, and password.
   - **1.1 Google Signup:** User can directly signup into the application by using their google account credentials.
2. **Login:** User can login into the application by inserting their email and password in the textboxes.
   - **2.1 Take Quiz:** Once user login into the Application then it can take quiz.
   - **2.2 Select learning window:** user can learn questions according to their choice..
   - **2.3 Select area:** User need to select area at which it wants to take test.
3. **Feed Data:** When the user completes the quiz its progress will save into its account.
4. **My Progress:** User can see his/her progress in My progress section.

3.4 Non-Functional Requirements:

Responsive Design: The application is completely responsive i.e.; it can be viewed with all the objects in perfect alignment in every device.

Performance: The application will provide fast and seamless reporting environment to the user as it is developed using the best software development practices without compromising any quality measure.

Operational Devices: The application can be used on both mainstream mobile operating systems Android OS.

Security: For the security of the mobile application secure/complex programming techniques are used that cannot be reversed engineered.

Look and Feel: The application design is user friendly and has combination of mainly white and other vibrant colors.

3.5 Hardware Requirements:

i. Camera Hardware will be required.
ii. For smooth usage of application at least 3 GB RAM will be required.
iii. Phone internal storage of around 60-70 MB required.
iv. Internet connection is must to operate the application.

3.6 Summary:

In this chapter, a detailed Project Plan, Functional, Non-Functional requirements and other planning mechanisms are discussed in detail that will be required in our project. We have also mentioned an introduction regarding our mobile application how we can perform our task so we make a milestone chart in this first we describe our task week wise in summary activity and then we make a Gantt chart according to summary activity. In Gantt chart we were describing task name or duration for implementation of our “Kinder Learning Application” After Gantt chart we describe Non-Functional requirements of our android application the requirements are system settings and feedback

CHAPTER – 4

4.1 Introduction:

In this chapter, we are going to discuss about the design and specification of our project, in which we elaborate our project deeply with the help of diagrams like we gather all the information related to our application then set the framework to show the flow of the application so that the application flow will be easily understand. We have used different diagrams for the complete flow of our application to make it understandable to user. In this phase, we also discussing the data flow diagrams (DFD'S), entity relationship diagram (ERD'S), UML in detailed as according to our application. (Pramudyo). These diagrams show the system work flow and specification of our application to make it user friendly. It also shows how every screen work flow is working with the help of diagram. After all information has been gathered and design has been created so now, the development has started in order to make sure that it is able to be used by user.

The purpose for making the data flow diagram and entity diagram to guide the direction of our system that how we perform each and every thing and also show the flow of our application specifically like in implementation. In detail this will provide a clear understanding of the overall coding of the system for the people who are on user bases. each diagram is detail with all functional input and output of the system, making sure that the system runs smoothly.

4.2 Data Flow Diagram:

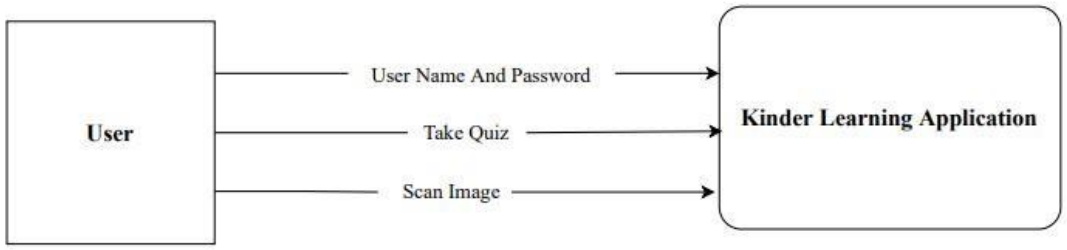


Figure 3: DFD

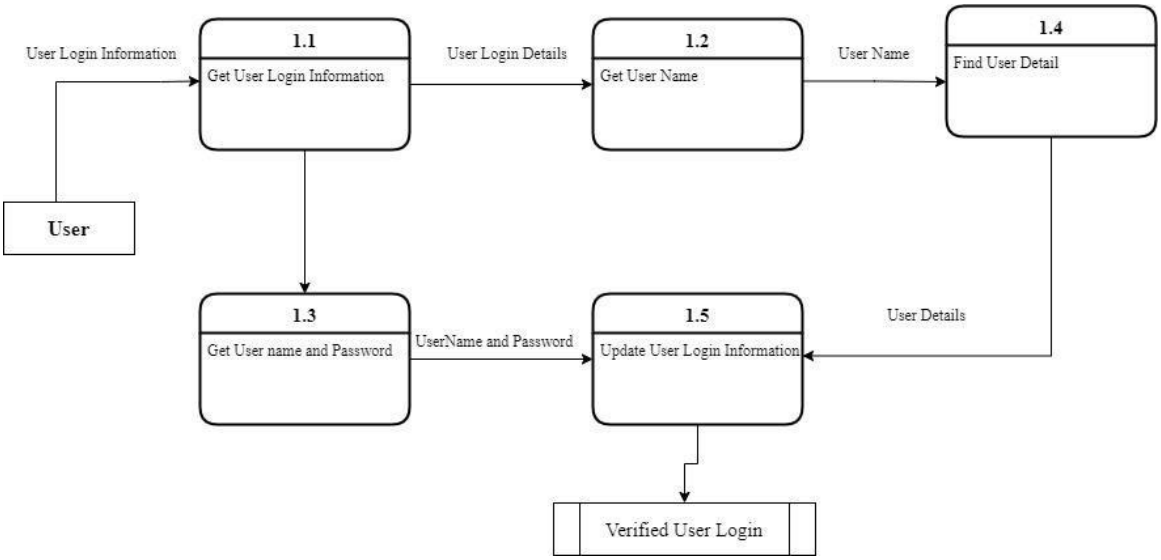


Figure 4: Data Flow Diagram Level 1

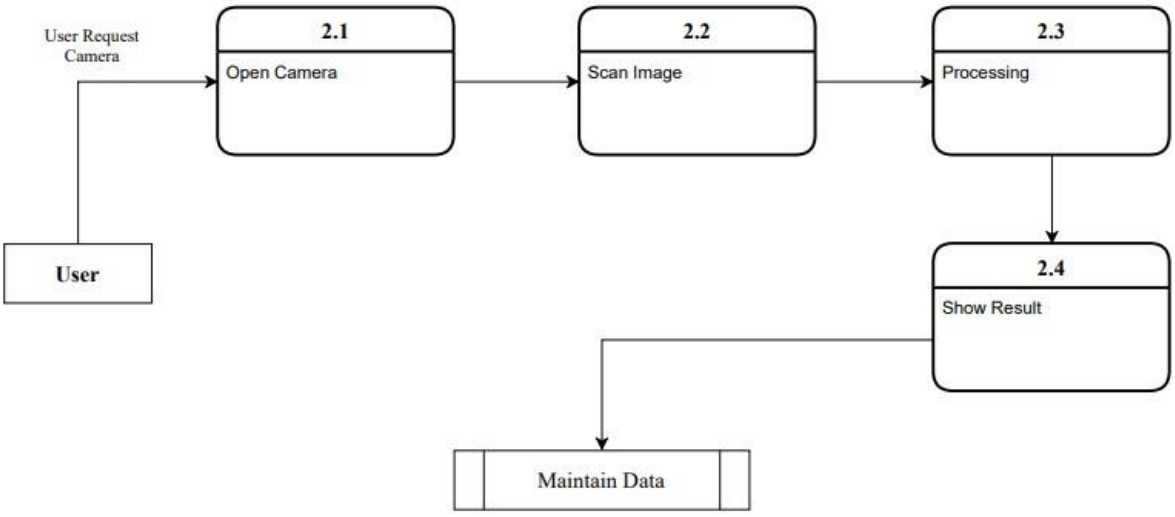


Figure 5: Data Flow Diagram Level 2

4.2 Entity Relationship Diagram

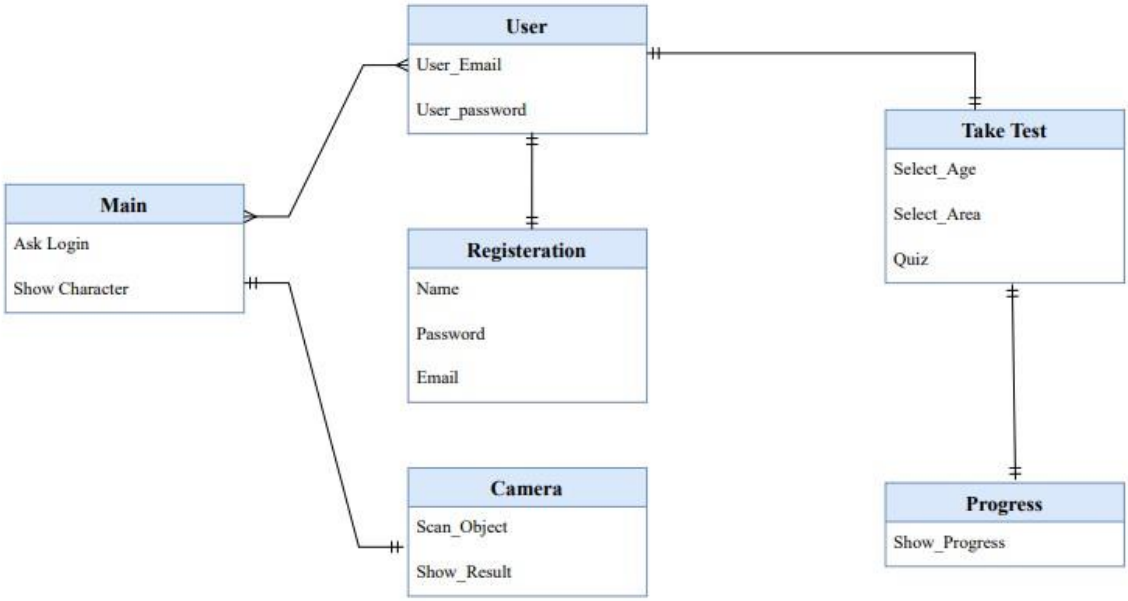


Figure 6: Entity Relationship Diagram

4.3 Use Cases

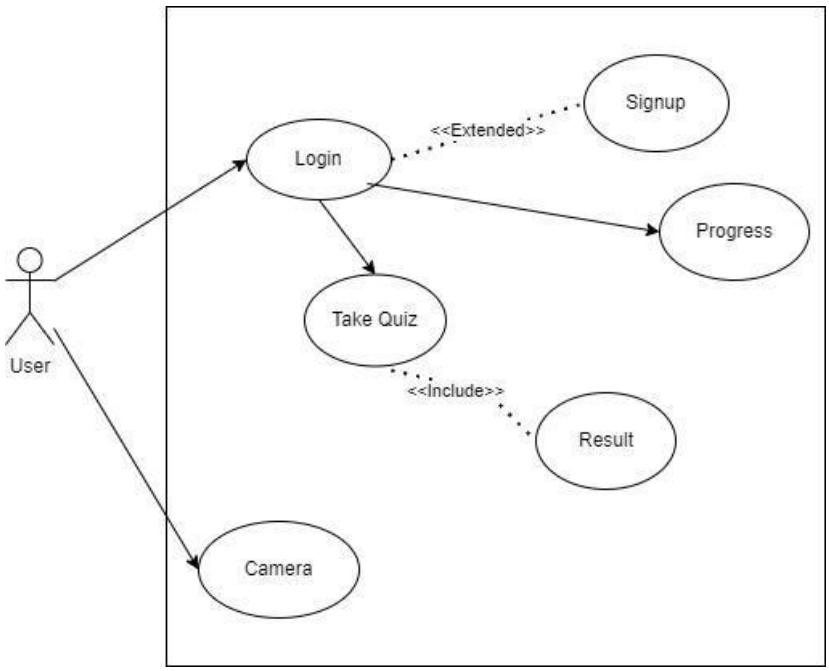


Figure 7: Dashboard

1. Signup

Figure 8: Sign Up Use case

Use Case Name:	Sign up	
ID:	01	
Priority:	High	
Actors Involved:	User	
Brief Description:	If the actor is not registered then they will fill all the fields of the signup form, after that they can see and avail all the features in the application.	
Pre- Condition:		
Post- Condition:		
Normal Flow of Events:	**Actor Actions:** i Enter name, email address, Password and mobile number, type. ii Clicks the `signup' Button.	**System Response:** iii System will check and validate the username that it is exist in the database or not. iv If username already exist in the database, then it will show error on the actor's screen that 'this username is already exist'. If actor put unique username, then the System will create the account. v System displays the actor's main page on successful login.

Table 1: Sign Up

2. Login

Figure 9: Login Use case

Use Case Name:	Login	
ID:	02	
Priority:	High	
Actors Involved:	User	
Brief Description:	Actors enter the Email and password to login to the application.	
Pre-Condition:	Use Case ID: 01	
Post-Condition:	Enter into the application.	
Normal Flow of Events:	**Actor Actions:** i Enter Email. ii Enter Password iii Clicks the login Button.	**System Response:** i System displays the actor's main page on successful login. ii System displays error message on invalid login.

Table 2: Login

3.Camera Access

Figure 10: Camera Access

Use Case Name:	Camera Access	
ID:	03	
Priority:	High	
Actors Involved:	User	
Brief Description:	Actors Access the camera	
Pre-Condition:	Enter into the application.	
Post-Condition:	Enter into the application.	
Normal Flow of Events:	**Actor Actions:** i Click on Actor ii Access Camera Permission	**System Response:** i Open Camera

Table 3: Camera Access

4. Quiz Attempt

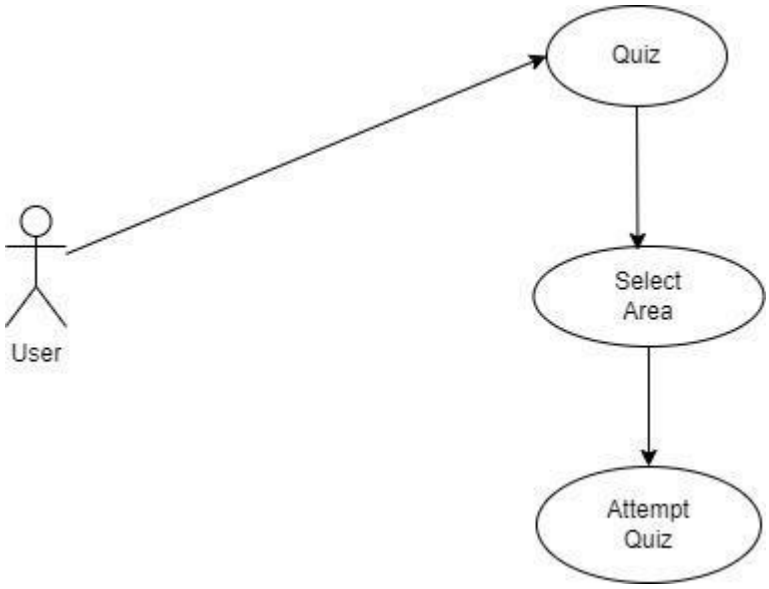


Figure 11: Quiz Attempt Use case

Use Case Name:	Take Quiz	
ID:	04	
Priority:	High	
Actors Involved:	User	
Brief Description:	Actors attempt the Quiz to test the skill.	
Pre-Condition:	Use Case ID: 02	
Post-Condition:	Enter into the application.	
Normal Flow of Events:	**Actor Actions:** i. Select Age ii. Select Area iii. Attempt quiz	**System Response:** ii Show Questions iii Maintain Data

Table 4: Quiz

5. Show Progress

Figure 12: Show Progress Use case

Use Case Name:	Show Progress	
ID:	05	
Priority:	High	
Actors Involved:	User	
Brief Description:	Actors can see their Progress.	
Pre-Condition:	Use Case ID: 02	
Post-Condition:	Enter into the application.	
Normal Flow of Events:	**Actor Actions:** i Login ii See progress	**System Response:** i Show Progress on the bases of their attempt.

Table 5: Show Progress

6. Scan Image

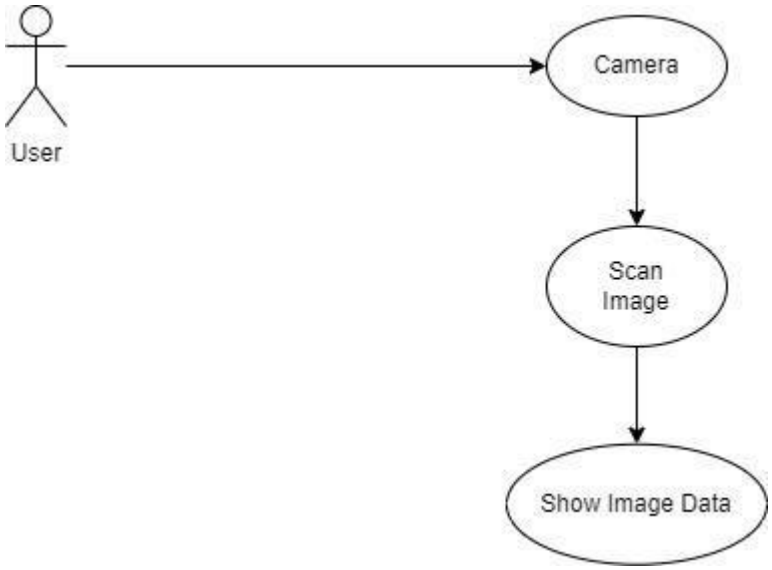


Figure 13: Scan Image Use case

Use Case Name:	Scan Image	
ID:	06	
Priority:	High	
Actors Involved:	User	
Brief Description:	Actors scan the object to see the data of image.	
Pre-Condition:	Use Case ID: 03	
Post-Condition:	Enter into the application.	
Normal Flow of Events:	**Actor Actions:** i. Open camera ii. Click image	**System Response:** i. Show image data

Table 6: Scan Image

4.5 Summary:

In this chapter, we met with the data flow diagrams, entity relationship diagrams and uml diagram. Our application covered the all-major modules, which were used to fulfill the requirements so the data flow diagram (dfd's) and entity relationship diagram (erd's) elaborate this in detailed because when we gathered the information so it show the flow of our system specifically like in implementation we make sure that the development is start or not then after this testing process will be occurred so if there is any error occur so it must be solved at that time then we monitor our application by time to time to make sure that everything is complete or not that why we make data flow diagram and entity relationship diagram to focus on our mistake. In spite of everything, information has been accumulated and layout has been created so now, the implementation has been initiated according to the applications' requirement to make sure that it is beneficial for the user on a long run. This application has a highly responsive nature because of the fact that the major specification of this application is to connect with camera, setting, feedback, and progress chart of child.

CHAPTER – 5

5.1 Introduction:

In this chapter we are discussing aspects which are used in our project, and prototype design which is generally used to evaluate a new design to enhance precision by system analysts and users and frontend and backend design of our project. We are also discussing about the database queries which are used in firebase and some external libraries and we are showing screenshots of our application as it fulfills user requirements. We have briefly provided a few clarifications about the sort of functionalities available on the system, source code of validation and etc.

5.2 Prototype Design:

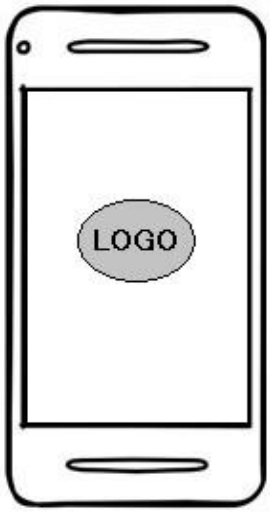
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Floating Screen</td></tr>
<tr><td>Screen: < 1 of 16 >
Link from screen: Floating Screen
Link to screen: NIL</td><td>Screen Description:
Is an initial window.
Screen time:1.5 seconds
Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity:
Enter Different Screen When user select option for functionality</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, lilac, brown, yellow, grey, green, and Orange</td><td>Video: none</td></tr>
<tr><td>Text attributes: none</td><td>Still images: slide show</td></tr>
</table>

Table 7: Prototype 1

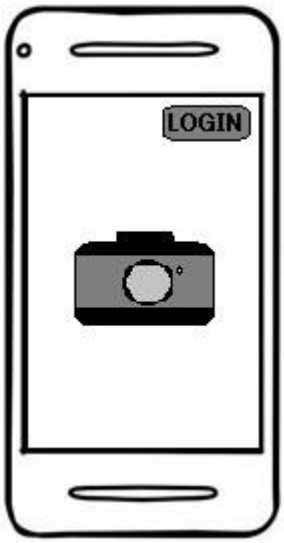
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Main Window</td></tr>
<tr><td>Screen: < 2 of 16 >
Link from screen: Floating Window
Link to screen: Take Picture window and login window</td><td>Screen Description:
Camera animated button and Login Button</td></tr>
<tr><td colspan="2">Functionality/Interactivity:
Enter main window, provides options of camera and login</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: Yellow and white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black</td><td>Video: Camera animation</td></tr>
<tr><td>Text attributes: Default (Arial)</td><td>Still images: Back.jpg</td></tr>
</table>

Table 8: Prototype 2

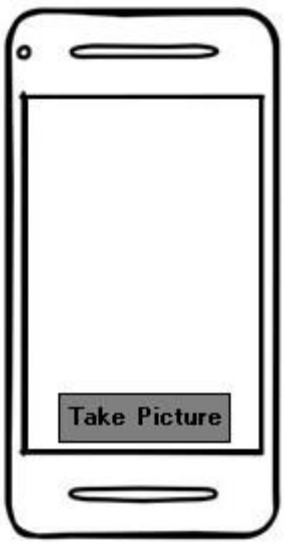
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Take Picture</td></tr>
<tr><td>Screen: < 3 of 16 >
Link from screen: Main Window
Link to screen: Camera</td><td>Screen Description:
Take_Picture Button</td></tr>
<tr><td colspan="2">Functionality/Interactivity: User can take a photo by pressing the button.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: background .png, Button</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, Blue</td><td>Video: none</td></tr>
<tr><td>Text attributes: Arial, 12pt</td><td>Still images: background.png</td></tr>
</table>

Table 9: Prototype 3

<table>
<tr><td colspan="2">Project Title: Kinder Learning Application

Date: 18/02/2022

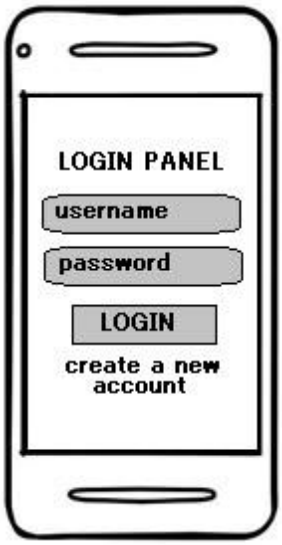
Screen Name: login Panel</td></tr>
<tr><td>Screen: < 4 of 16 >

Link from screen: Main Window

Link to screen: Kinder Learning Application window and Register window</td><td>Screen Description:

Email textbox, Password textbox, login button, Text, Image.</td></tr>
<tr><td colspan="2">Functionality/Interactivity:

Use inputs data to use the app. If he/she is a new user, user chooses the register button.</td></tr>
<tr><td colspan="2">Screen Design:

 
</td></tr>
<tr><td>Background: textbox, Password textbox, login button, Text, Image.</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black</td><td>Video: none</td></tr>
<tr><td>Text attributes: Aclonica(24sp)

Arial(12dp) (16dp) (8dp)</td><td>Still images: loginback.jpg</td></tr>
</table>

Table 10: Prototype 4

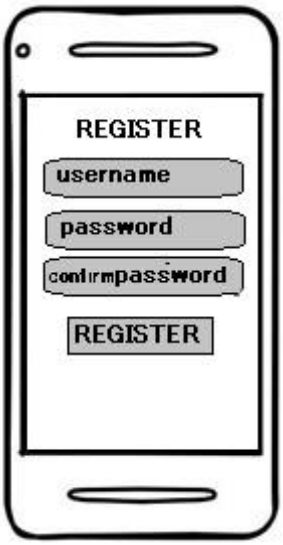
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Register</td></tr>
<tr><td>Screen: < 5 of 16 >
Link from screen: Login Window
Link to screen: Login window</td><td>Screen Description:
Email textbox, Password textbox, login button, Text, Image.</td></tr>
<tr><td colspan="2">Functionality/Interactivity:
When user login and Kinder Learning Application window will be displayed.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: textbox, Password textbox, login button, Text, Image.</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, maroon and green</td><td>Video: animation ??</td></tr>
<tr><td>Text attributes: Aclonica(24sp)
Arial(20dp)</td><td>Still images: Registrationblock.jpg</td></tr>
</table>

Table 11: Prototype 5

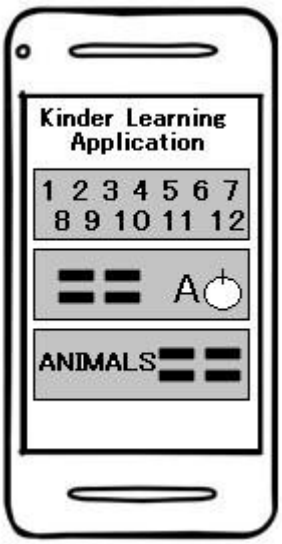
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Kinder Learning Application window</td></tr>
<tr><td>Screen: < 6 of 16 >
Link from screen: Login Window
Link to screen: setting window, Preschool Kids Learning, Look and choose, Listen and guess</td><td>Screen Description:
setting window, Preschool Kids Learning, Look and choose, Listen and guess.</td></tr>
<tr><td colspan="2">Functionality/Interactivity:
Acts as a dashboard where user can choose categories.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, dark blue, black, red, green, pink, purple, black, yellow, orange, red and brown</td><td>Video: none</td></tr>
<tr><td>Text attributes: none</td><td>Still images: cardfour.jpg, cardthree.jpg, cardone.jpg</td></tr>
</table>

Table 12: Prototype 6

<table>
<tr><td colspan="2">Project Title: Kinder Learning Application

Date: 18/02/2021

Screen Name: Setting Window</td></tr>
<tr><td>Screen: < 7 of 16 >

Link from screen: Kinder Learning Application window

Link to screen: Kinder Learning Application window</td><td>Screen Description:

Sound button, rate button, feedback request. Privacy policy button , Text</td></tr>
<tr><td colspan="2">Functionality/Interactivity:

User can alter sound setting, can send feedback, rate the app or look through privacy policy of the application.</td></tr>
<tr><td colspan="2">Screen Design:

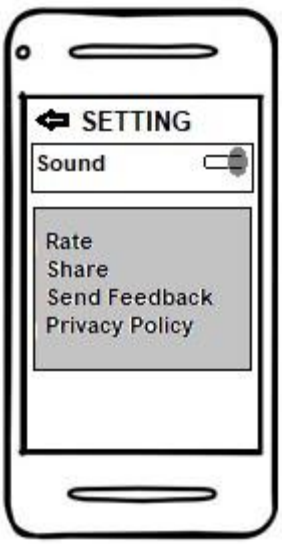
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, and black</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial) (18dp)</td><td>Still images: none</td></tr>
</table>

Table 13: Prototype 7

<table>
<tr><td colspan="2">Project Title: Kinder Learning Application

Date: 18/02/2022

Screen Name: Preschool Kids Learning</td></tr>
<tr><td>Screen: < 8 of 16 >

Link from screen: Kinder Learning Application window with “Let’s start learning” button

Link to screen: Category window</td><td>Screen Description:

Alphabet, number, color, Shapes, animal, birds, flowers, fruits, month, vegetables, Body parts, clothes, country, food, Geometric, house, jobs, school, sports and vehicle buttons,</td></tr>
<tr><td colspan="2">Functionality/Interactivity:

The user gets to choose from multiple categories and learn about Alphabets, numbers, colors, Shapes, animals, birds, flowers, fruits, months, vegetables, Body parts, clothes, country, food, Geometric, houses, jobs, schools, sports and vehicles.</td></tr>
<tr><td colspan="2">Screen Design:

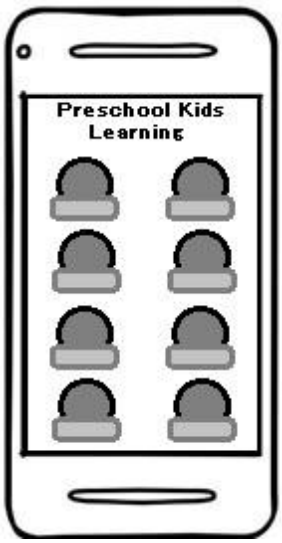
 
</td></tr>
<tr><td>Background: bg_main</td><td>Audio: none</td></tr>
<tr><td>Color scheme: Multicolor</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial) (18dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 14: Prototype 8

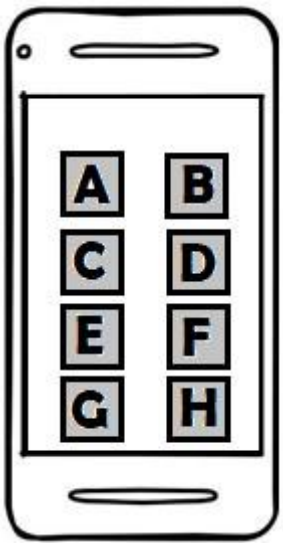
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2021
Screen Name: Category window</td></tr>
<tr><td>Screen: < 9 of 16 >
Link from screen: Preschool Kids Learning
Link to screen: Category Window</td><td>Screen Description: Text, Image. Buttons</td></tr>
<tr><td colspan="2">Functionality/Interactivity:
When user learns about selected category.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: bg_main</td><td>Audio: Google Audio</td></tr>
<tr><td>Color scheme: Multi color</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(20dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 15: Prototype 9

<table>
<tr><td colspan="2">Project Title: Kinder Learning Application

Date: 18/02/2022

Screen Name: Quiz1 window</td></tr>
<tr><td>Screen: < 10 of 16 > Screen Description:

Link from screen: Kinder Learning Text, Image, Buttons Application window with “Look and choose” button

Link to screen: Kinder Learning Application window</td><td></td></tr>
<tr><td colspan="2">Functionality/Interactivity:

When user selects the “Look and choose” button, they can play Alphabetical quiz.</td></tr>
<tr><td colspan="2">Screen Design:

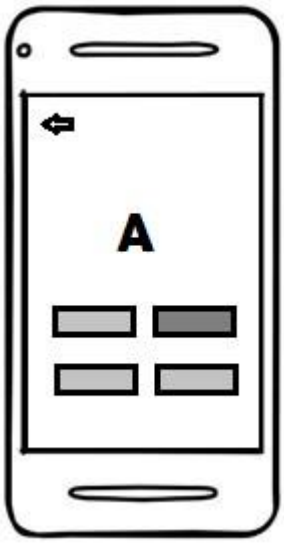
 
</td></tr>
<tr><td>Background: bg_view</td><td>Audio: Google Audio</td></tr>
<tr><td>Color scheme: white, dark blue, black, red mix, red, green, blue, yellow.</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(20dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 16: Prototype 10

<table>
<tr><td colspan="2">Project Title: Kinder Learning Application

Date: 18/02/2022

Screen Name: Look and choose Quiz</td></tr>
<tr><td>Screen: < 11 of 16 >

Link from screen: Kinder Learning Application window with “Look and choose Quiz” button

Link to screen: Category window</td><td>Screen Description:

Alphabet, number, color, Shapes, animal, birds, flowers, fruits, month, vegetables, Body parts, clothes, country, food, Geometric, house, jobs, school, sports and vehicle buttons,</td></tr>
<tr><td colspan="2">Functionality/Interactivity:

The user gets to choose from multiple categories and learn about Alphabets, numbers, colors, Shapes, animals, birds, flowers, fruits, months, vegetables, Body parts, clothes, country, food, Geometric, houses, jobs, schools, sports and vehicles.</td></tr>
<tr><td colspan="2">Screen Design:

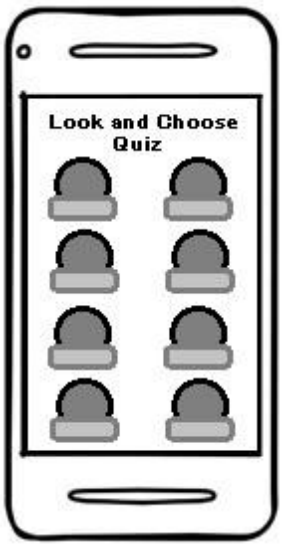
 
</td></tr>
<tr><td>Background: bg_main</td><td>Audio: none</td></tr>
<tr><td>Color scheme: Multicolor</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(20dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 17: Prototype 11

<table>
<tr><td colspan="2">Project Title: Kinder Learning Application

Date: 18/02/2022

Screen Name: Quiz2 window</td></tr>
<tr><td>Screen: < 12 of 16 >

Link from screen: Look and choose quiz window

Link to screen: Look and choose window</td><td>Screen Description:

Text, Image, Buttons</td></tr>
<tr><td colspan="2">Functionality/Interactivity:

When user selects the “Look and choose” button, they can play quizzes from chosen categories.</td></tr>
<tr><td colspan="2">Screen Design:

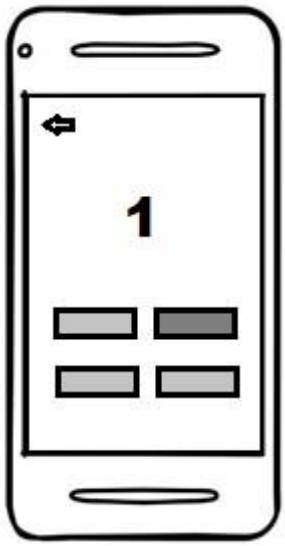
  </td></tr>
<tr><td>Background: none</td><td>Audio: Google Audio</td></tr>
<tr><td>Color scheme: Multi color</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(20dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 18: Prototype 12

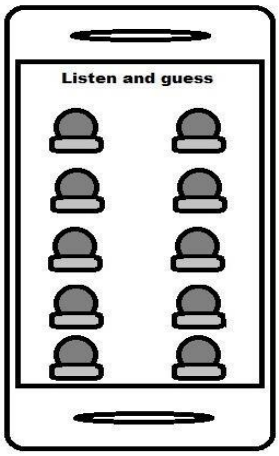
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Listen and Guess</td></tr>
<tr><td>Screen: < 13 of 16 >
Link from screen: Main Window
Link to screen: Listen and Guess window</td><td>Screen Description:
Text, Image, Buttons</td></tr>
<tr><td>Functionality/Interactivity:
When user selects the “Listen and Guess” butto</td><td>ı, they can play quizzes from chosen categories.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: none</td><td>Audio: Google Audio</td></tr>
<tr><td>Color scheme: Multi color</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(20dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 19: Prototype 13

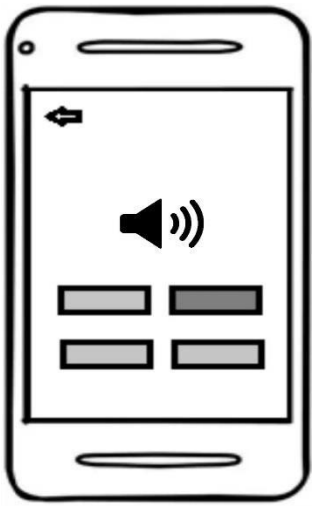
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Quiz</td></tr>
<tr><td>Screen: < 14 of 16 >
Link from screen: Listen and Guess window
Link to screen: Quiz</td><td>Screen Description:
Text, Image, Buttons</td></tr>
<tr><td colspan="2">Functionality/Interactivity: ı, they can play quizzes from chosen categories.
When user selects the “Listen and Guess ” butto</td></tr>
<tr><td colspan="2">Screen Design:
  </td></tr>
<tr><td>Background: none</td><td>Audio: Google Audio</td></tr>
<tr><td>Color scheme: Multi color</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(20dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 20: Prototype 14

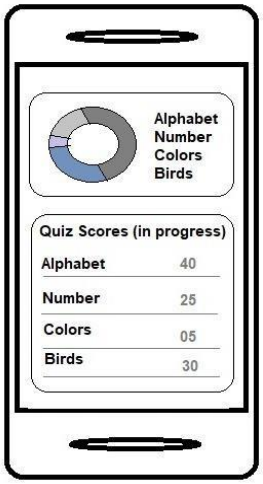
<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Progress Chart</td></tr>
<tr><td>Screen: < 15 of 16 >
Link from screen: Setting Window
Link to screen: Progress Chart</td><td>Screen Description:
Text, Image</td></tr>
<tr><td colspan="2">Functionality/Interactivity:
When user selects the “Progress Chart” button, they can see Progress of them.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: none</td><td>Audio: None</td></tr>
<tr><td>Color scheme: Multi color</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(20dp)</td><td>Still images: Multiple Images</td></tr>
</table>

Table 21: Prototype 15

<table>
<tr><td colspan="2">Project Title: Kinder Learning Application
Date: 18/02/2022
Screen Name: Survey</td></tr>
<tr><td>Screen: < 16 of 16 >
Link from screen: Setting Window
Link to screen: Survey</td><td>Screen Description:
Text, Image, Button</td></tr>
<tr><td colspan="2">Functionality/Interactivity:
When user selects the “Survey” button, they can give feedback to us.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: none</td><td>Audio: None</td></tr>
<tr><td>Color scheme: Black, Red</td><td>Video: none</td></tr>
<tr><td>Text attributes: Default (Arial)(24sp) (18sp)</td><td>Still images: Survey.jpg</td></tr>
</table>

Table 22: Prototype 16

5.3 Database Queries:

```
public void login()
{
   String user = username.getText().toString().trim();
   String pwd = Password.toString().trim();
Boolean res = db.checkuser(user, pwd);
   if (pwd.equals(pass))
   {
      Intent intent = new Intent(LoginPage.this, MainActivity.class);
startActivity(intent);
   }
   else if (res == true) {
      Intent HomePage = new Intent(LoginPage.this, MainActivity.class);
startActivity(HomePage);
      Toast.makeText(this, "...Welcome...", Toast.LENGTH_SHORT).show();
   } else {
      Toast.makeText(LoginPage.this, "Not Registered in Database ...", Toast.LENGTH_SHORT).show();
   } }
public void onsignup() {


   String username = Username.getText().toString().trim();
   String password = Password.getText().toString().trim();
String cnfpwd = Cpassowrd.getText().toString().trim();


   if     (password.equals(cnfpwd))     {
if (db.insert(username,password))
      {
         Toast.makeText(RegistrationPanel.this, "User Added Sucessfully.....", Toast.LENGTH_SHORT).show();
Username.setText("");
         Password.setText("");
         Cpassowrd.setText("");
      } else {
         Toast.makeText(RegistrationPanel.this, "Registeration Error", Toast.LENGTH_SHORT).show();
      }
}    else
{
      Toast.makeText(RegistrationPanel.this, "Password is not matching", Toast.LENGTH_SHORT).show();
   } }
public boolean validate()
{
   boolean valid = true;
if(username.isEmpty())
   {
      Username.setError("Please Enter Username");
valid = false;
   }
   if(password.isEmpty())
   {
      Password.setError("Please Enter Password");
valid = false;
   }
   if(cpassword.isEmpty())
   {
      Cpassowrd.setError("Enter Password");
valid = false;
   }
```

```
    return valid;
}
 private void subScribeToFirebaseTopic() {
    FirebaseMessaging.getInstance().subscribeToTopic("kids_play_topic")
            .addOnCompleteListener(new OnCompleteListener<Void>() {
                @Override
                public void onComplete(@NonNull Task<Void> task) {
if (!task.isSuccessful()) {
                        Log.e("subScribeFirebaseTopic", ": Fail");
                    } else {
                        Log.e("subScribeFirebaseTopic", ": Success");
                    }
                }
            });
}
private void successCall() {
    if (Utils.isNetworkConnected(this)) {
        if (Constant.ENABLE_DISABLE.equals(Constant.ENABLE)) {
            Utils.setPref(MainActivity.this, Constant.AD_TYPE_FB_GOOGLE,
Constant.AD_TYPE_FACEBOOK_GOOGLE);
            Utils.setPref(MainActivity.this, Constant.FB_BANNER, Constant.FB_BANNER_ID);
            Utils.setPref(MainActivity.this, Constant.FB_INTERSTITIAL, Constant.FB_INTERSTITIAL_ID);
            Utils.setPref(MainActivity.this, Constant.GOOGLE_BANNER, Constant.GOOGLE_BANNER_ID);
Utils.setPref(MainActivity.this, Constant.GOOGLE_INTERSTITIAL,
Constant.GOOGLE_INTERSTITIAL_ID);
            Utils.setPref(MainActivity.this, Constant.STATUS_ENABLE_DISABLE, Constant.ENABLE_DISABLE);
setAppAdId(Constant.GOOGLE_ADMOB_APP_ID);
        } else {
            Utils.setPref(MainActivity.this, Constant.STATUS_ENABLE_DISABLE, Constant.ENABLE_DISABLE);
        }
    } else {
        Utils.openInternetDialog(this, true,this);
    }
}
public void setAppAdId(String id) {
try {
        ApplicationInfo applicationInfo = getPackageManager().getApplicationInfo(getPackageName(),
PackageManager.GET_META_DATA);
        Bundle bundle = applicationInfo.metaData;
        String beforeChangeId = bundle.getString("com.google.android.gms.ads.APPLICATION_ID");
Log.e("TAG", "setAppAdId:BeforeChange::::  " + beforeChangeId);
        applicationInfo.metaData.putString("com.google.android.gms.ads.APPLICATION_ID", id);
String AfterChangeId = bundle.getString("com.google.android.gms.ads.APPLICATION_ID");
        Log.e("TAG", "setAppAdId:AfterChange::::  " + AfterChangeId);
    } catch (PackageManager.NameNotFoundException | NullPointerException e) {
e.printStackTrace();
    }


}
```

5.4 External Libraries:

1. **For login:** import androidx.appcompat.app.AppCompatActivity; import android.content.Intent; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.EditText; import

android.widget.TextView; import android.widget.Toast; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.R; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.database.DBHelper;

2. **For Register:** import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.Toast; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.R; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.database.DBHelper;

3. **For Main Window:**
   import android.content.Context; import
   android.content.Intent; import
   android.content.pm.ApplicationInfo; import
   android.content.pm.PackageManager; import
   android.os.Bundle; import android.util.Log;
   import android.view.View;
   import android.widget.LinearLayout; import android.widget.RelativeLayout; import androidx.annotation.NonNull; import androidx.appcompat.app.AppCompatActivity; import androidx.recyclerview.widget.LinearLayoutManager; import
   androidx.recyclerview.widget.RecyclerView; import
   com.google.android.gms.tasks.OnCompleteListener; import
   com.google.android.gms.tasks.Task; import
   com.google.firebase.messaging.FirebaseMessaging; import
   com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.R; import
   com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.adapter.HomeAdapter; import
   com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.customclasses.Constant; import
   com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.database.DatabaseHelper
   ;

import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.interfaces.CallbackListener; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.utils.Utils;

4. **For Quiz:** import androidx.appcompat.app.AppCompatActivity; import android.content.Intent; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.ImageView; import android.widget.Toast; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.R;

5. **For Survey:**
   import android.content.Intent;
   import android.os.Bundle; import android.view.View; import android.widget.Button; import androidx.appcompat.app.AppCompatActivity; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.R;

6. **For Progress:** import android.graphics.Color; import android.os.Bundle; import android.widget.TextView; import androidx.appcompat.app.AppCompatActivity; import com.talhashahid.kidsplay.kidsgames.kidseducation.preschool.R; import org.eazegraph.lib.charts.PieChart; import org.eazegraph.lib.models.PieModel;

5.5 Screenshots:

Figure 14: Floating Window

Figure 15: Main Window

Figure 16: Camera

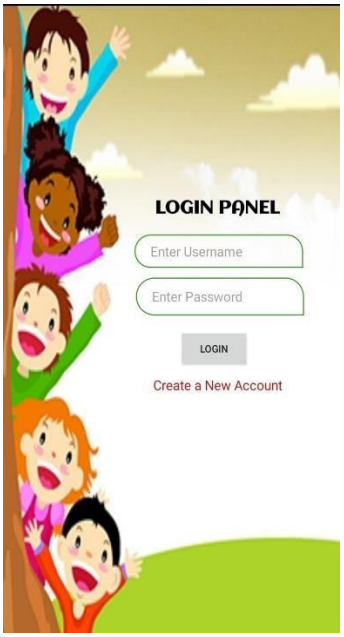


Figure 17: Login Window

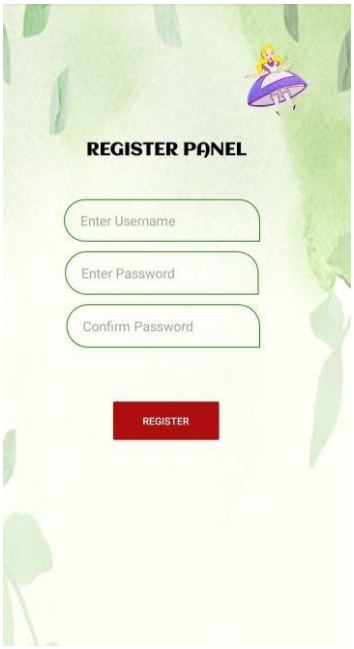


Figure 18: Registeration Window

Figure 19: Choosing Window

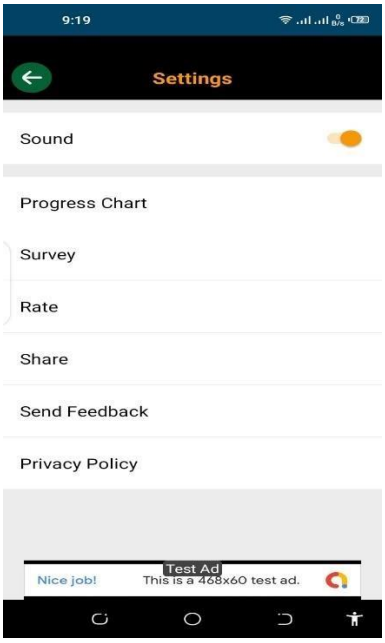


Figure 20: Setting Window

Figure 21: Preschool Kids Window

Figure 22: Alphabet Window

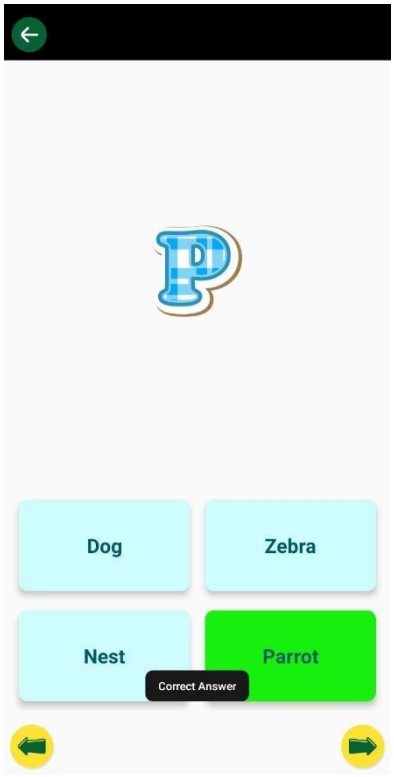


Figure 23: Quiz 1 Window

Figure 24: Look and Choose Window

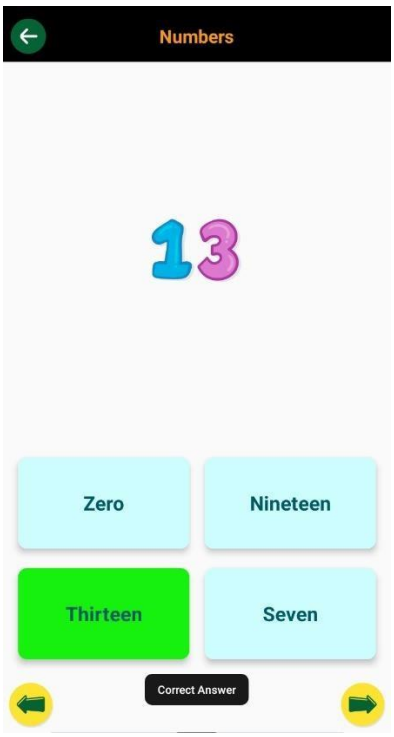


Figure 25: Quiz 2

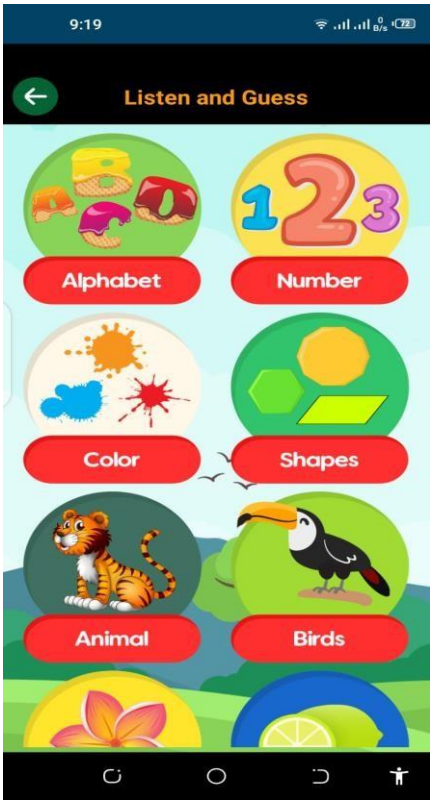


Figure 26: Listen and Guess Window

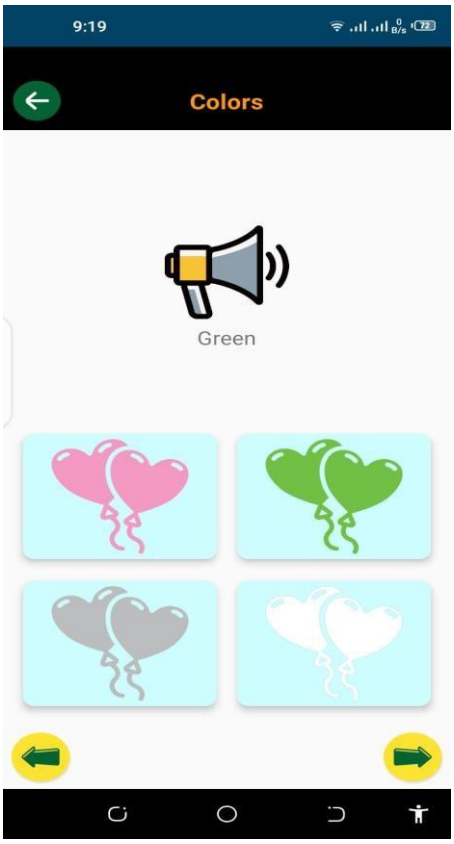


Figure 27: listen and Guess (Quiz)

Figure 28: Progress Report

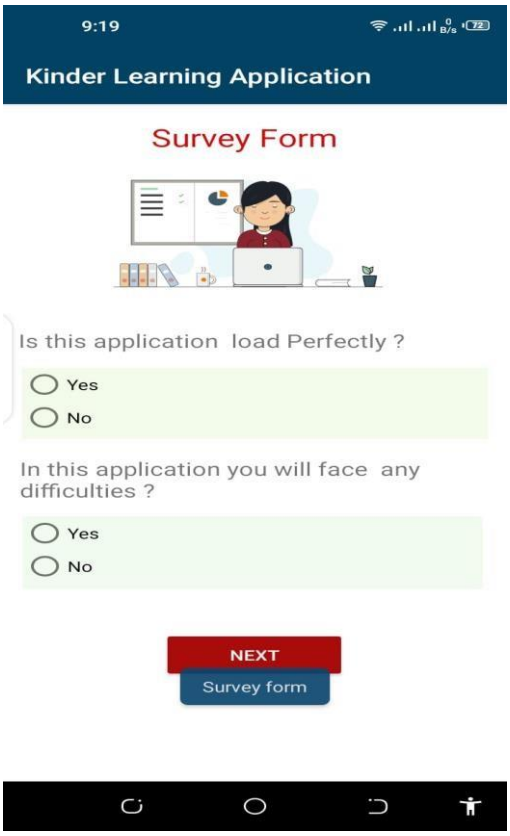


Figure 29: Survey

5.6 Summary:

This Chapter consist of system prototype and development in which we explained about the prototype, frontend and backend design some database queries with the external libraries and some screenshot of our application. In this chapter we briefly give some explanation about the type of error happen on the system, source code of validation and etc. So from the next part some information flows are given to know how to system assignation works. The prototype design provides the clear view of working screens one by one. The prototype table consist of project title, observation date, screen name, screen number, and link of the screen. The table also informs about the overall description and functionality of the screen, while providing a specific description trough background, color scheme, video/audio connections and still images. The database queries are also provided to show how the system retrieve the data while functioning. As the system is very complex multiple external library were required to fulfill the requirement of the user, all the external libraries are mentioned below to give a detail description and screenshot of the application.

CHAPTER – 6

6.1 Introduction:

In this chapter, we have discussed about the test cases to determine whether the software is working the way it should and producing the expected results. We also test cases and usability test cases to test our software. This will help the readers to know about all the minor as well as the major working options of the software. After the completion of the implementation phase testing plays a vital role for making sure that the system works properly. Once the software was developed the testing phase started. Each and every screen and button were tested according to the requirements and functionalities. Even though the application is complex it does use I treated functionality as one window is being used multiple times for different kinds of functionalities. For instance, the same data is being utilized for the learning objectives as well as the quiz section. do to the re usability of our code the total test cases of the application turned out to be 16. Each test case has the requirement reference, project name, application name while providing all the details of the test case. in detail attributes of the test case, such as test case ID, Test case description, test steps, expected result, pass or fail status, preparation date, running date end the date at which it was tested.

6.2 Test Cases:

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.1	**Test Type**	Functionality
Test Case Description	To test that the button on Intro screen next.		
Test Steps	Auto opens to next screen		
Expected Result	Open Main Screen on Application.		
Actual Result	Open Main Screen.		
Pass/Fail	pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 23: Test case 1

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.2	**Test Type**	Functionality
Test Case Description	To test if the camera button works. To test if the login button works as well.		
Test Steps	1. Click the Camera Icon on Dashboard. 2. Click the Login Button on Dashboard		
Expected Result	1. Open Camera window and shows a “take picture button” on the Application. 2. Open Login window on Application.		
Actual Result	Open Camera window and Login window.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 24: Test case 2

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.3	**Test Type**	Functionality
Test Case Description	To test the connecting window.		
Test Steps	Click the Take picture button		
Expected Result	Open the camera window on Application. Ask for camera permission and options.		
Actual Result	Open the camera window on Application. Ask for camera permission and options.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 25: Test case 3

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.4	**Test Type**	Functionality
Test Case Description	To test that the fields on Login screen Login id should be mandatory		
Test Steps	Blank Textbox and click on submit		
Expected Result	Login screen should be display the error		
Actual Result	Invalid Credential error		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 26: Test case 4

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.5	**Test Type**	Functionality
Test Case Description	To test that the fields on Login screen password should be mandatory		
Test Steps	Blank Textbox and click on Login		
Expected Result	Login screen should be display the error.		
Actual Result	Invalid Credential error.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 27: Test case 5

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.6	**Test Type**	Functionality
Test Case Description	To test that the fields on Login screen Login id and password should be mandatory		
Test Steps	click on Login		
Expected Result	Open the main User Dashboard Screen		
Actual Result	main User Dashboard Screen Open		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 28: Test case 6

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.7	**Test Type**	Functionality
Test Case Description	To test that the create new account text on Login screen		
Test Steps	click on create new account text view		
Expected Result	Open Register Panel.		
Actual Result	Register Panel Screen Open.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 29: Test case 7

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.8	**Test Type**	Functionality
Test Case Description	To test that the fields on Register screen email should be mandatory		
Test Steps	click on Register		
Expected Result	Empty Field error. Blank Spaces not Allowed.		
Actual Result	Invalid Error.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 30: Test case 8

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.9	**Test Type**	Functionality
Test Case Description	To test that the fields on Register screen Password should be mandatory		
Test Steps	click on Go		
Expected Result	Empty Field error. Special Character Should Allowed.		
Actual Result	Invalid Error.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 31: Test case 9

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.10	**Test Type**	Functionality
Test Case Description	To test that the fields on Register screen Confirm Password should be mandatory		
Test Steps	click on Go		
Expected Result	Empty Field error. Special Character Should Allowed.		
Actual Result	Invalid Error.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 32: Test case 10

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.11	**Test Type**	Functionality
Test Case Description	To test the kinder learning application Screen.		
Test Steps	click on Login		
Expected Result	Open kinder learning application Screen		
Actual Result	Display kinder learning application Screen		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 33: Test case 11

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.12	**Test Type**	Functionality
Test Case Description	To test that the Categories on Kinder Learning Application Screen must be mandatorily present and working.		
Test Steps	click on “Let’s Start Learning” Category		
Expected Result	Open “Preschool kids Learning” screen window. Displays All twenty Learning Options		
Actual Result	Open “Preschool kids Learning” screen window. Displays All twenty Learning Options		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 34: Test case 12

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.13	**Test Type**	Functionality
Test Case Description	To test that the Categories on Preschool kids learning Screen must be mandatorily working		
Test Steps	click on chosen category		
Expected Result	Open chosen category screen window. Displays All Learning Options		
Actual Result	Open chosen category screen window. Displays All Learning Options		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 35: Test case 13

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.14	**Test Type**	Functionality
Test Case Description	To test that the Categories on Kinder Learning Application Screen must be mandatorily present and working.		
Test Steps	click on “Look And Chose” Category		
Expected Result	Open “Look And Chose” screen window. Displays a, Alphabet Provides four options Announces “wrong answer” on pressing the wrong option. Announces “correct answer” on pressing the right option.		
Actual Result	Open “Look And Chose” screen window. Displays a, Alphabet Provides four options Announces “wrong answer” on pressing the wrong option. Announces “correct answer” on pressing the right option.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 36: Test case 14

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.15	**Test Type**	Functionality
Test Case Description	To test that the Categories on “Listen and Guess” Screen must be mandatorily working		
Test Steps	click on “Listen and Guess” category		
Expected Result	Open “Look and Choose Quiz” Open chosen category screen window. Displays images according to the category Provides four options Announces “wrong answer” on pressing the wrong option. Announces “correct answer” on pressing the right option.		
Actual Result	Open “Look and Choose Quiz” Open chosen category screen window. Displays images according to the category Provides four options Announces “wrong answer” on pressing the wrong option. Announces “correct answer” on pressing the right option.		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 37: Test case 15

Requirement Reference	1	**Project Name**	Kinder Learning Application
Test Case Id	1.16	**Test Type**	Functionality
Test Case Description	To test that Setting screen is working		
Test Steps	click on setting button		
Expected Result	Show sound plug Provide options of Rate, Share, Send Feedback, and Private Policy		
Actual Result	Show sound plug Provide options of Rate, Share, Send Feedback, and Private Policy		
Pass/Fail	Pass		
Date Prepared	22th Oct 2021		
Date Run	21th Nov 2021		
Prepared By	Talha Shahid and Fatima Abro		
Tested By	Bilal Ashraf and Sumbul Kazmi		

Table 38: Test case 16

6.3 Summary:

We test our software to get our expected results of our software or whether a system under test satisfies requirements or works correctly. After test cases, we get satisfied results the usability test case.

.

CHAPTER – 7

7.1 Introduction:

This chapter will summarize all of the work completed during the final year of the project, as well as the challenges, limitations, and future work for this project. In this chapter all the major and minor work will be discussed. We have included the limitations of the system in order to help the users to understand the system better. The future work section will provide an overview to the enhancement that can be made with this software. With the passing time the software has a lot vacancies for better additions. This will make the application more effective, and useful. In this section, I will be talking about how future work will enhance the Kinder Learning app. The Kinder Learning app is a mobile learning application that has been designed to provide children with a fun and safe learning experience.

The app is available in both English and numeric, and it features a variety of interactive games that are perfect for children aged between 4-7 years old. The game design reflects the latest research in early childhood development, and it is specifically tailored to engage children in their learning journey. The Kinder Learning app already includes some of the best features for teaching kids how to read, write and do math - but there are still many new features that can be added to improve the user experience. Future work on this project will allow us to add new games and activities for kids. The future work will be focused on improving the app's usability and enhancing its features. The app is already equipped with need sources and features to be used by many people to learn different skills, and the future work will make it even more useful for those who are trying to learn a new skill. We aim to make the app more interactive with future updates. We want to create a more personalized experience for each learner by adding features such as advance quizzes and personalization of lessons based on one's interests.

7.2 System Limitations and Challenges:

Kinder learning app is a revolutionary and effective way to teach children. It has been designed to be interactive and personalized, which makes it a great tool for teaching. However, as with every other technology, Kinder has its limitations and challenges. In this section, we will talk about the limitations and challenges of kinder learning app.

i. The app cannot be used properly on in, which means that if there are no internet connections available the child will not be able to use it at all.

ii. The main limitation of Kinder is its lack of understanding the access. This means that parents cannot use it when if they are not familiar with basic technology and phone usage as many rural area parents would need 2 3 days to understand this app.

iii. The Application does not have any built-in parental controls. There are no restrictions on what kids can watch or play with on the app and parents cannot monitor what their kids are learning.

iv. The camera system only recognize objects that are available in database.

The challenges we faced during the development of the project were:

i. Integration of the camera and recognition of object was the main challenge we faced during the development.

ii. One of the major challenges of Kinder is that it cannot be used on unsupported devices or browsers.

7.3 Future Work:

Kinder will be an mobile app that will provide a personalized learning experience for kids of all ages up to intermediate level as well. The app will offer over 10,000 educational videos, games and books that are tailored to each child's needs. It will also include a parent dashboard where educators can track their child's progress and set goals for them. The future of Kinder Learning is to make it a more inclusive and diverse environment for all learners. Kinder Learning is an app that is designed to teach children through interactive play in a safe and fun environment. The developers are constantly working on new features, updates, and improvements to make the app even better for both children and their parents. The future work that can be done on Kinder learning app is to make it more interactive. Teachers and students will be able to create their own scenarios, which will help them learn about the topic in a more interactive way.

7.4 Conclusion:

We can conclude that children use mobile phones just only for entertainment but we can use it for learning purpose too. So we have developed an application that will help childrens at their initial leaning stages and provide them valuable knowledge. We can see that Kindergarten is an important part of the education system. It prepares children for the next stage in their life, which is school. The Kindergarten app will provide a way to make this transition easier and more enjoyable for children. The app will help children to learn and grow in a more interactive

way. It will also provide parents with the opportunity to be more involved in their children's learning process. This is a great app that will benefit children and parents on the long run.

REFERENCES

1. Genç, Z. M. ((2019)). Analysis of documents published in scopus database on special education learning through mobile learning: A content analysis. . *International Journal of Emerging Technologies in Learn*.
2. Moreno-Ger, P. B.-O.-M. ((2008)). Educational game design for online education. *Computers in Human Behavior, 24(6),* , 2530-2540.
3. https://www.gettingsmart.com/2018/02/02/future-of-work-early-learning-today/. (n.d.).
4. Laouris, Y. &. ((2005, October)). *We need an educationally relevant definition of mobile learning. In Proceedings of mLearn.* (Vol. 2005).
5. M. Dunleavy, C. D. (2008). "Affordances and Limitations of Immersive Participatory Augmented Reality Simulations for Teaching and Learning," Sep. *J. Sci. Educ. Technol., vol. 18, no.*, 17–22.
6. Pramudyo. (n.d.). , C. S. DFD and ERD Modeling For An Incentive System. , *C. S. DFD and ERD Modeling For An Incentive System.*
7. Rizky, W. Z. ((2021).). A. Design And Development Of Learning Applications For Special Needs Students Using Android Studio (Case Study: Slb-Bc Yplab). *Turkish Journal of Computer and Mathematics Education,*, 1129.
8. Sage, D. &. ((2001, October).). Easy Java programming for teaching image-processing. IEEE. *In Proceedings 2001 International Conference on Image Processing (Cat. No. 01CH37205) (Vol. 3, pp. 298-301).*
9. Y.-C. Hsu, J.-L. H.-H. (Apr. 2013). "Trends of educational technology research: more than a decade of international research in six SSCI-indexed refereed journals,. *" Educ. Technol. Res. Dev., vol. 61, no. 4,*, pp. 685–705,.

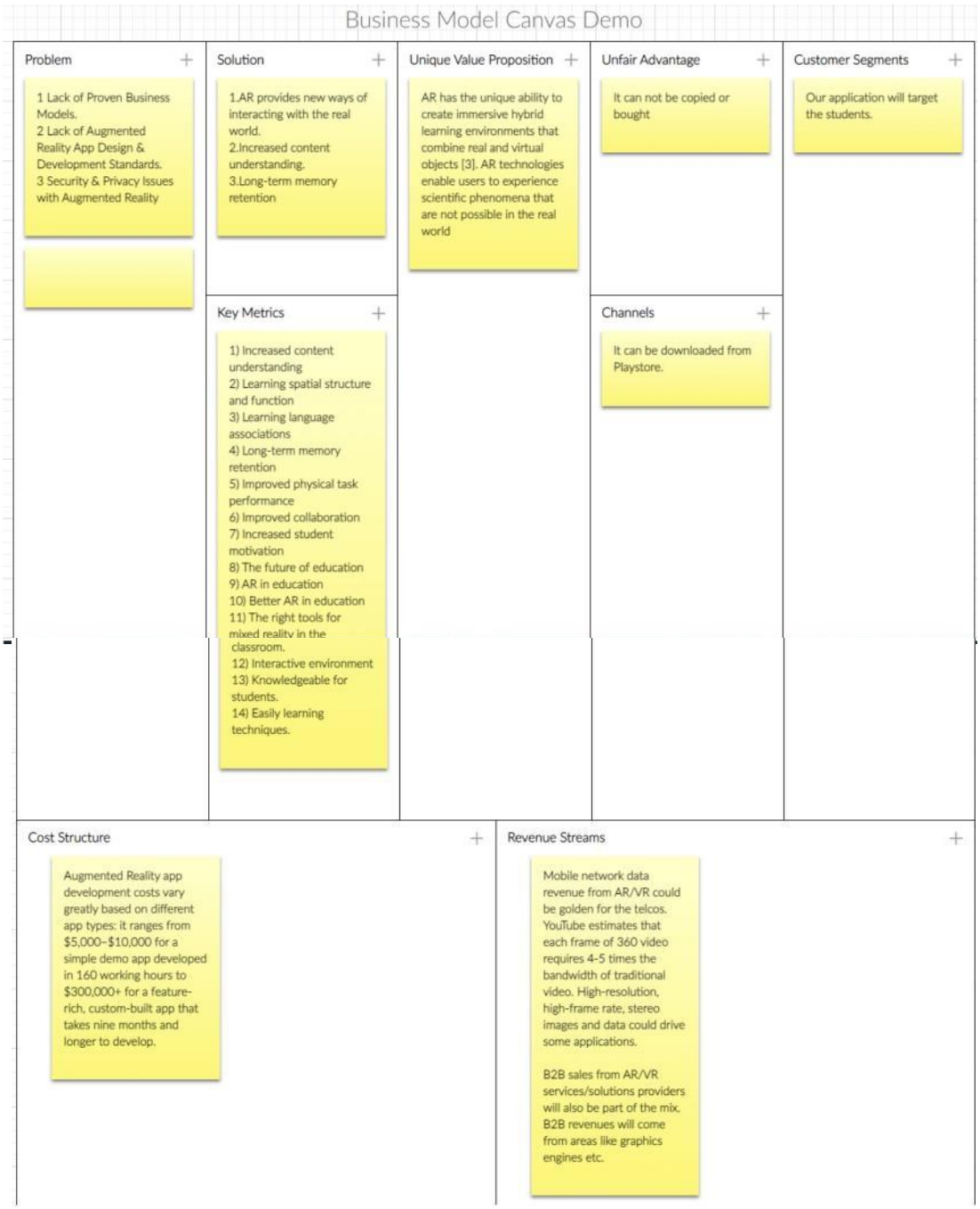
https://tophat.com/glossary/v/visuallearning/#:~:text=Visual%20learning%20is%20a%20type,in%20order%20to%20learn_%20it.

https://www.education.com/resources/kindergarten/?gclid=Cj0KCQjw3IqSBhCoARIsAMBkTb2OsIU5yGB7_XkbQpdWOe5EjGw0wJTNuAe3Nh1WSRDdcbTnRQb27mcaAkR5EALw_wcB

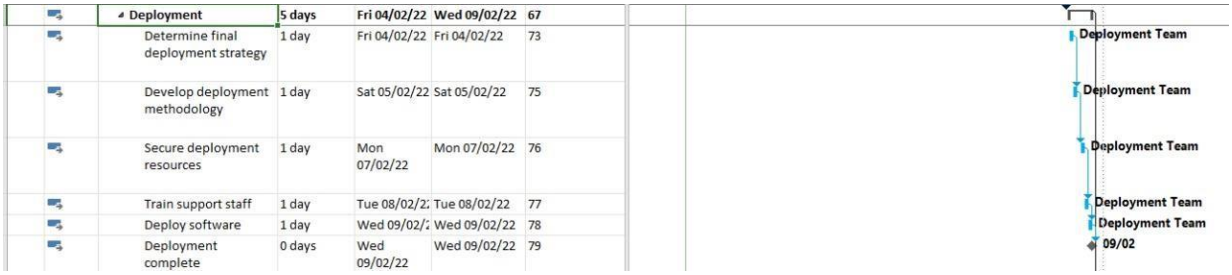
https://www.gettingsmart.com/2018/02/02/future-of-work-early-learning-today/

APPENDIX

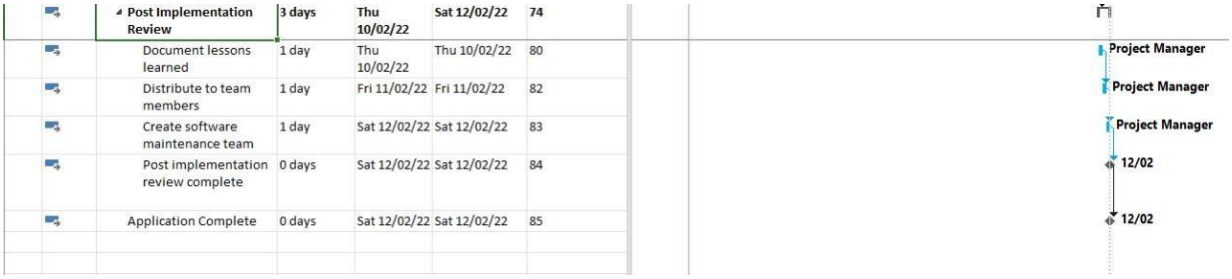
Bussiness Canvas:



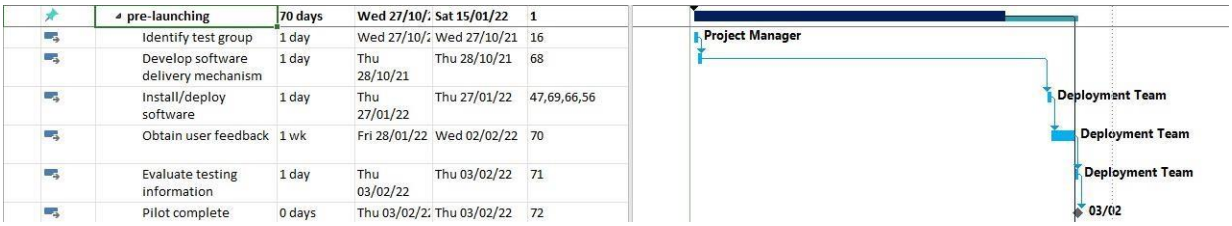
Detailed Gantt Chart:



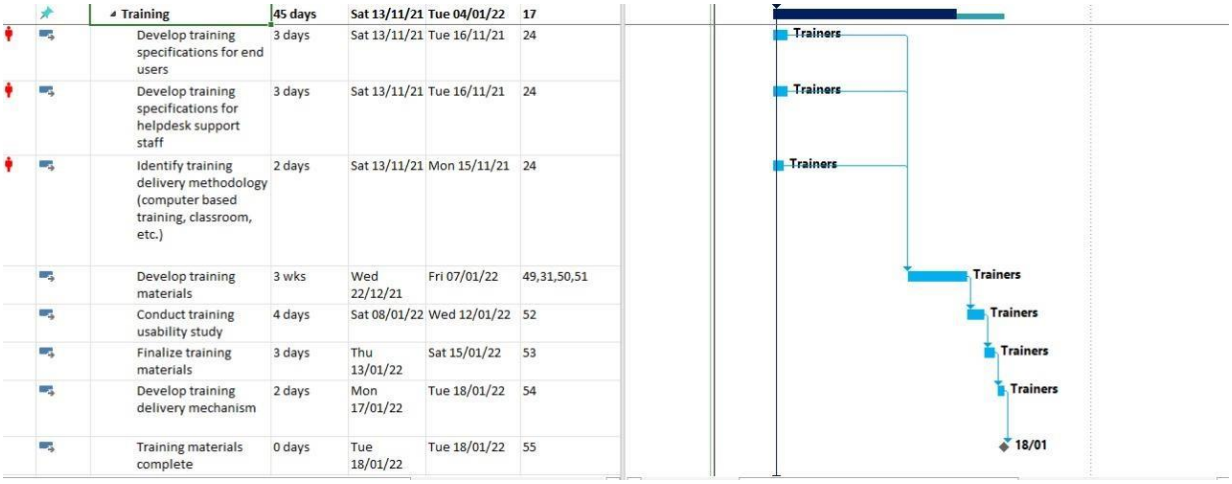
	Deployment	5 days	Fri 04/02/22	Wed 09/02/22	67
	Determine final deployment strategy	1 day	Fri 04/02/22	Fri 04/02/22	73
	Develop deployment methodology	1 day	Sat 05/02/22	Sat 05/02/22	75
	Secure deployment resources	1 day	Mon 07/02/22	Mon 07/02/22	76
	Train support staff	1 day	Tue 08/02/2	Tue 08/02/22	77
	Deploy software	1 day	Wed 09/02/	Wed 09/02/22	78
	Deployment complete	0 days	Wed 09/02/22	Wed 09/02/22	79



	Post Implementation Review	3 days	Thu 10/02/22	Sat 12/02/22	74
	Document lessons learned	1 day	Thu 10/02/22	Thu 10/02/22	80
	Distribute to team members	1 day	Fri 11/02/22	Fri 11/02/22	82
	Create software maintenance team	1 day	Sat 12/02/22	Sat 12/02/22	83
	Post implementation review complete	0 days	Sat 12/02/22	Sat 12/02/22	84
	Application Complete	0 days	Sat 12/02/22	Sat 12/02/22	85

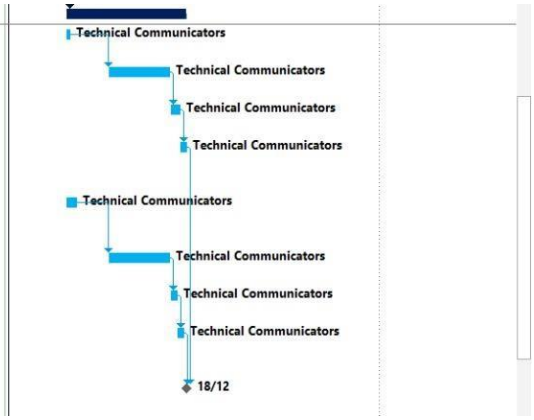


	pre-launching	70 days	Wed 27/10/	Sat 15/01/22	1
	Identify test group	1 day	Wed 27/10/	Wed 27/10/21	16
	Develop software delivery mechanism	1 day	Thu 28/10/21	Thu 28/10/21	68
	Install/deploy software	1 day	Thu 27/01/22	Thu 27/01/22	47,69,66,56
	Obtain user feedback	1 wk	Fri 28/01/22	Wed 02/02/22	70
	Evaluate testing information	1 day	Thu 03/02/22	Thu 03/02/22	71
	Pilot complete	0 days	Thu 03/02/2	Thu 03/02/22	72

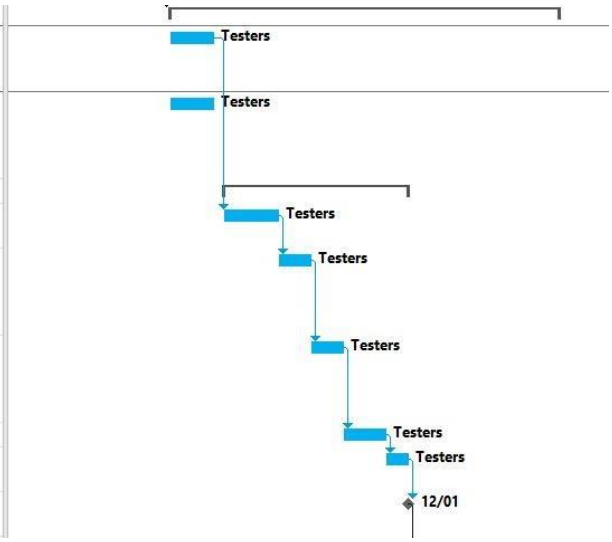


	Training	45 days	Sat 13/11/21	Tue 04/01/22	17
	Develop training specifications for end users	3 days	Sat 13/11/21	Tue 16/11/21	24
	Develop training specifications for helpdesk support staff	3 days	Sat 13/11/21	Tue 16/11/21	24
	Identify training delivery methodology (computer based training, classroom, etc.)	2 days	Sat 13/11/21	Mon 15/11/21	24
	Develop training materials	3 wks	Wed 22/12/21	Fri 07/01/22	49,31,50,51
	Conduct training usability study	4 days	Sat 08/01/22	Wed 12/01/22	52
	Finalize training materials	3 days	Thu 13/01/22	Sat 15/01/22	53
	Develop training delivery mechanism	2 days	Mon 17/01/22	Tue 18/01/22	54
	Training materials complete	0 days	Tue 18/01/22	Tue 18/01/22	55

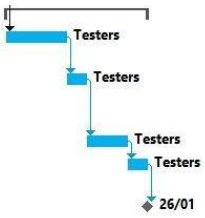
	Documentation	30 days	Sat 13/11/21	Fri 17/12/21	17
	Develop Help specification	1 day	Sat 13/11/21	Sat 13/11/21	24
	Develop Help system	3 wks	Thu 25/11/21	Mon 13/12/21	58,29FS-50%
	Review Help documentation	3 days	Mon 13/12/21	Thu 16/12/21	59
	Incorporate Help documentation feedback	2 days	Thu 16/12/21	Sat 18/12/21	60
	Develop user manuals specifications	2 days	Sat 13/11/21	Mon 15/11/21	24
	Develop user manuals	3 wks	Thu 25/11/21	Mon 13/12/21	62,29FS-50%
	Review all user documentation	2 days	Mon 13/12/21	Wed 15/12/21	63
	Incorporate user documentation feedback	2 days	Wed 15/12/21	Fri 17/12/21	64
	Documentation complete	0 days	Sat 18/12/21	Sat 18/12/21	65,61



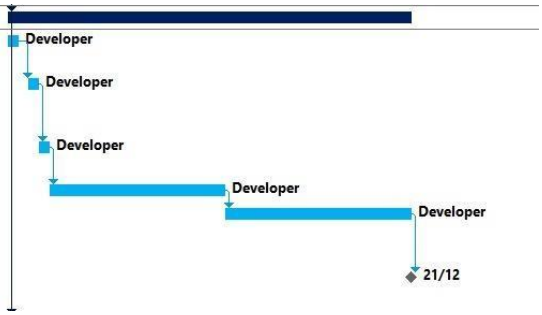
	Testing	31 days	Wed 22/12/2	Wed 26/01/22	17
	Develop unit test plans using product specifications	4 days	Wed 22/12/21	Sat 25/12/21	31
	Develop integration test plans using product specifications	4 days	Wed 22/12/21	Sat 25/12/21	31
	Unit Testing	15 days	Mon 27/12/2	Wed 12/01/22	
	Review modular code	5 days	Mon 27/12/21	Fri 31/12/21	33,31
	Test component modules to product specifications	2 days	Sat 01/01/22	Mon 03/01/22	31,36
	Identify anomalies to product specifications	3 days	Tue 04/01/22	Thu 06/01/22	37
	Modify code	3 days	Fri 07/01/22	Mon 10/01/22	38
	Re-test modified code	2 days	Tue 11/01/22	Wed 12/01/22	39
	Unit testing complete	0 days	Wed 12/01/22	Wed 12/01/22	40



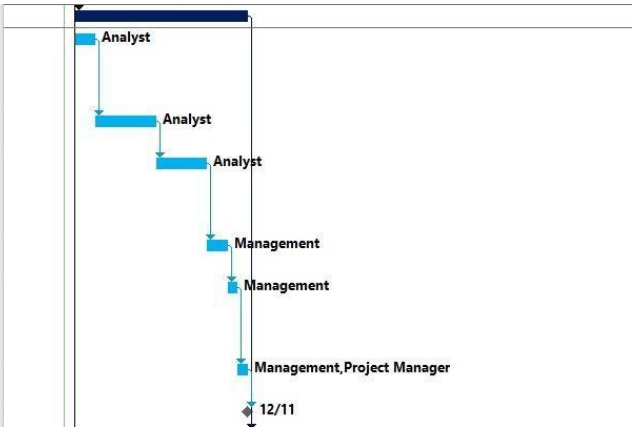
	Integration Testing	12 days	Thu 13/01/2	Wed 26/01/22	
	Test module integration	5 days	Thu 13/01/22	Tue 18/01/22	41
	Identify anomalies to specifications	2 days	Wed 19/01/22	Thu 20/01/22	43
	Modify code	3 days	Fri 21/01/22	Mon 24/01/22	44
	Re-test modified code	2 days	Tue 25/01/22	Wed 26/01/22	45
	Integration testing complete	0 days	Wed 26/01/22	Wed 26/01/22	46



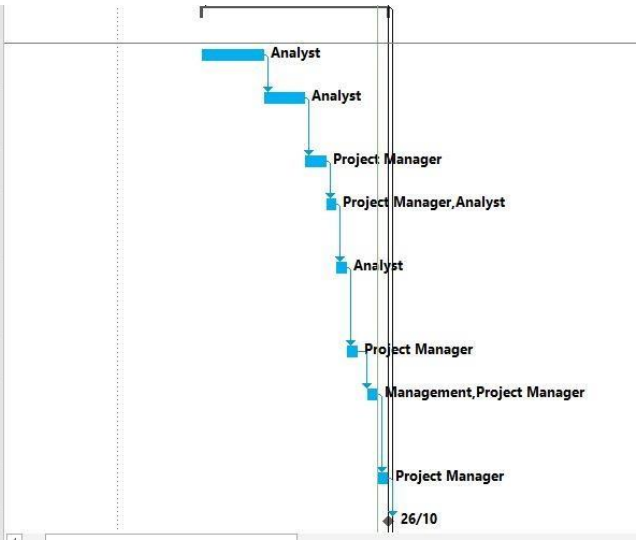
	Development	33 days	Sat 13/11/21	Tue 21/12/21	17
	Review functional specifications	1 day	Sat 13/11/21	Sat 13/11/21	24
	Identify modular/tiered design parameters	1 day	Mon 15/11/21	Mon 15/11/21	26
	Assign development staff	1 day	Tue 16/11/21	Tue 16/11/21	27
	Develop code	15 days	Wed 17/11/2	Fri 03/12/21	28
	Developer testing (primary debugging)	15 days	Sat 04/12/21	Tue 21/12/21	29
	Development complete	0 days	Tue 21/12/21	Tue 21/12/21	30



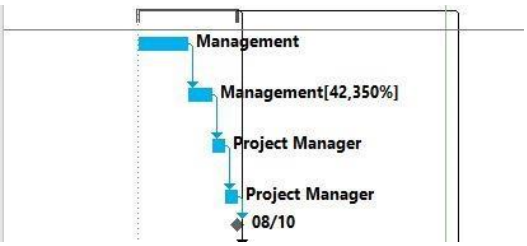
Design	**15 days**	**Wed 27/10/:**	**Fri 12/11/21**	**7**
Review preliminary software specifications	2 days	Wed 27/10/21	Thu 28/10/21	16
Develop functional specifications	5 days	Fri 29/10/21	Wed 03/11/21	18
Develop prototype based on functional specifications	4 days	Thu 04/11/21	Mon 08/11/21	19
Review functional specifications	2 days	Tue 09/11/21	Wed 10/11/21	20
Incorporate feedback into functional specifications	1 day	Thu 11/11/21	Thu 11/11/21	21
Obtain approval to proceed	1 day	Fri 12/11/21	Fri 12/11/21	22
Design complete	0 days	Fri 12/11/21	Fri 12/11/21	23



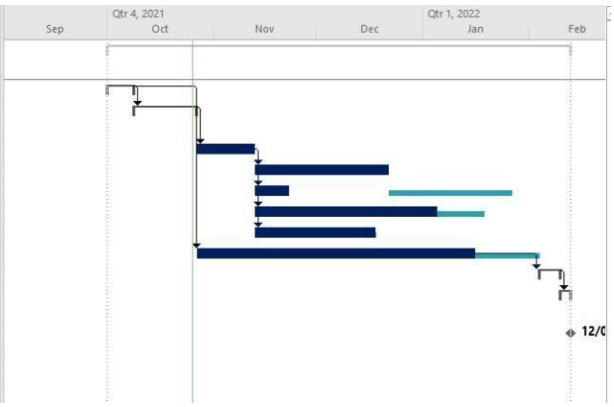
Analysis/Software Requirements	**15 days**	**Sat 09/10/21**	**Tue 26/10/21**	**1**
Conduct needs analysis	5 days	Sat 09/10/21	Thu 14/10/21	6
Draft preliminary software specifications	3 days	Fri 15/10/21	Mon 18/10/21	8
Develop preliminary budget	2 days	Tue 19/10/21	Wed 20/10/21	9
Review software specifications/budget with team	1 day	Thu 21/10/21	Thu 21/10/21	10
Incorporate feedback on software specifications	1 day	Fri 22/10/21	Fri 22/10/21	11
Develop delivery timeline	1 day	Sat 23/10/21	Sat 23/10/21	12
Obtain approvals to proceed (concept, timeline, budget)	1 day	Mon 25/10/21	Mon 25/10/21	13
Secure required resources	1 day	Tue 26/10/21	Tue 26/10/21	14
Analysis complete	0 days	Tue 26/10/2:	Tue 26/10/21	15



Scope	**7 days**	**Fri 01/10/21**	**Fri 08/10/21**	
Determine project scope	3 days	Fri 01/10/21	Mon 04/10/21	
Secure project sponsorship	2 days	Tue 05/10/21	Wed 06/10/21	2
Define preliminary resources	1 day	Thu 07/10/21	Thu 07/10/21	3
Secure core resources	1 day	Fri 08/10/21	Fri 08/10/21	4
Scope complete	0 days	Fri 08/10/21	Fri 08/10/21	5



Task Mode	Task Name	Duration	Start	Finish	Predecessors
	Kinder Learning Application	**116 days**	**Fri 01/10/21**	**Sat 12/02/22**	
	Scope	**7 days**	**Fri 01/10/21**	**Fri 08/10/21**	
	Analysis/Software Requirements	**15 days**	**Sat 09/10/21**	**Tue 26/10/21**	**1**
	Design	**15 days**	**Wed 27/10/:**	**Fri 12/11/21**	**7**
	Development	**33 days**	**Sat 13/11/21**	**Tue 21/12/21**	**17**
	Testing	**8 days**	**Sat 13/11/21**	**Mon 22/11/21**	**17**
	Training	**45 days**	**Sat 13/11/21**	**Tue 04/01/22**	**17**
	Documentation	**30 days**	**Sat 13/11/21**	**Fri 17/12/21**	**17**
	pre-launching	**70 days**	**Wed 27/10/:**	**Sat 15/01/22**	**1**
	Deployment	**5 days**	**Fri 04/02/22**	**Wed 09/02/22**	**67**
	Post Implementation Review	**3 days**	**Thu 10/02/22**	**Sat 12/02/22**	**74**
	Application Complete	0 days	Sat 12/02/22	Sat 12/02/22	85



Software Manual:

Initial setup:

Initially the user will be welcomed through the floating screen, after the floating screen the user will have two options. The first option is to choose the camera button and the second option will be the login button. The camera application does not require any kind of login so the user can easily use the camera by clicking on the camera button. On the other hand, if the user wants to open their account, learn and take a quiz then he or she needs to go for the login button.

Login/Registration mechanism:

The login button will lead to the login screen, if the user is already registered within the system the user can easily put their credentials and password. This process will take only two seconds and the user will be able to enjoy the functionality of the application. In case the user is a newcomer they are required to go towards the registration button. That is a registration button will straightforwardly lead them to the registration window where they are required to put in there needed credentials for the system to register them. Once they are registered, they can go back to the login system window and log in with the previous credentials.

The main window

The main window provides you with three choosing windows. It will provide the user three options as well as the setting mechanism of the application on the rightmost corner. The first option will be regarding the learning objectives, meaning if the user needs to learn anything new on our application, they will be choosing the first option. After choosing the first option the user will find then in the preschool kids learning window.

Preschool kids learning window

This window will have plenty of options from alphabets, numbers, colors to fruits. The user can choose whatever category they like. After choosing the category the user gets to experience pictorial forms of the chosen category. The user can also scroll through our arrow scrolling function.

The standard quiz

This is the second option provided in the main window, if the user desires to test their learning ability they can go to the you can choose quiz option. This quiz mainly consists of pictorial

image questions where the user will have four options to choose from once, they recognize what the picture is. If the user has clicked on the right answered the system will tell the user that their question is answered correctly. In case the answer is wrong the system notifies the user that the answer is wrong.

Listen and guess quiz

This is the third exciting option of the application where the user is given with the particular audio question which they have to answer by choosing from the four given answers. If the user has clicked on the right answered the system will tell the user that their question is answered correctly. In case the answer is wrong the system notifies the user that the answer is wrong.

Setting panel

This window provides the user with all the additional options such as the progress report, and surveys. the user can also change the sound setting from this window. This window also provides options like rating the application or sharing your feedback so the application could improve in the future. The other details like privacy policies also included in this section.

The progress report

The progress report chart provides the user with all the analytics calculations of their progress by using the learning objectives as well as the quiz options of this application.