

MOM'S BABY: AN ANDROID APP FOR BABY CARE

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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This Project titled “**Mom’s Baby**”, submitted by Toufiqa Rahman, ID: 151-15-4700, Marium Akhter Aune, ID: 11-15-5071 and Sanjida Tasnim, ID: 143-15-4397 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on December, 2018.

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We hereby declare that, this project has been done by us under the supervision of **Ms. Nazmun Nessa Moon, Assistant professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

The project titled “Mom’s Baby” which is an android app for baby and mother care. To grow up a child properly is not an easy task. Specially in this challenging and busy world people don’t have enough time to think about their child’s proper growth and in many cases they don’t understand their child properly. So all these situations make the parents incapable of taking good care of their child. Even not only the child but also the pregnant mother needs a special care and because of lack of knowledge the mother becomes the victim of losing child or even death of herself. So from prenatal care to a child’s proper growth until age almost 10 is a very crucial stage for a child and her mother so, all these need proper care and attention. Taking all these important matters in our main observation we are making this app “Mom’s Baby”. We are hopeful to fulfil all these needs of the user of our apps.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

It is an android based app for caring baby. In another way we could say it's a childhood package with various attractive features like: baby's vaccine, food, behavioral issues, clothes tips, childhood illness with some helpful remedies; and also for entertaining a child in a learning way we'll add some nursery rhymes, poems, stories, cartoons, game zone; and for making the parents satisfied with their performances we will also add some helpful videos of changing diaper tutorial to healthy snack cooking tutorial, most importantly in this app we also try our best to help the parents aware of child abuse topic to protect their child from it; and last but not least there will be a space to share the parents thought and discussion. So, in a word this app is the something that every parent will love to use.

1.2 Motivation

- Housewife mother's failure
- Working mother's hard life cycle
- Unhealthy growth of kids
- Child abuse

1.3 Objectives

- To give essential and better knowledge about both parental & baby's care
- To help the parents to improve their parenting performance
- To spread awareness about childhood illness
- To help child to grown up in a better & learning way
- To prevent child abuse
- To discuss parenting problem for the improvement

1.4 Expected Outcome

- Make parenting easy & better
- Reduce unhealthy growth of children

- Reduce parents pressure & boost up their working energy
- Reduce the number of child abuse in the society
- Assure better childhood of our future generation

1.5 Report Layout

Chapter 1: Introduction

In this chapter we have discussed about the introduction, motivation, objectives and expected outcome of the project. Later followed by the report layout.

Chapter 2: Background

We discuss about the background circumstances of our project. We also talk about the related works, comparison to other candidate systems, the scope of the problem and challenges of the project.

Chapter 3: Requirement Specification

This chapter is all about the requirements like business process modeling, the requirement collection and analysis, the use case model of the project and their description, the logical data model and the design requirements.

Chapter 4: Design Specification

In this chapter all the designs of the project. Front-end design, back-end design, interaction design and UX and the implementation requirements

Chapter 5: Implementation and Testing

This chapter contains the implementation of database, front-end designs, interactions, test-implementation and the test results of the project.

Chapter 6: Conclusion and Future Scope

We discussed about the conclusion and the scope for further developments which pretty much derive about the project.

CHAPTER 2

BACKGROUND

2.1 Introduction

In today's world we all are so busy to make our lives better but sometimes in this time race we just forget to take care of our future generations. Sometimes working parents don't know how to take care their baby's health and also they have no time to search for the solution related to their child's mental and physical health. Even housewife mothers also worried about many little things and just feel failure if they can't understand their child properly. So for solving all these issues our 'Mom's Baby' app provided all the solutions to make the parenting easy and make the bond between parents and their child stronger.

2.2 Related Works

There are some related works are available in the Play Store like: My Child [1], Child Psychology [2], Parenting Tips [3] etc.

2.3 Comparative Studies

As we mentioned before there are some apps which is working on child's care. Like some app we are giving the childhood behavioral tips, Childhood illness issues, Doctor Info in our app. But these features are in different apps. Also unlike those app we are adding parenting tips, learning games, rhymes, stories, helpful videos and many more features in one app. These features are really great for child's proper growth.

2.4 Scope of the Problem

In today's generation people are so busy in their daily life. And android make their life easier. But there are many android apps which doesn't concentrate on baby's care. Many apps are not so user friendly and also has lots of limitation. But our app will cover up this limitations. People can easily collect information for emergency or crisis. And also can get doctors valuable advice in need.

2.5 Challenges

We will implement our app on android studio. There are many challenges to learn new attributes uses, new logics and also we have to looks for many valid and valuable information related to children's physical and mental proper growth.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling (BPM)

BPMN provides a graphical notation for specifying business process in Business Process.

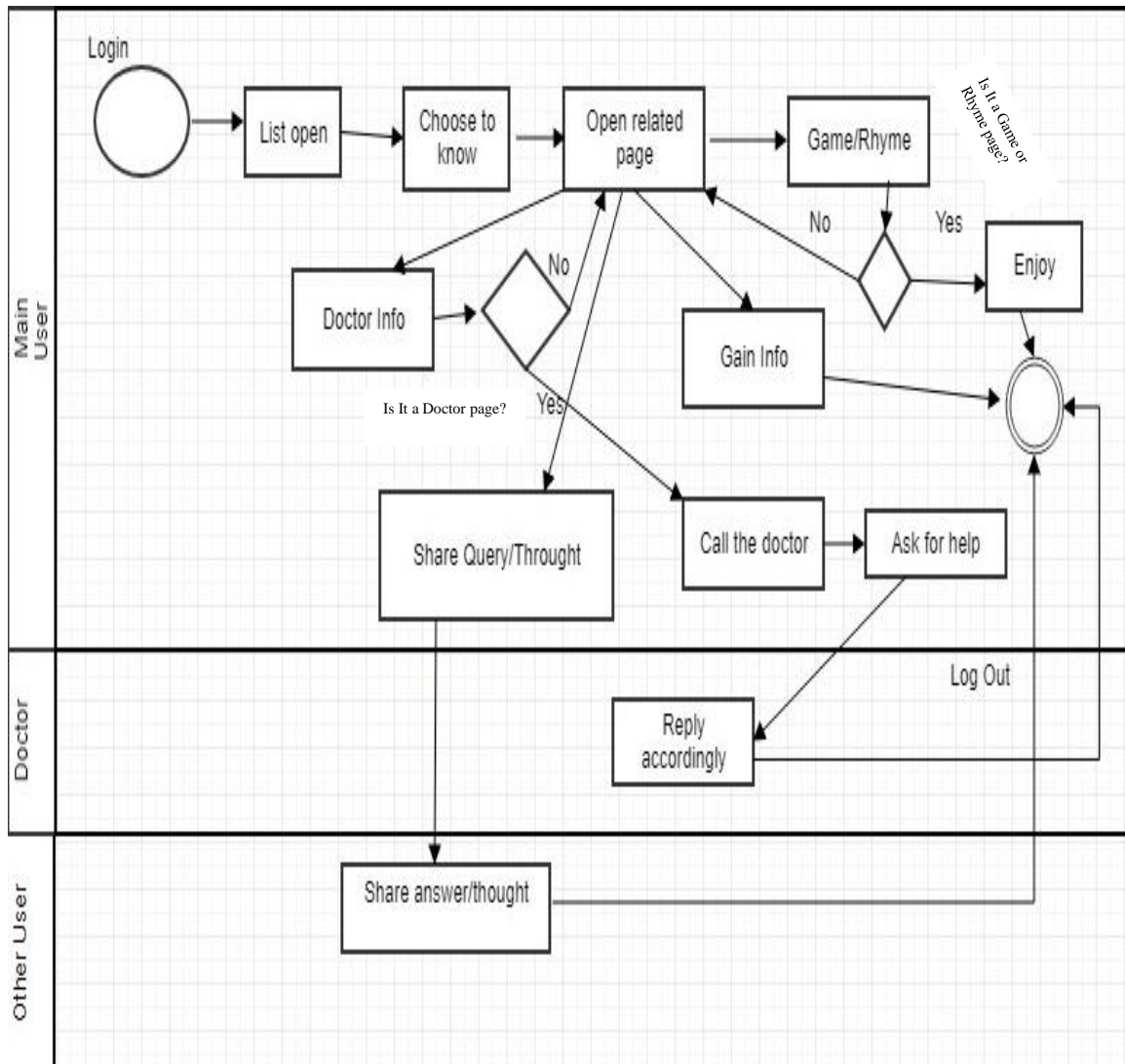


Figure 3.1 Requirement Collection and Analysis Diagram (BPM)

The figure 3.1 shows the Business process model for our app.

For building up a great android app there are some requirements needed. Like every app our app also has some requirements:

- Coding Languages: Java, XML

- Software: Android Studio, IDE, Firebase System
- Hardware: Computer, Android mobile

When the necessities are assembled, we record the prerequisites in a Software Requirement Specification report, utilize cases or as User Stories, which are imparted to the partners for endorsement. This record is straightforward for both typical clients and designers. Any adjustments in the prerequisites are likewise archived and experience a change control strategy and concluded on endorsement.

3.2 Requirement Collection and Analysis

For building up a great android app there are some requirements needed. Like every app our app also has some requirements:

- Coding Languages: Java, XML
- Software: Android Studio, IDE, Firebase System
- Hardware: Computer, Android mobile

Once the requirements are gathered, we document the requirements in a Software Requirement Specification document, use cases or as User Stories, which are shared with the stakeholders for approval. This document is easy to understand for both normal users and developers. Any changes in the requirements are also documented and go through a change control procedure and finalized on approval [4].

3.3 Use Case Modeling and Description

The Figure 3.2 shows the use case diagram which shows features of the app and how users and admin interacts with the app.

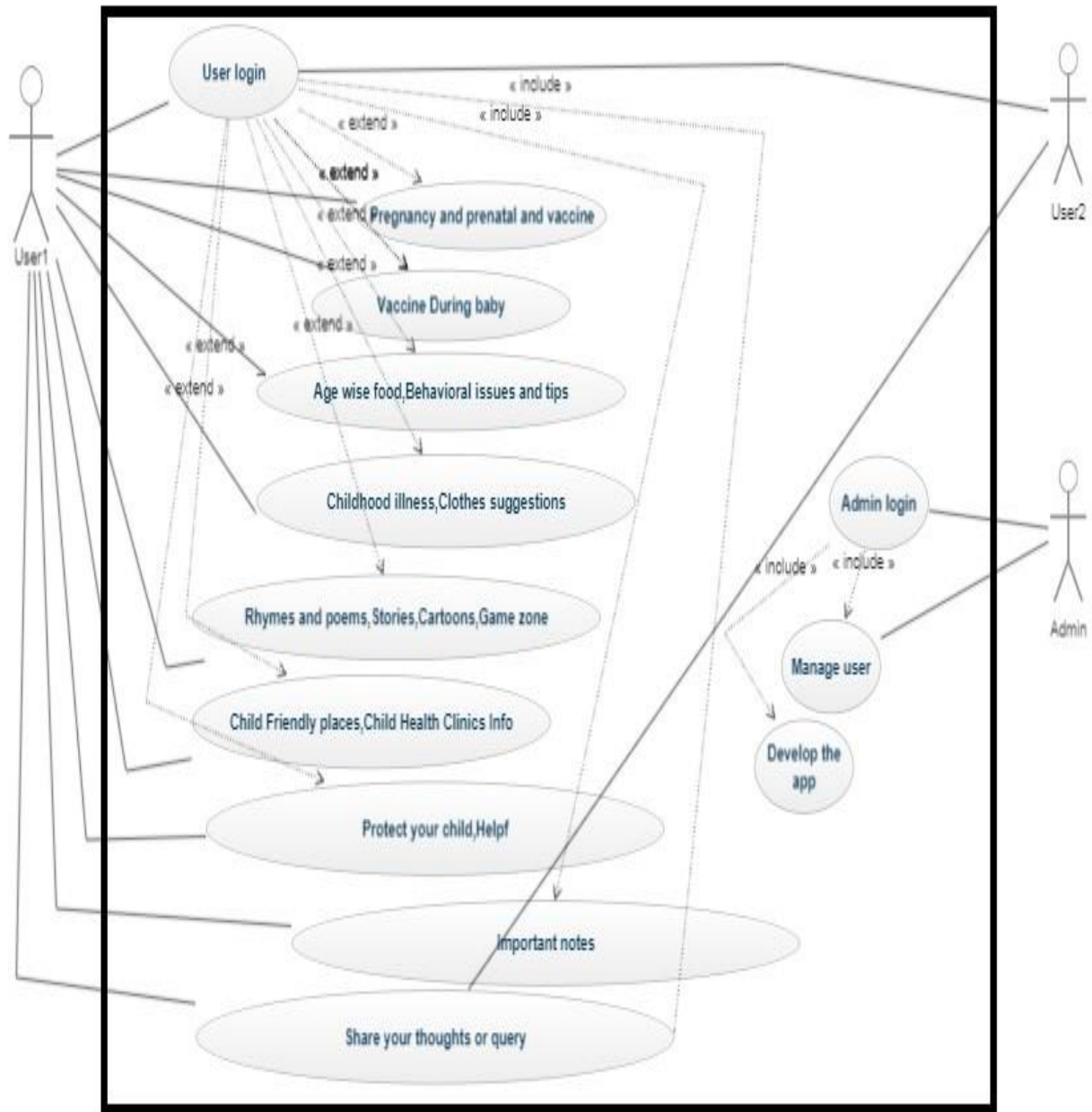


Figure 3.2 Use case diagram

3.3.1 Use Case Description

There Table 3.1, Table 3.2, Table 3.3, Table 3.4, Table 3.5 are showing the use case descriptions for our app.

Table 3.1: Use case description of Use Login

Use Case	User Login
Primary Actor	User1, User2
Secondary Actor	Null
Pre-Condition	Click the google button for login
Scenario	Valid Username Valid password
Post Condition	Login Successful or failed

Table 3.2: Use case description of Login

Use Case	Admin Login
Primary Actor	Admin
Secondary Actor	Null
Pre-Condition	Login
Scenario	Valid Username Valid password
Post Condition	Login Successful or failed

Table 3.3: Use case description of ask question

Use Case	Share thought/query
Primary Actor	User1
Secondary Actor	User2

Pre-Condition	Login
Scenario	Additional information
Post Condition	Waiting for reply

Table 3.4: Use case description of view information

Use Case	View information
Primary Actor	User1, User2, Admin
Secondary Actor	Null
Pre-Condition	Open App Drawer & select function, Login
Scenario	Additional personal information
Post Condition	Information displayed successfully

Table 3.5: Use case description of Control Database

Use Case	Control database
Primary Actor	Admin
Secondary Actor	Null
Pre-Condition	View information
Use Case	Control database
Scenario	Additional personal information
Post Condition	Check in Database

3.4 Logical Data Model

The ERD of our project is a logical data model which shows the relations among user table, login table, share query table and notes. There can be many users who can login to use the app and also many user can share many thoughts and also add notes after login. The Figure 3.3 shows the Logical Data Model, ER-Diagram.

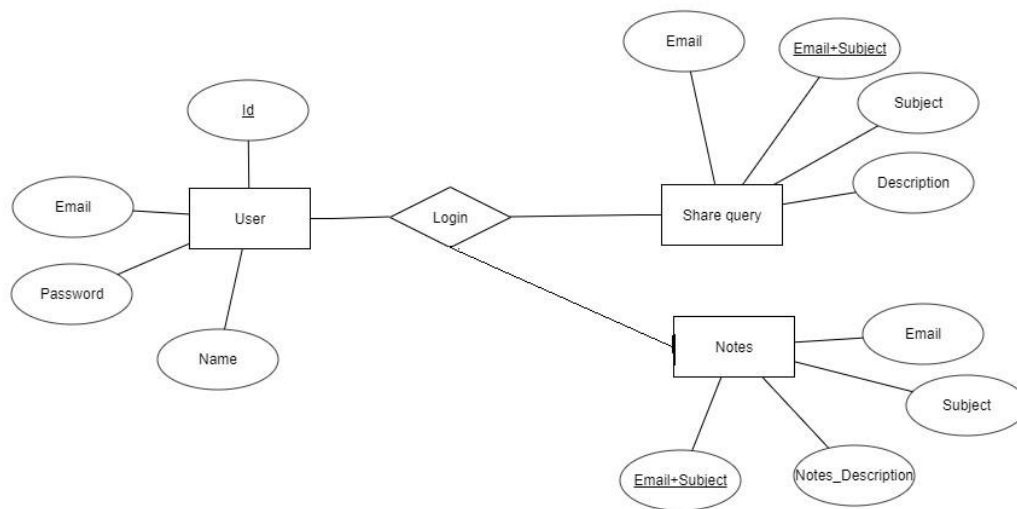


Figure 3.3 ER-Diagram

3.5 Design Requirements

The accompanying objectives were remembered while structuring the framework:

3.5.1 Simplicity and Flexibility

The framework clients can have a lot of power over their motivation in accomplishing targets.

3.5.2 System Compatibility

It ought to be fit in the aggregate framework, future upkeep and upgrade should less.

3.5.3 Productivity

It is the most essential. The framework should run and work least equipment of programming asset accessible without deferring.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

For the user interaction it is very important to make the front end design as simple as possible so, reminding this we make the design. The main part of this front end design are given below:

- There will be a home page where user can take his/her child picture or attach one from gallery and see in the home page whenever he/she enters in the app
- In the home page through a navigation drawer user can get a idea about all the features of our app
- The header part will show the users name, email and profile picture if he/she logged in the apps with their Gmail account
- The features includes prenatal care, vaccine, foods, behavioral issues, clothes suggestions, child friendly places, clinics info, protection in the navigation drawer are mainly informative features
- There are also rhymes & poems, helpful videos, cartoons which are supportive both audio and video showing format separately
- Also there is offline game zone which will give the baby immense pleasure in a brainstorming way
- There are a great feature to keep any important task through notes. Users can use it by login with a Gmail account
- Also the most impressive section is ‘share thoughts or query’ where a all the user of the app can easily interact with each other by sharing their thoughts
- Finally there is a log out feature which helps the user who is logged in already to logged out from the account, and if the user not logged in then help them to exit the app easily

4.2 Back-End Design

This is the most crucial part of an android app design. This part is unknown to the user, only developers interact with this part and make the design best. Here, every one of the rationales work behind the application. The rationales of sparing or showing information from part to part is crafted by back-end part. We think the front-end part is the heart yet as a general rule, without the back-end part we can't do anything in an application. The vast majority of the enormous organizations work the greater part of their time for structuring backend part. My undertaking likewise set aside a ton of time for making the rationale works. Some back end designs are showing on Figure 4.1, Figure 4.2, Figure 4.3, Figure 4.4, Figure 4.5, Figure 4.6.

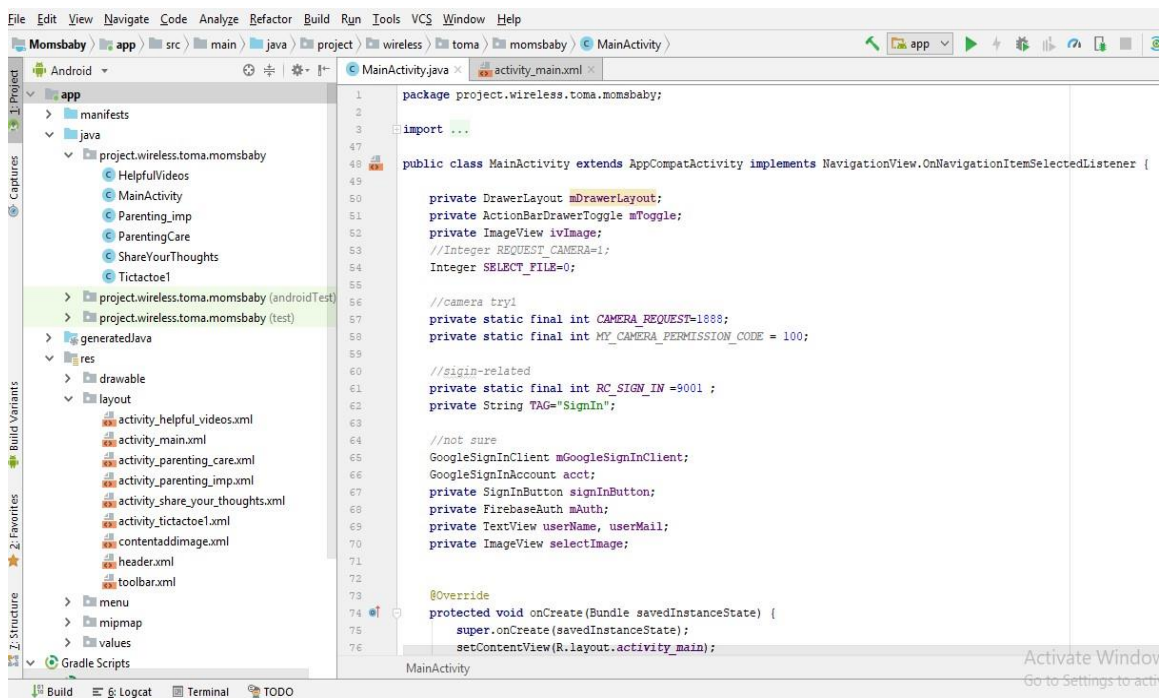


Figure 4.1 MainActivity Java Class


```

package project.wireless.toma.momsbaby;

import ...

public class ParentingCare extends Activity implements View.OnClickListener {
    private Button parent_imp1, parent_fd, parent_weight, parent_exer, parent_tips, par

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_parenting_care);

        parent_imp1=findViewById(R.id.parent_imp);
        parent_fd=findViewById(R.id.parent_fd);
        parent_weight=findViewById(R.id.parent_weight);
        parent_doc=findViewById(R.id.parent_doc);
        parent_exer=findViewById(R.id.parent_exer);
        parent_tips=findViewById(R.id.parent_tips);

        parent_imp1.setOnClickListener(this);
        parent_fd.setOnClickListener(this);
        parent_weight.setOnClickListener(this);
        parent_doc.setOnClickListener(this);
        parent_exer.setOnClickListener(this);
        parent_tips.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        switch (v.getId()){
            case R.id.parent_imp:
                Intent pi = new Intent( packageContext: this, Parenting_imp.class);

```

Figure 4.2: Parenting Info Page Java Code

```

<?xml version="1.0" encoding="utf-8" ?>
<ScrollView
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="@android:color/darker_gray"
    tools:context=".Parenting_imp">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:id="@+id/par_imp"
            android:textColor="#000000"
            android:text="What is prenatal care and why is it important?"
            android:textSize="20dp"
            android:layout_margin="15dp"/>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="15dp"
            android:layout_marginRight="5dp"
            android:text="Having a healthy pregnancy is one of the best ways to pr
            />
        <TextView
            android:layout_width="wrap_content"

```

Figure 4.3: Parenting Info XML Code

```

Tictactoe1.java
1 package project.wireless.toma.momsbaby;
2
3 import ...
4
5
6
7
8
9
10 public class Tictactoe1 extends AppCompatActivity implements View.OnClickListener{
11
12     private Button[][] buttons=new Button[3][3];
13     private boolean player1Turn=true; //when start the game x is true
14
15     private int roundCount;
16     private int player1Points;
17     private int player2Points;
18
19     private TextView textviewPlayer1;
20     private TextView textviewPlayer2;
21
22     @Override
23     protected void onCreate(Bundle savedInstanceState) {
24         super.onCreate(savedInstanceState);
25         setContentView(R.layout.activity_tictactoe1);
26
27         textviewPlayer1=(TextView)findViewById(R.id.text_view_p1);
28         textviewPlayer2=(TextView)findViewById(R.id.text_view_p2);
29
30         //define button dynamically
31         for(int i=0;i<3;i++){
32             for(int j=0;j<3;j++){
33                 String buttonID="button_" + i + j;
34                 int resID=getResources().getIdentifier(buttonID, defType: "id",getPackageName());
35                 buttons[i][j]=findViewById(resID);
36                 buttons[i][j].setOnClickListener(this);
37             }
38         }
39     }
40 }

```

Figure 4.4: Game Java Code

```

Tictactoe1.java activity_tictactoe1.xml
1 <?xml version="1.0" encoding="utf-8" ?>
2 <LinearLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     android:orientation="vertical"
9     tools:context="project.wireless.toma.momsbaby.Tictactoe1">
10
11     <RelativeLayout
12         android:layout_width="match_parent"
13         android:layout_height="wrap_content">
14
15         <TextView
16             android:layout_marginTop="5dp"
17             android:layout_marginLeft="10dp"
18             android:id="@+id/text_view_p1"
19             android:layout_width="wrap_content"
20             android:layout_height="wrap_content"
21             android:text="Player 1: 0"
22             android:textColor="#3b7e49"
23             android:textSize="30sp"
24             android:freezesText="true"/>
25
26         <TextView
27             android:layout_marginTop="5dp"
28             android:layout_marginLeft="10dp"
29             android:id="@+id/text_view_p2"
30             android:layout_below="@+id/text_view_p1"
31             android:textColor="#3b7e49"
32             android:layout_width="wrap_content"
33         />
34     </RelativeLayout>
35 </LinearLayout>

```

Figure 4.5: Game XML Code

4.3 Interaction Design and UX

Association configuration centers around making drawing in interfaces with well thoroughly considered practices. Seeing how clients and innovation speak with one another is key to this field. With this understanding, you can envision how somebody may cooperate with the framework, settle issues ahead of schedule, and imagine better approaches for getting things done. The user can use this app so easily and the admin can study user's thoughts for better improvement of this app.

4.4 Implementation Requirements

For this app android studio, firebase, emulator, android mobile these are the main things to implement our app.

4.4.1 Android SDK

The Android programming improvement pack (SDK) incorporates a thorough arrangement of advancement instruments. These incorporate a debugger, libraries, a handset emulator dependent on QEMU, documentation, test code, and instructional exercises. At present bolstered advancement stages incorporate PCs running Linux (any cutting edge work area Linux conveyance), Mac OS X 10.5.8 or later, and Windows 7 or later. As of March 2015, the SDK isn't accessible on Android itself, however programming improvement is conceivable by utilizing specific Android applications [5].

4.4.2 Firebase Real-time Database

The Firebase Real-time Database is a cloud-facilitated database. Information is put away as JSON and synchronized in real-time to each associated customer. When you construct cross-stage applications with our iOS, Android, and JavaScript SDKs, the majority of your customers share one Real-time Database case and naturally get refreshes with the most up to date information [6].

4.4.3 The Emulator

In figuring, an emulator is equipment or programming that empowers one PC framework (called the host) to act like another PC framework (called the visitor). An emulator regularly empowers the host framework to run programming or utilize fringe gadgets intended for the visitor framework.

Copying alludes to the capacity of a PC program in an electronic gadget to imitate (or impersonate) another program or gadget. Numerous printers, for instance, are intended to imitate Hewlett-Packard LaserJet printers on the grounds that so much programming is composed for HP printers. In the event that a non-HP printer copies a HP printer, any product composed for a genuine HP printer will likewise keep running in the non-HP printer copying and create identical printing. Since at any rate the 1990s, numerous computer game fans have utilized emulators to play exemplary (as well as overlooked) arcade recreations from the 1980s utilizing the diversions' unique 1980s machine code and information, which is deciphered by a present period framework [7].

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

There are various kinds of database software available which we are used to store various kinds of data. Like SQLite, MYSQL, Firebase database, Firebase cloud store etc. Each of them has different advantages and after studying them we decided to use firebase cloud store for storing our user's info, login info, sharing thoughts and also store their important notes.

5.1.1 Database Table

We use firebase cloud database to store our data. There are user, login, share & query and notes collections.

5.1.2 Database for Users

This figure 5.1 shows the user collection's attributes



Figure 5.1: Database for users

5.1.3 Database for Login

This figure 5.2 shows login collection's attributes.



Figure 5.2: Database for User Login

5.1.4 Database for share

This figure 5.3 shows the share & query collection's attributes.

```
description: "10000000"  
email: "10000"  
subject: "100000"
```

Figure 5.3: Database for share users thought or query

5.1.5 Database for Important Notes

This figure 5.4 shows notes collection's attributes

```
description_notes: "10000000"  
email: "1000"  
subject_notes: "1000000"
```

Figure 5.4: Database for Users Notes

5.2 Implementation of Front-end Design

It is one of the main part of our project. How the user interact with our apps is shown in the front end design. Our app's front-end designs are shown on figure 5.5, figure 5.6, figure 5.7, figure 5.8, figure 5.9, figure 5.10, figure 5.11.

5.2.1 Home Page

The figure 5.5 shows the home page of our app where user can add his/her precious child's photo by camera or gallery.

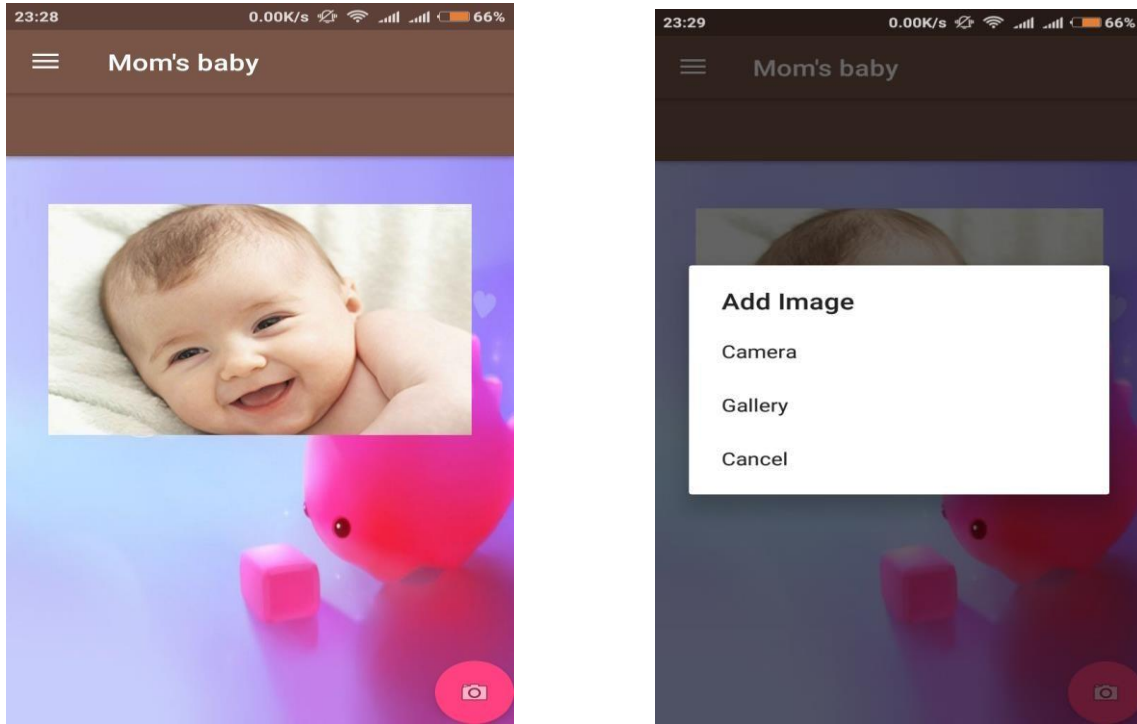


Figure 5.5: Home Page

Here figure 5.6 shows the navigation drawer of our app which shows the main features of our app as well.

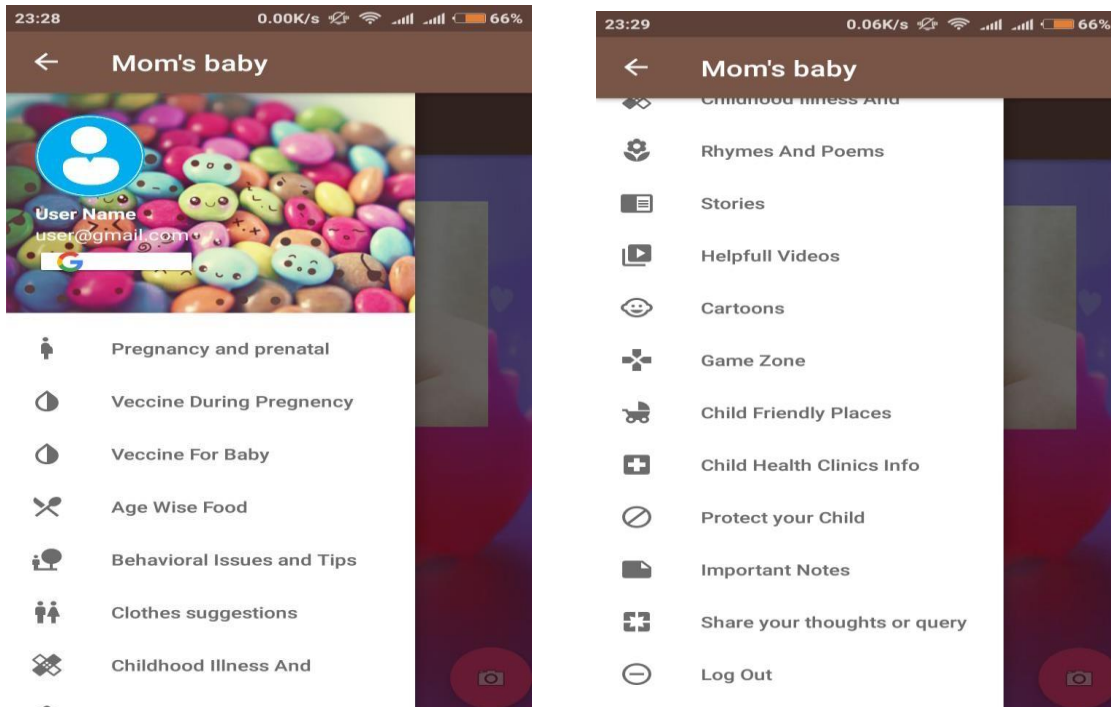


Figure 5.6: Home Page Navigation Drawer

5.2.2 Information View

The figure 5.7 shows one informative page of our app.

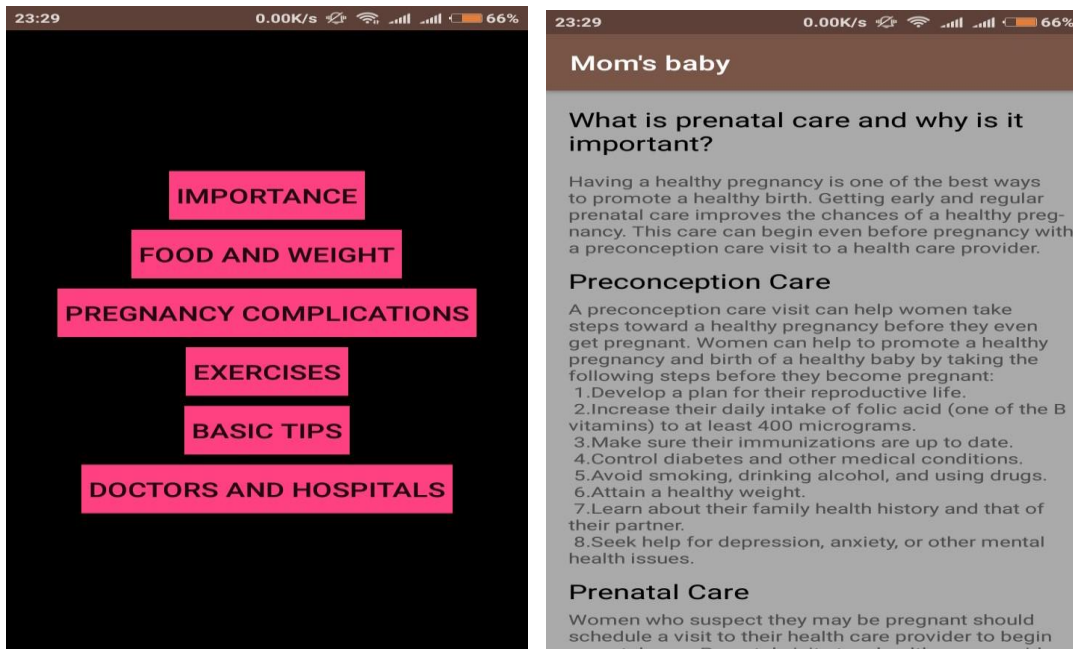


Figure 5.7: Information View

5.2.3 Games

The figure 5.8 show one offline game feature “Tic-Tac-Toe” of our app.

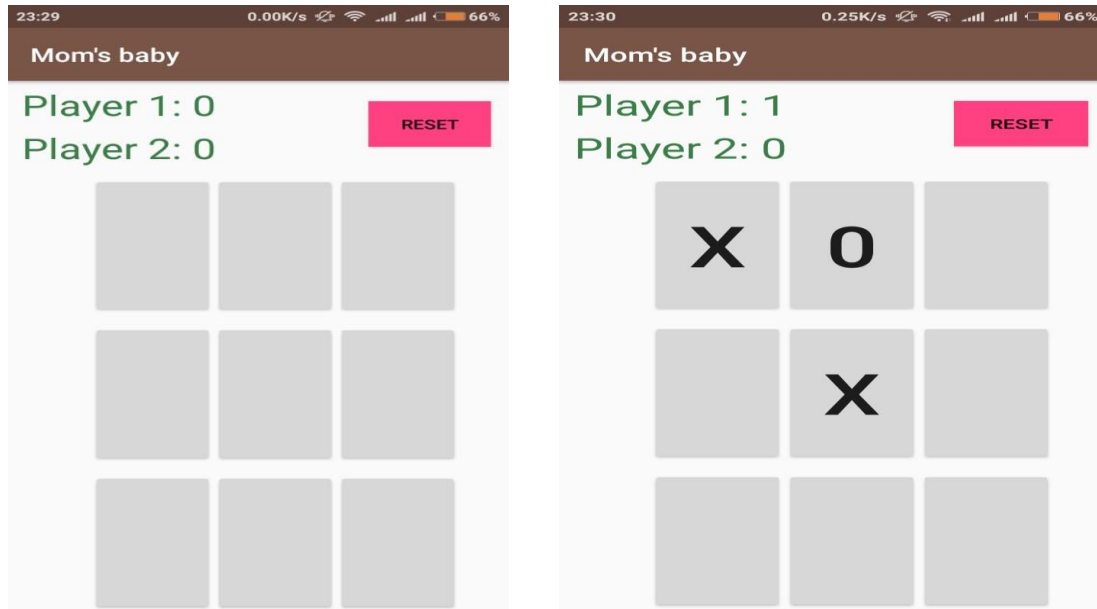


Figure 5.8: Offline Game (Tic-Tac-Toe)

5.2.4 Cartoon

The figure 5.9 shows the cartoon features of our app.

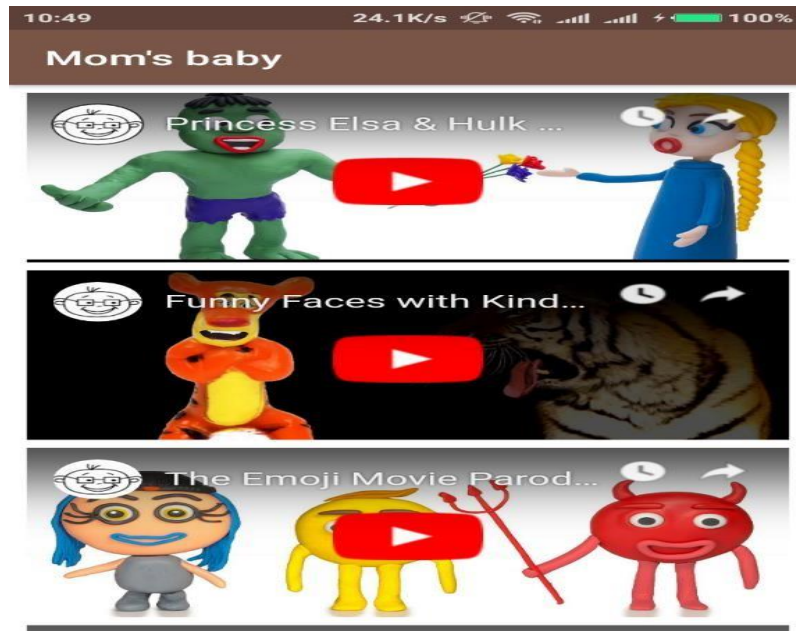


Figure 5.9: Cartoon Page

5.2.5 Rhymes & Poems

The figure 5.10 shows the offline readable and also hearable rhyme features of our app.

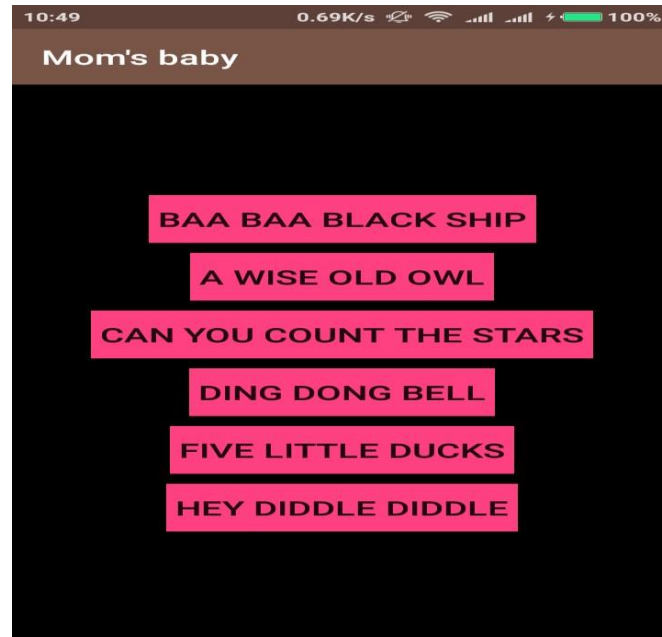


Figure 5.10: Rhymes & Poems

5.2.6 Share & Query

The figure 5.11 shows the sharing thoughts/discussion page of our app.

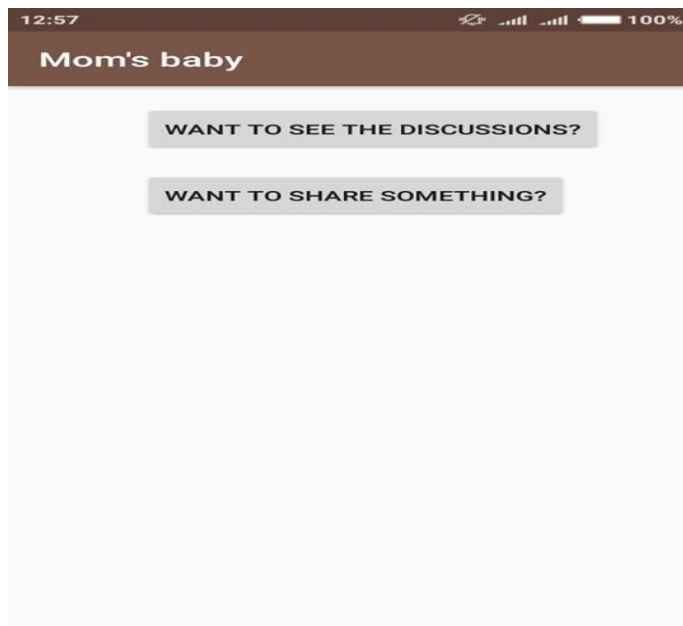


Figure 5.11: Share & Query

5.2.7 Important Notes

The figure 5.12 shows the Important Notes Adding feature of our apps.

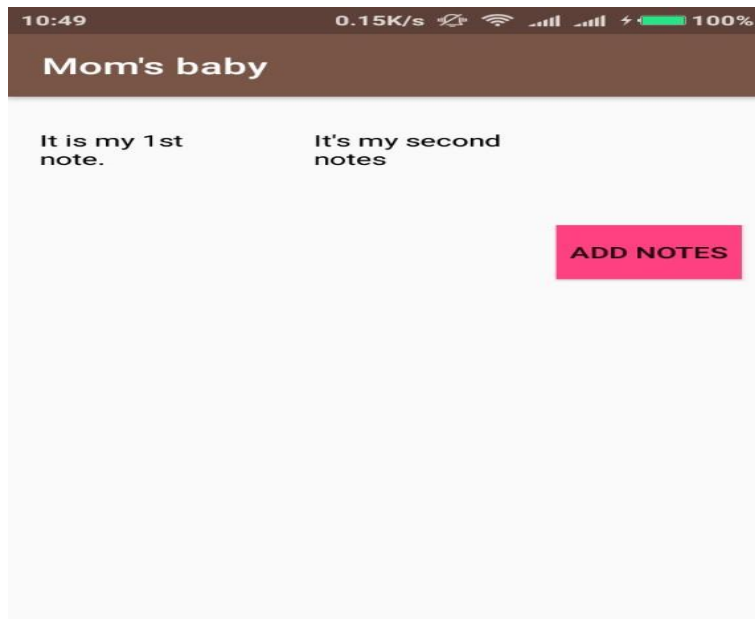


Figure 5.12: Important Notes

5.3 Implementation of Interactions

For better user experience the interaction is main so, we implement the UI with attractive drawers, header, Homepage with camera toolbar. We use many material design and attractive icons with which we are familiar in our regular life. Moreover the navigation drawer's features names are easily understandable and clickable. Also the game format is so simple that anybody can understand and play easily. So I think we implement the app's UI as simple and attractive as possible for user interactions. But as we know there is no end of beautification so we hoping to develop it more in future.

5.4 Test Implementation

It is one of the most important part for a developing app before deployment and marketing. It gives us proof that our app is working perfectly or not or how much of the app needs further improvement. And also helps us to detect bug or error of our codes. The test implementation is shows in Table 5.1 for our app.

Table 5.1: Test Implementation

Test Case	Test Input	Expected Output	Actual Output	View	Date
1. Display the application pages	Tested on android mobile	To display the pages successfully.	Display the pages successfully.	Successful	10-11-18
2. Login with mail	Click the google sign in button	To be signed in & Header info will be updated	Signed In with mail account and header info updated	Successful	24-11-18
3.Camera Toolbar Use	Click the toolbar	To get the options page and select gallery to set image in the imageview	Options page pop up and the selected the gallery image show in the imageview	Successful	24-11-18
4. See the Information pages	Click the navigation drawer's items	To go to the related activity page and show the information	Going to the related page and show the information	Successful	24-11-18
5. Show videos from YouTube link	Click on videos section	To show the video content	Show the video content properly.	Successful	24-11-18
6. Play game	Click the game zone	To see the game interface and play	Showed the game interface and playing	Successful	24-11-18
7. See rhymes and poem	Click on the rhymes section	To show the rhymes page to choose rhymes and then show	Showed the choices page and by selecting one	Successful	24-11-18

		the rhymes	rhymes will be displayed		
8. See Stories	Click on the stories section	To show the stories page to choose story and then show the story	Showed the choices page and by selecting one story will be displayed	Successful	24-11-18
9. Share Info page show and adding thought or query	Click share info in the navigation drawer	To Show the page and to fill up the description box and submit	Showed the page and boxes in the page are fill up and submit	Successful	24-11-18
10. Notes	Click on the notes item in the drawer	To show the note page, add new note and show the notes	Showed the note page, added new note successfully and then notes are showed	Successful	24-11-18
11. Show cartoons online	Click on the cartoon item on the drawer	To display cartoon video contents on the cartoon page	Displayed cartoon video contents on the cartoon page	Successful	24-11-18
12. Logout (when user isn't logged in with his/her mail)	Click on logout item on the drawer	To exit the app	App exits successfully	Successful	24-11-18
13. Logout (when user is logged in with his/her mail)	Click on logout item on the drawer	To signed out from the mail and get back to the home page, header UI will be changed to initial state	Signed out from the mail and get back to the home page, header UI will be changed to initial state	Successful	24-11-18

5.5 Testing Result and Report

This test report shows whether if our app works properly or not. And for this we have gone through all the steps showed in the table 5.1 to check our apps robustness. We use various brands android devices to check these steps. After confirm all the steps success we are hopeful for good user feedback in future.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

Tutor map is an educational platform that allow students to find their ideal tutor in the most convenient way.

The app also proves to be a great platform for skilled and experience tutors to earn extra income by educating students in their leisure time. And students can choose their interested field and communicate directly with tutor through inbuilt messenger or call and schedule a class. The app also allows tutors to communicate with students through call or SMS.

6.2 Scope for Further Developments

I would like to continue developing this app to add:

- Continuous communication with parent within the app
- Stability improvements.
- Giving more accurate tutor /tuition facility.
- Giving rating system, add them as a favorite and report them in the case of any misbehave or violence.

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APPENDIX

Appendix A: Project Reflection

This appendix which give reflection of our project so that I remembered that we started our journey from summer 2018. And our first intention was to make a user friendly app where our main priority was parents and children. So we tried to make this “mom’s Baby’ app as useful as much we can for easy parenting. And now we are hopeful about our apps success that it can bring happiness and comfort in parent’s life and also help to build a beautiful parent-child relationship.

Plagiarism Report

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Figure: Plagiarism Report