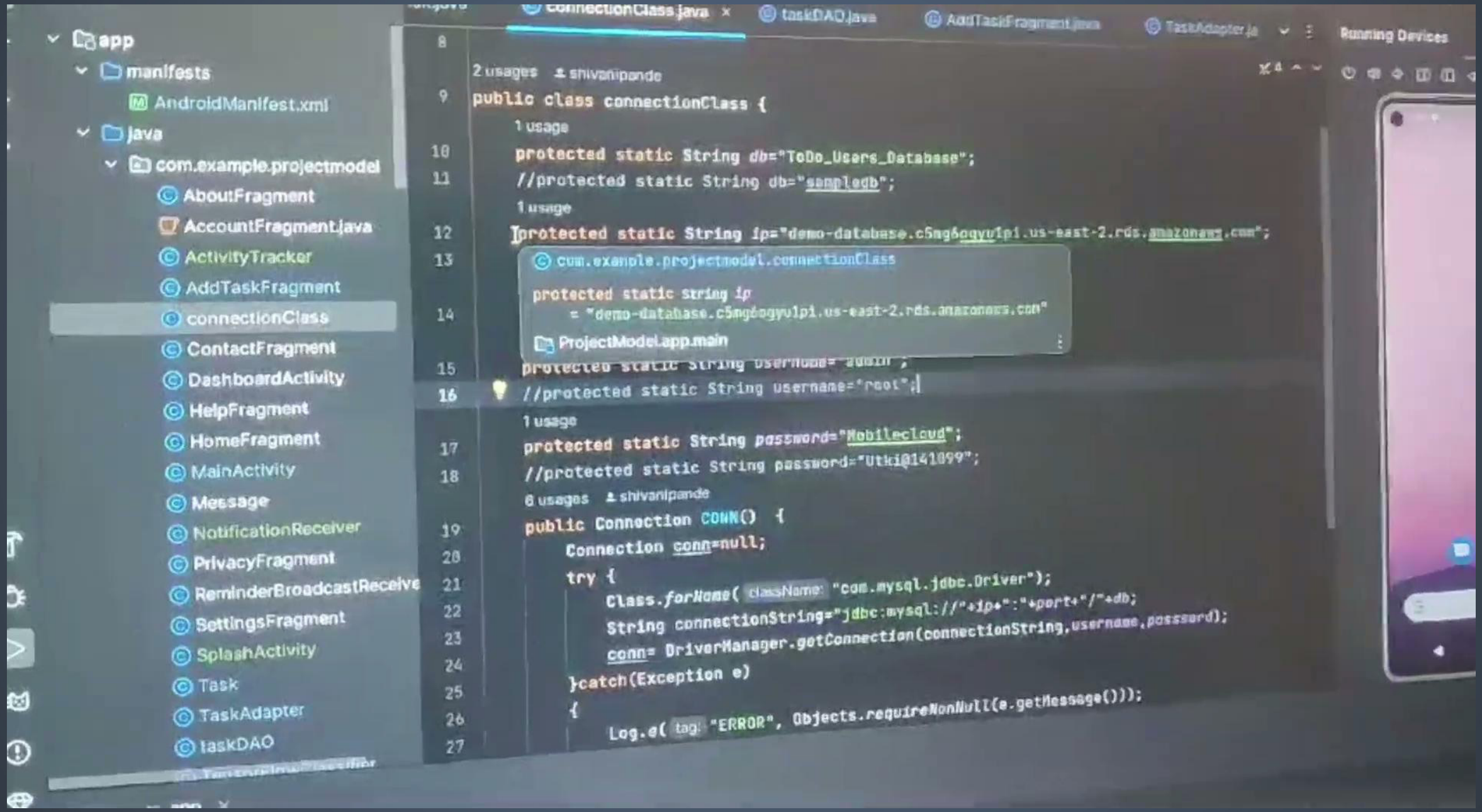
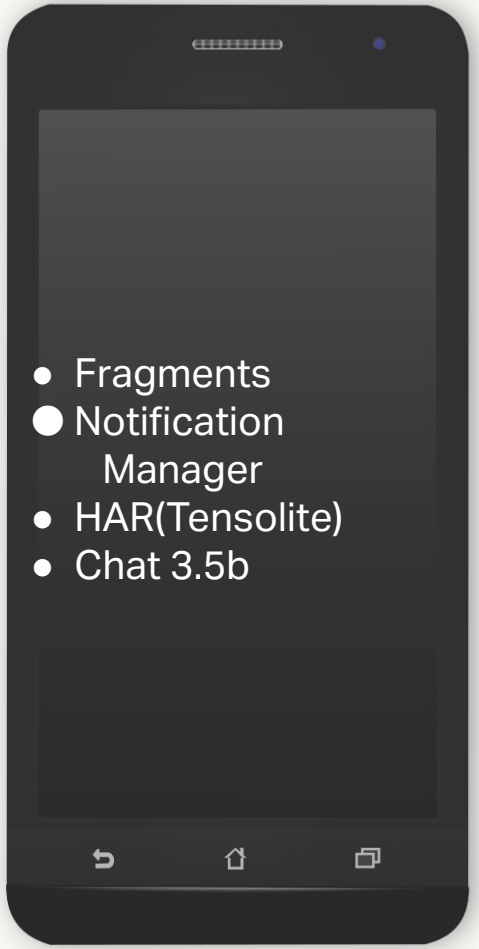
Final Project : Mobile Project Cloud Smart Notifier

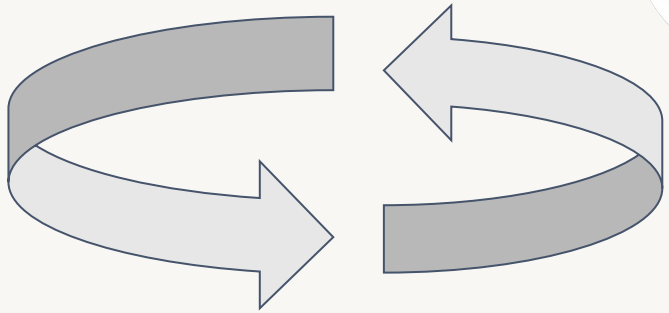
Demo


app
manifests
AndroidManifest.xml
java
com.example.projectmodel
AboutFragment
AccountFragment.java
ActivityTracker
AddTaskFragment
connectionClass
ContactFragment
DashboardActivity
HelpFragment
HomeFragment
MainActivity
Message
NotificationReceiver
PrivacyFragment
ReminderBroadcastReceive
SettingsFragment
SplashActivity
Task
TaskAdapter
taskDAO
connectionClass.java
taskDAO.java
AddTaskFragment.java
TaskAdapter.ja
Running Devices
2 usages shivanipande
public class connectionClass {
1 usage
protected static String db="ToDo_Users_Database";
//protected static String db="sampledb";
1 usage
protected static String ip="demo-database.c5ng6ogyv1pi.us-east-2.rds.amazonaws.com";
com.example.projectmodel.connectionClass
protected static String ip
= "demo-database.c5ng6ogyv1pi.us-east-2.rds.amazonaws.com"
ProjectModel.app.main
//protected static String username="root";
1 usage
protected static String password="Mobilecloud";
//protected static String password="Utki@141099";
6 usages shivanipande
public Connection CONN() {
Connection conn=null;
try {
Class.forName(className: "com.mysql.jdbc.Driver");
String connectionString="jdbc:mysql://"+ip+":"+port+"/"+db;
conn= DriverManager.getConnection(connectionString,username,password);
}catch(Exception e)
{
Log.e(tag: "ERROR", Objects.requireNonNull(e.getMessage()));

DATA FLOW



AWS API



Model :

```
Model: "sequential_3"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 lstm_3 (LSTM)               (None, 32)                5376

 dropout_4 (Dropout)         (None, 32)                0

 dense_4 (Dense)             (None, 6)                 198

=================================================================
Total params: 5574 (21.77 KB)
Trainable params: 5574 (21.77 KB)
Non-trainable params: 0 (0.00 Byte)
_________________________________________________________________
```

Dataset:

- Data : UCI (Human Activity Recognition Using Smartphones)
  - Subjects: 30 volunteers
  - Age Range: 19-48 years
  - Activities Recorded:
  - Walking
  - Walking Upstairs
  - Walking Downstairs
  - Sitting
  - Standing
  - Laying

- Equipment Used:
  - Device: Samsung Galaxy S II
  - Sensors:
  - Accelerometer
  - Gyroscope
  - Sampling Rate: 50 Hz

- Tensorflow Lite:

TensorFlow Lite is a lighter version of the original TensorFlow (TF). TF Lite is specifically designed for mobile computing platforms and embedded devices, edge computers, video game consoles, and digital cameras.

Training and Performance Matrix

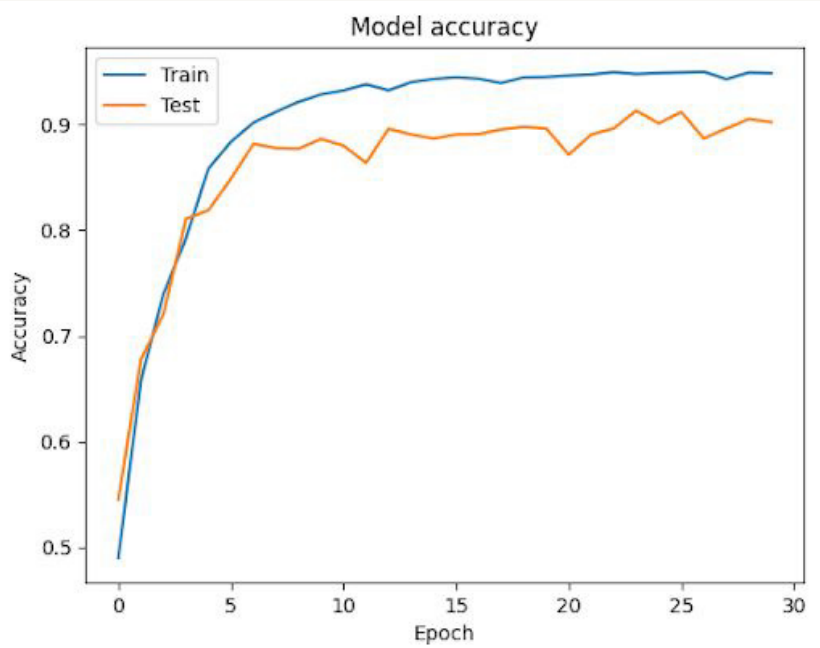
-

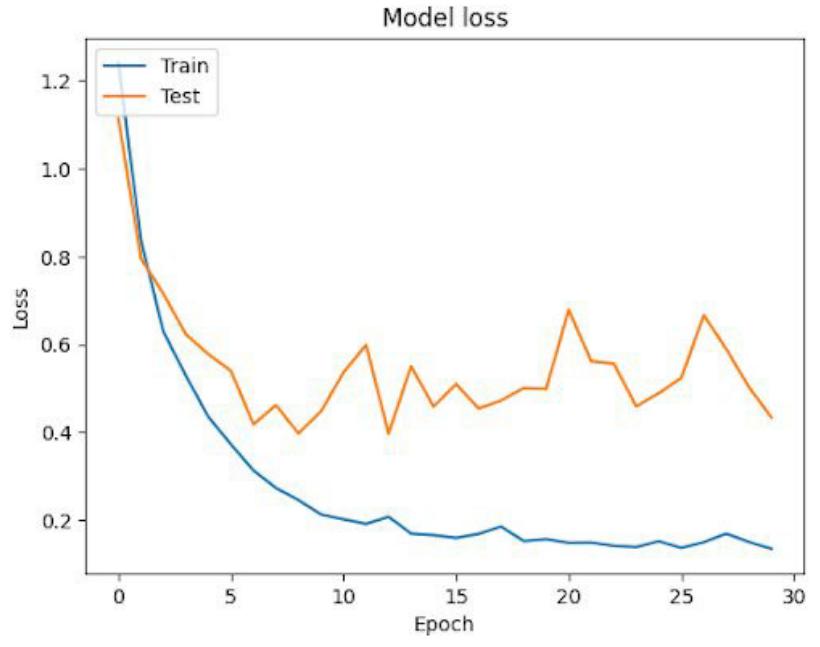
Training Time : more than 2 hours
Epochs : 30 Specs : Dell Latitude
16 GB Ram

Cloud Kaggle TPU :
Training time : 40 min

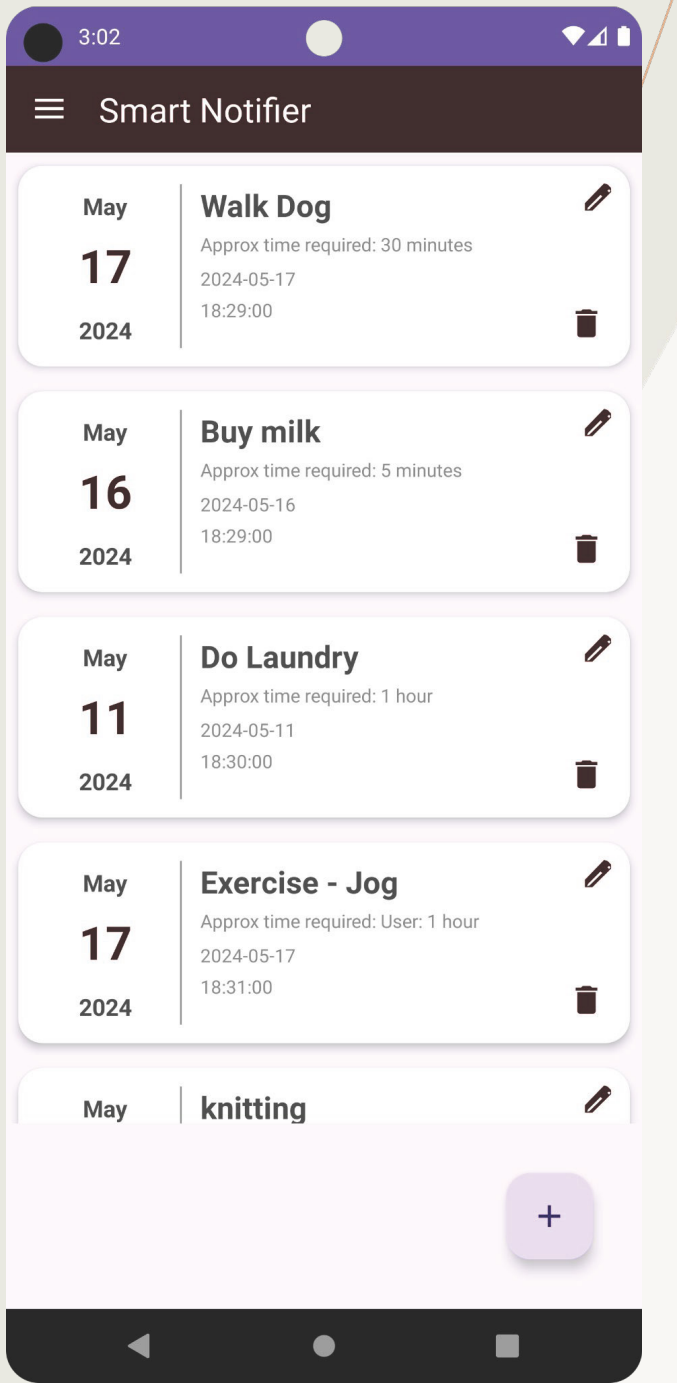
Average Metrics :

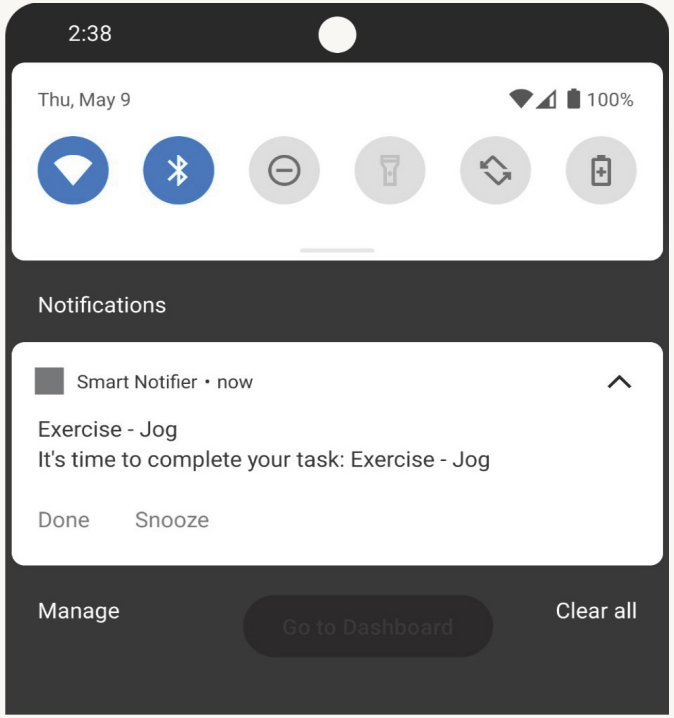
```
Accuracy:  0.898880243301391 6
Loss:  0.5760349035263062
```

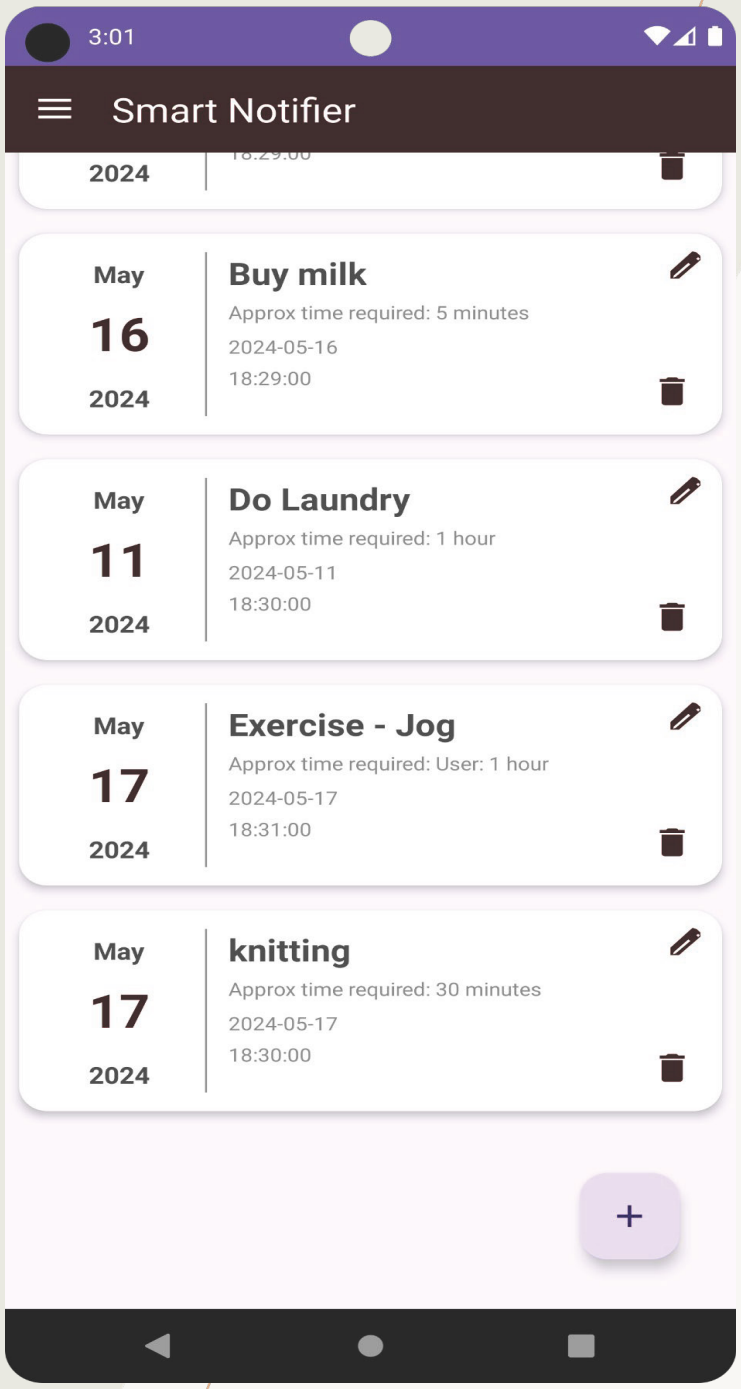


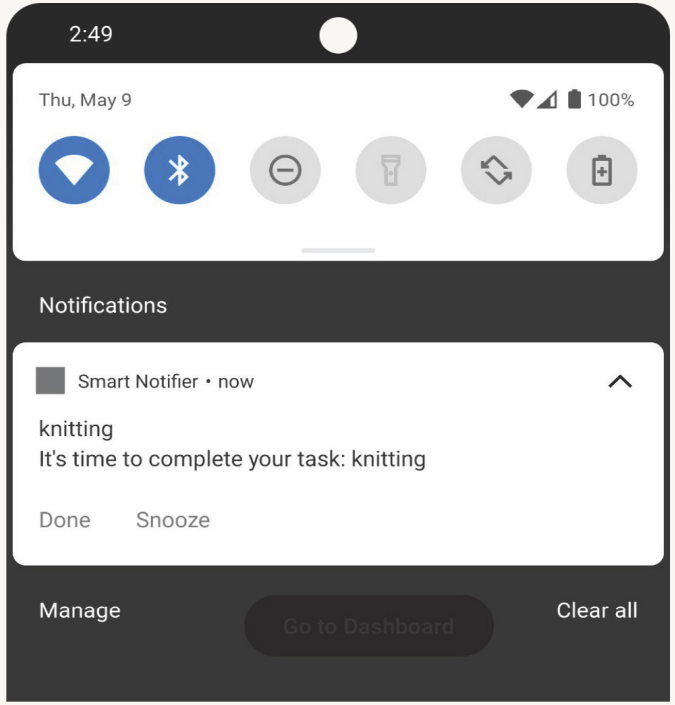


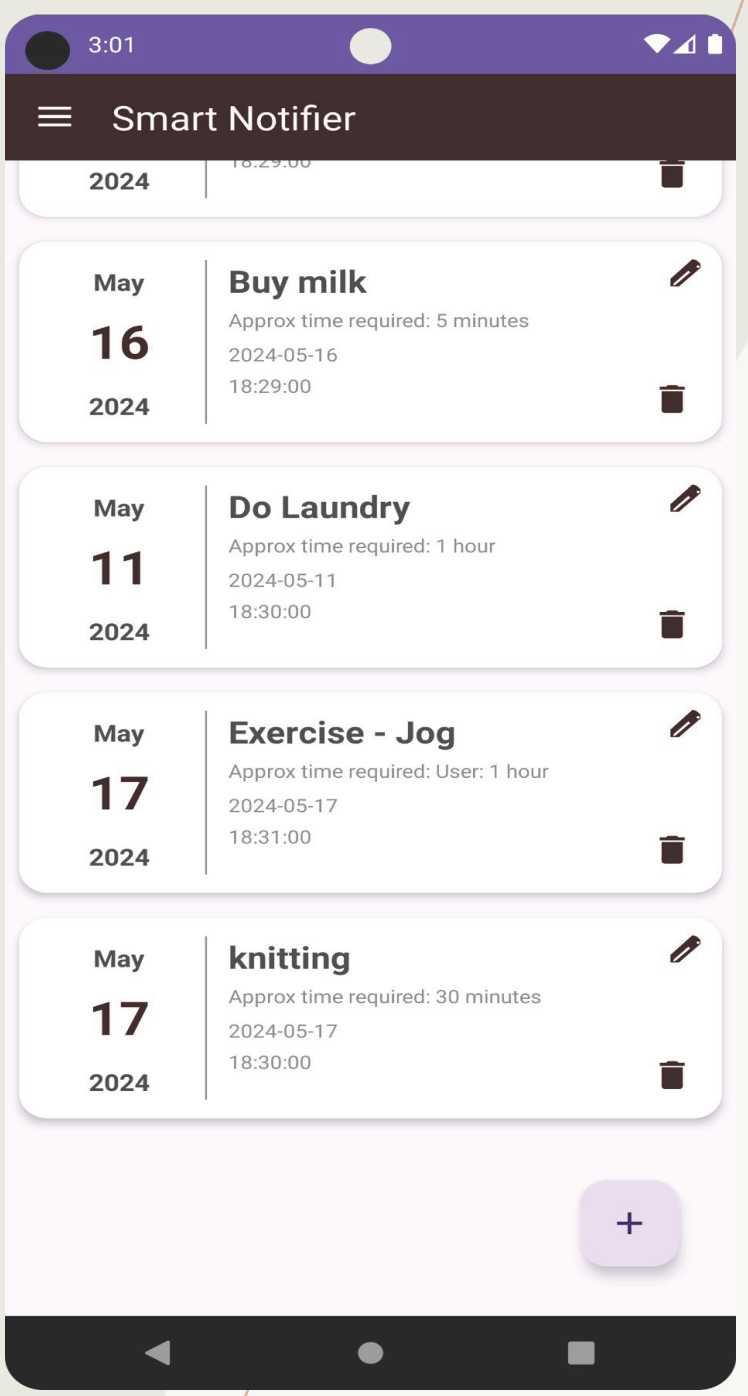
id	name	appx_time	near_activity	date_date	time_time
49	Jog track 5 Km	40 minutes	Jogging	2024-05-11	06:39:00
50	Doctor appointment	1 hour	Downstairs	2024-05-11	18:40:00
51	Clean Room	Approximately 30 minutes.	Walking	2024-05-13	06:41:00
52	Watering Plants	30 minutes	Upstairs	2024-05-10	17:42:00
53	Complete Assignments	1 hour	Sitting	2024-05-09	06:30:00
55	Walk Dog	30 minutes	Walking	2024-05-17	18:29:00
56	Buy milk	5 minutes	Downstairs	2024-05-16	18:29:00
57	Do Laundry	1 hour	Upstairs	2024-05-11	18:30:00
58	Exercise - Jog	User: 1 hour	Jogging	2024-05-17	18:31:00
60	knitting	30 minutes	Sitting	2024-05-17	18:30:00
NULL	NULL	NULL	NULL	NULL	NULL

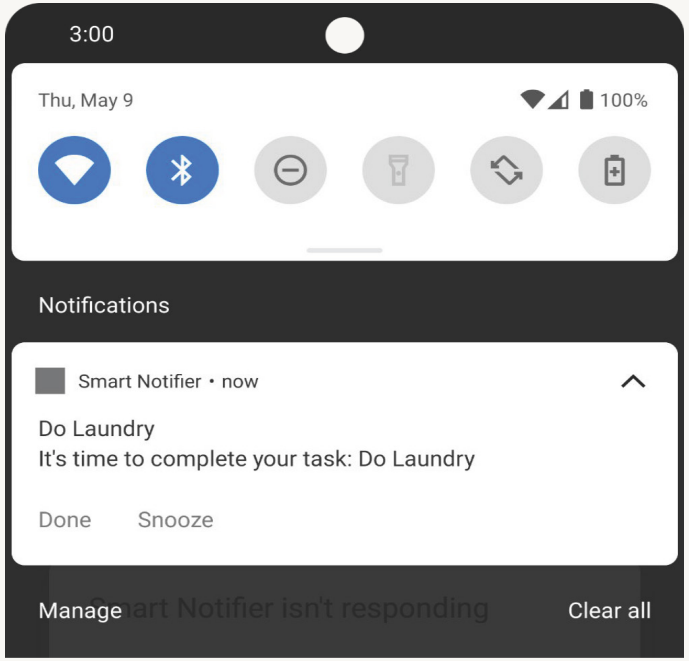

3:02
Smart Notifier
May
17
2024
Walk Dog
Approx time required: 30 minutes
2024-05-17
18:29:00
May
16
2024
Buy milk
Approx time required: 5 minutes
2024-05-16
18:29:00
May
11
2024
Do Laundry
Approx time required: 1 hour
2024-05-11
18:30:00
May
17
2024
Exercise - Jog
Approx time required: User: 1 hour
2024-05-17
18:31:00
May
knitting


2:38
Thu, May 9
100%
Notifications
Smart Notifier • now
Exercise - Jog
It's time to complete your task: Exercise - Jog
Done
Snooze
Manage
Go to Dashboard
Clear all


3:01
Smart Notifier
2024
May
16
2024
Buy milk
Approx time required: 5 minutes
2024-05-16
18:29:00
May
11
2024
Do Laundry
Approx time required: 1 hour
2024-05-11
18:30:00
May
17
2024
Exercise - Jog
Approx time required: User: 1 hour
2024-05-17
18:31:00
May
17
2024
knitting
Approx time required: 30 minutes
2024-05-17
18:30:00


2:49
Thu, May 9
100%
Notifications
Smart Notifier • now
knitting
It's time to complete your task: knitting
Done
Snooze
Manage
Go to Dashboard
Clear all


3:01
Smart Notifier
2024
May
16
2024
Buy milk
Approx time required: 5 minutes
2024-05-16
18:29:00
May
11
2024
Do Laundry
Approx time required: 1 hour
2024-05-11
18:30:00
May
17
2024
Exercise - Jog
Approx time required: User: 1 hour
2024-05-17
18:31:00
May
17
2024
knitting
Approx time required: 30 minutes
2024-05-17
18:30:00


3:00
Thu, May 9
100%
Notifications
Smart Notifier • now
Do Laundry
It's time to complete your task: Do Laundry
Done
Snooze
Manage
Clear all

Conclusion:

- **Model Complexity**: Powerful models offer better insights but can slow down the app.
- **API Lag**: More computations can cause noticeable delays, affecting user experience.
- **Optimization**: Using tools like TensorFlow Lite helps balance performance and speed.

Timeline of the Project:-

- Algorithm Approach for HAR and Prompting Mechanism

- Using Smartwatch sensors and running the model on Cloud for Predictions

- Using Cloud prowess to generate the machine learning model that will run on the native android device to make predictions

Thank- you