Project Report Template

1.INTRODUCTION

1.1Overview

A brief description about your project

A Sleep Tracking App for a Better Night's Rest

- A project that demonstrates the use of Android Jetpack Compose to build a UI for a sleep tracking app.
- The app allows users to track their sleep.With the “Sleep Tracker” app, you can assess the quality of sleep they have had in a day.
- It has been time and again proven that a good quality sleep is pretty essential for effective functioning of both mind and body.

1.2 Purpose

The use of this project. What can be achieved using this.

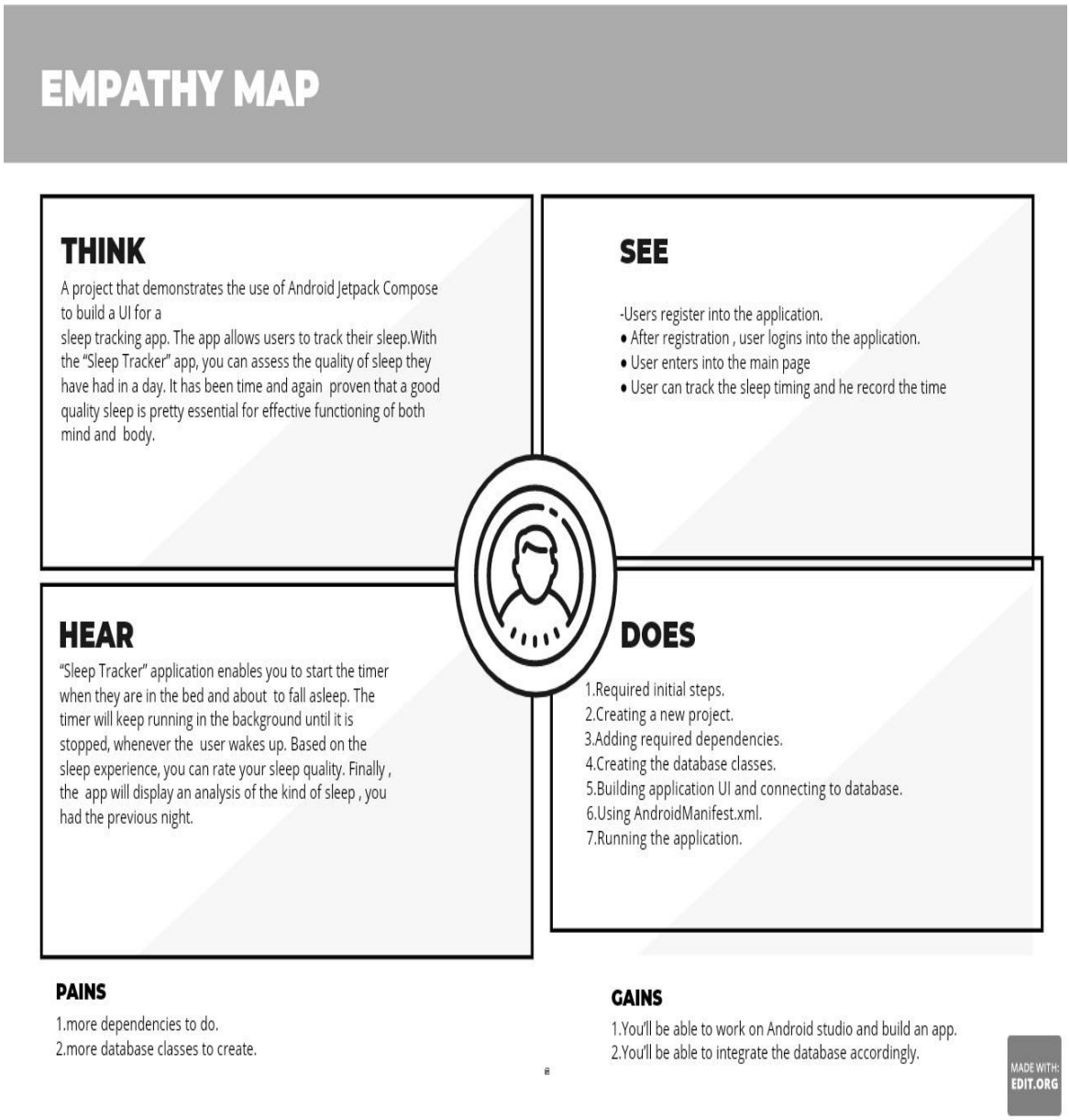
- “Sleep Tracker” application enables you to start the timer when they are in the bed and about to fall asleep.
- The timer will keep running in the background until it is stopped, whenever the user wakes up.
- Based on the sleep experience, you can rate your sleep quality.
- Finally , the app will display an analysis of the kind of sleep , you had the previous night.

By end of this project:

- You’ll be able to work on Android studio and build an app.
- You’ll be able to integrate the database accordingly.

2.Problem Definition & Design Thinking

2.1 Empathy Map



2.2 Ideation & Brainstorming Map

3.RESULT

3.1 Data Model:
Object name Field

<table>
<tr><th>Object name</th><th>Fields in the object</th></tr>
<tr><td>Obj 1

1.data access object

2.user DAO interface</td><td><table><tr><th>Field table</th><th>Data type</th></tr><tr><td>Gradle scripts</td><td>Classes</td></tr><tr><td>Activity</td><td>Code</td></tr></table></td></tr>
<tr><td>Obj 2

1.Entities
2.time log data class</td><td><table><tr><th>Field table</th><th>Data type</th></tr><tr><td>Dependencies</td><td>Database</td></tr><tr><td>DAO interface</td><td>Class</td></tr></table></td></tr>
</table>

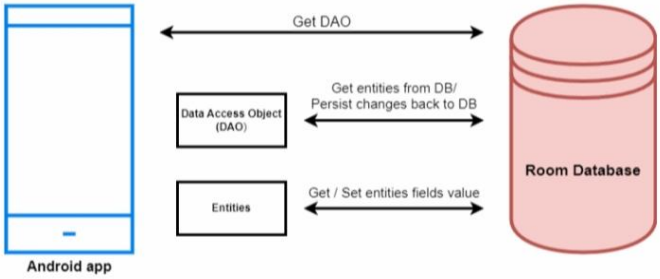
3.2 Activity & Screenshot

A Sleep Tracking App for a Better Night's Rest

A project that demonstrates the use of Android Jetpack Compose to build a UI for a sleep tracking app. The app allows users to track their sleep.With the “Sleep Tracker” app, you can assess the quality of sleep they have had in a day. It has been time and again proven that a good quality sleep is pretty essential for effective functioning of both mind and body.

“Sleep Tracker” application enables you to start the timer when they are in the bed and about to fall asleep. The timer will keep running in the background until it is stopped, whenever the user wakes up. Based on the sleep experience, you can rate your sleep quality. Finally , the app will display an analysis of the kind of sleep , you had the previous night.

Architecture



Learning Outcomes :

By end of this project:

- You’ll be able to work on Android studio and build an app.
- You’ll be able to integrate the database accordingly.

Project Workflow:

- Users register into the application.
- After registration , user logins into the application.
- User enters into the main page
- User can track the sleep timing and he record the time

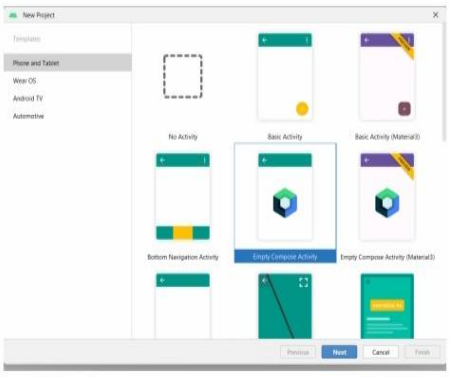
Tasks:

1.Required initial steps
2.Creating a new project.
3.Adding required dependencies.
4.Creating the database classes.
5.Building application UI and connecting to database.
6.Using AndroidManifest.xml
7.Running the application.

Task 1:
Required initial steps :

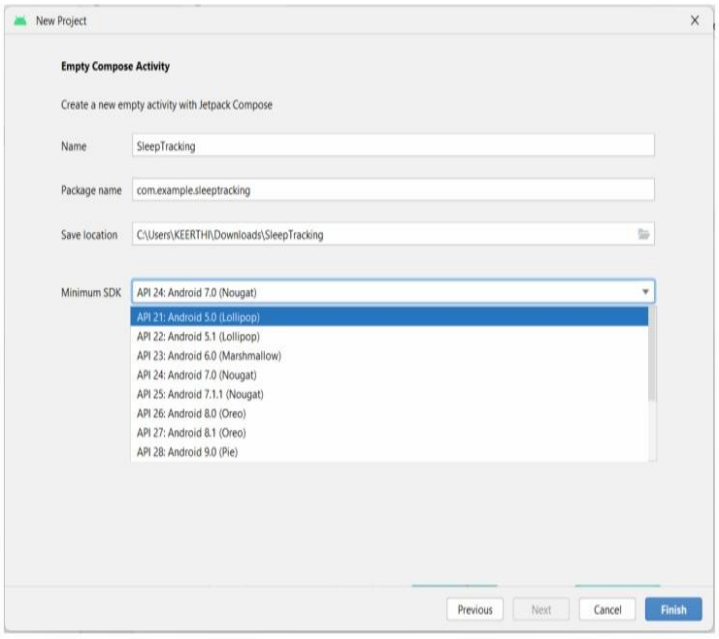
https://developer.android.com/studio/install

Task 2 :
Creating a new project.
Step 1 : Android studio > File > New > New Project > Empty Compose Activity
Step 2 : Click on **Next** button.

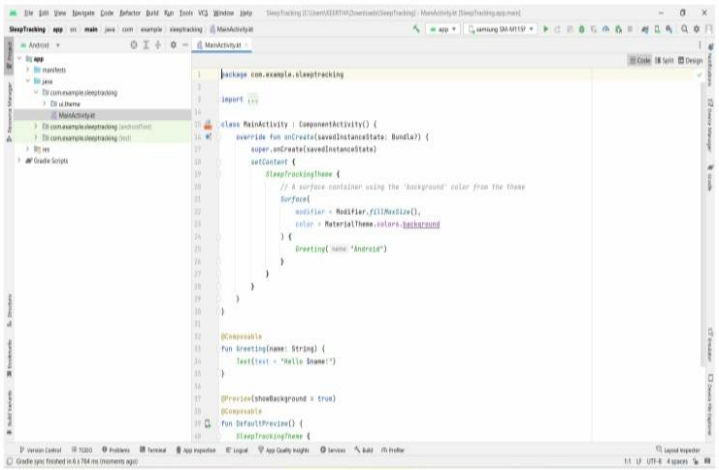


Step 3 : Give name to the new project.

Step 4 : Give the Minimum SDK value
Step 5 : Click Finish



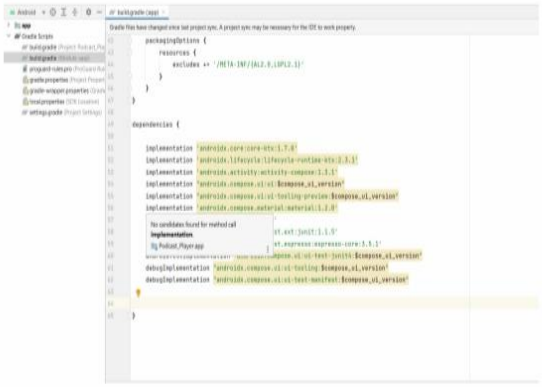
Main activity file



Task 3 :

Adding required dependencies.

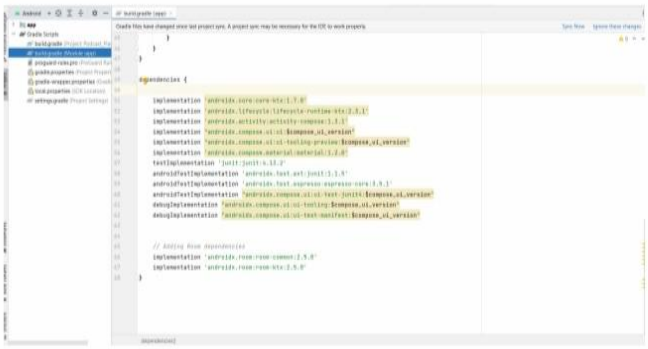
Step 1 : Gradle scripts > build.gradle(Module :app)



Step 2 : Adding room dependencies.

Add the below code in dependencies

```
// Adding Room dependencies
implementation 'androidx.room:room-common:2.5.0'
implementation 'androidx.room:room-ktx:2.5.0'
```



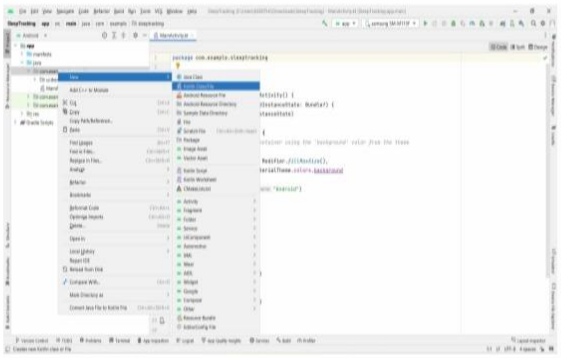
Step 3 : Click on Sync now

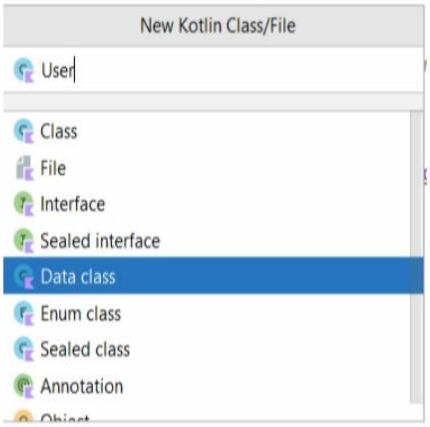
Task 4:

Creating the database classes.

In this project we will be having two databases, one is for user registration and login and other is for tracking the sleep of the user.

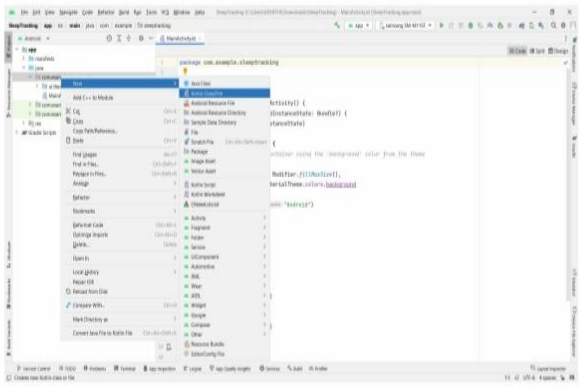
Database 1
Step 1 : Create User data class

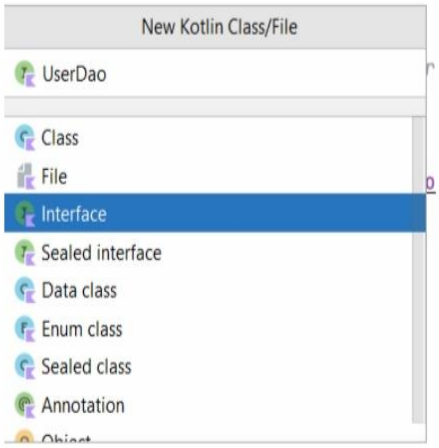




User class code:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/User.kt

Step 2 : Create an UserDao interface

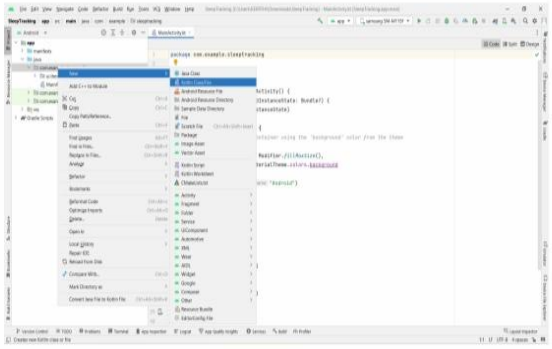


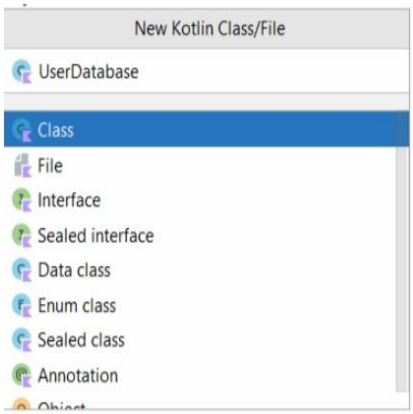


UserDao interface code:

https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/UserDao.kt

Step 3 : Create an UserDatabase class

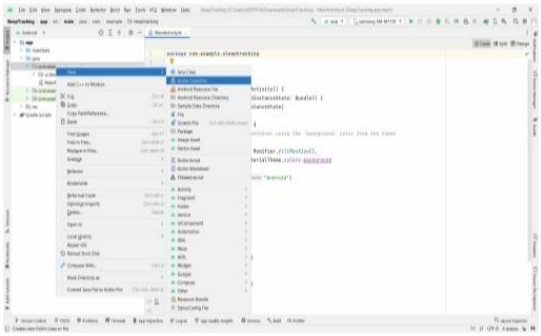


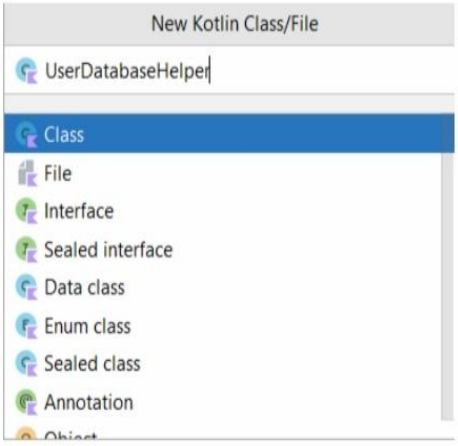


UserDatabase class code :

https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/c
ample/projectone/UserDatabase.kt

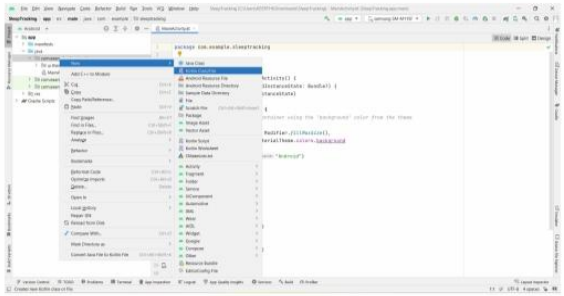
Step 4 : Create an UserDatabaseHelper class

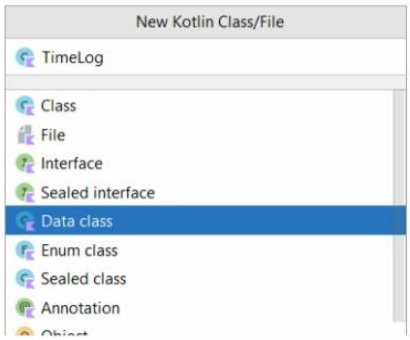




UserDatabaseHelper class code :
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/UserDatabaseHelper.kt

Database 2
Step 1 : Create TimeLog data class

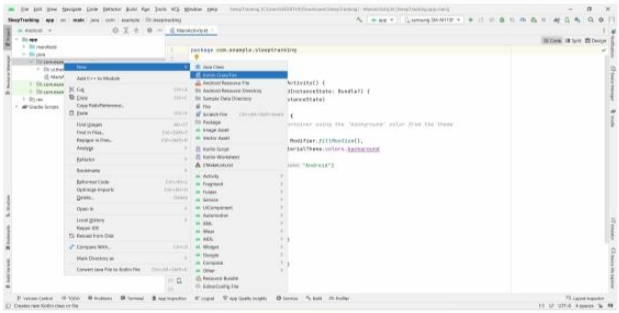


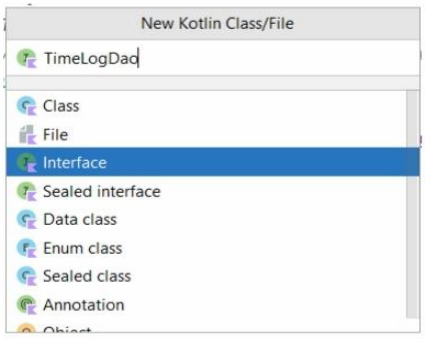


TimeLog data class code:

https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/TimeLog.kt

Step 2 : Create an TimeLogDao interface

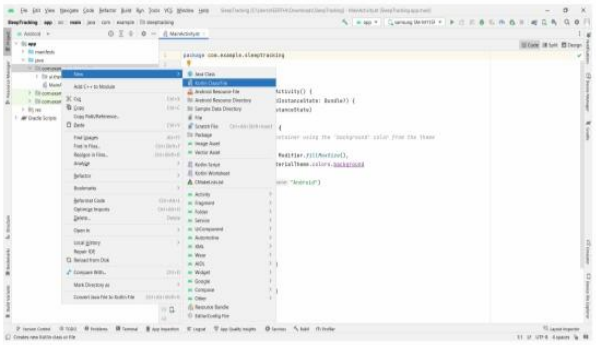


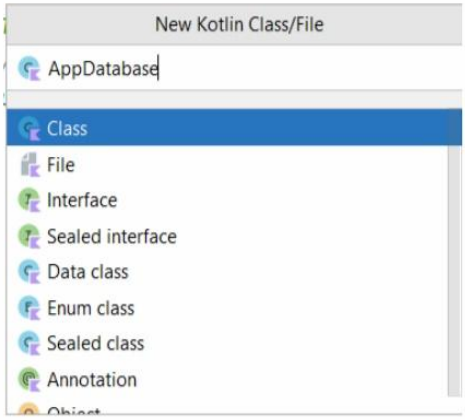


TimeLogDao interface code:

https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/TimeLogDao.kt

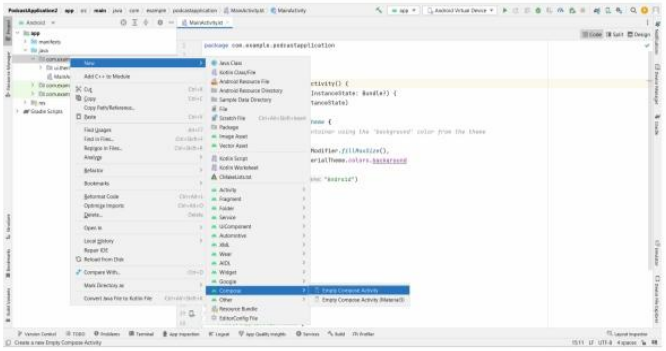
Step 3 : Create an AppDatabase class

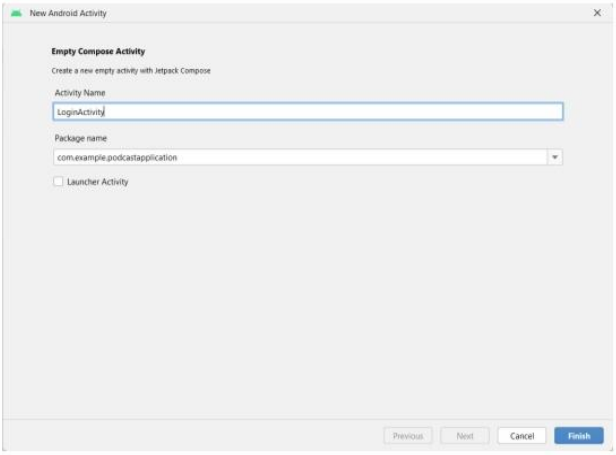




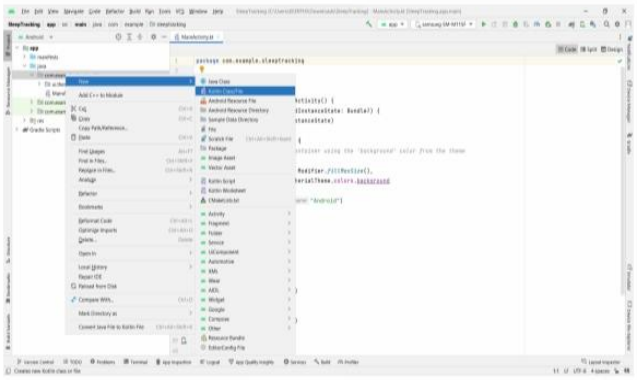
AppDatabase class code:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/AppDatabase.kt

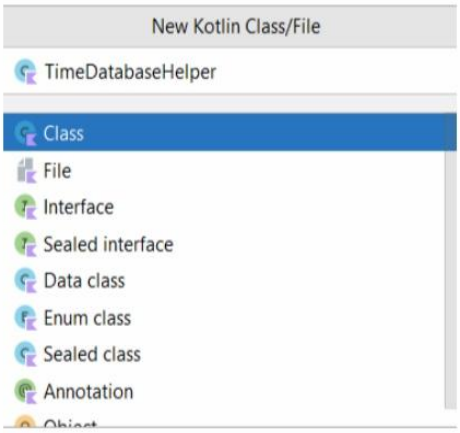
Step 4 : Create an TimeDatabaseHelper class





Database connection in LoginActivity.kt





TimeDatabaseHelper class code:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/TimeDatabaseHelper.kt

Task 5:

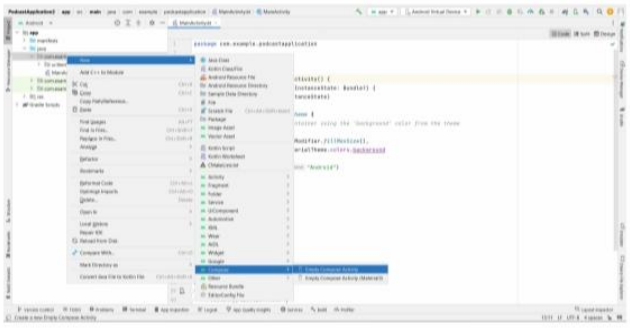
Building application UI and connecting to database.

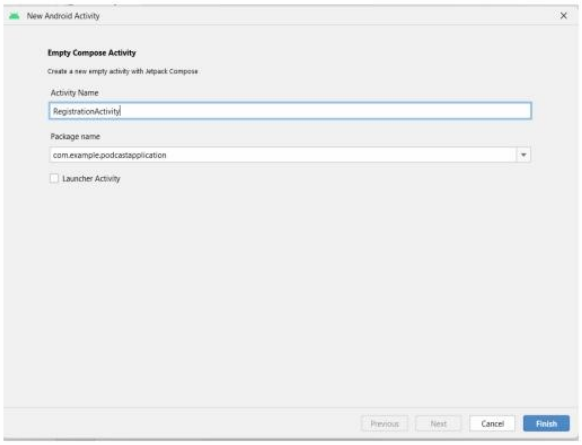
Step 1: Creating LoginActivity.kt with database

```
class LoginActivity : ComponentActivity() {
    private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper( context: this)
        setContent {
            PodcastPlayerTheme {
                // A surface container using the 'background' color from th
                Sur SleepTrackingTheme {
                    modifier = Modifier.fillMaxSize(),
                    color = MaterialTheme.colors.background
                ) {
                    LoginScreen( context: this, databaseHelper)
                }
            }
        }
    }
}

@Composable
fun LoginScreen(context: Context, databaseHelper: UserDatabaseHelper) {
    var username by remember { mutableStateOf( value: "") }
    var password by remember { mutableStateOf( value: "") }
    var error by remember { mutableStateOf( value: "") }
```

Complete code in below link:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/LoginActivity.kt

Step 2 : Creating RegistrationActivity.kt with database





Database connection in RegistrationActivity.kt

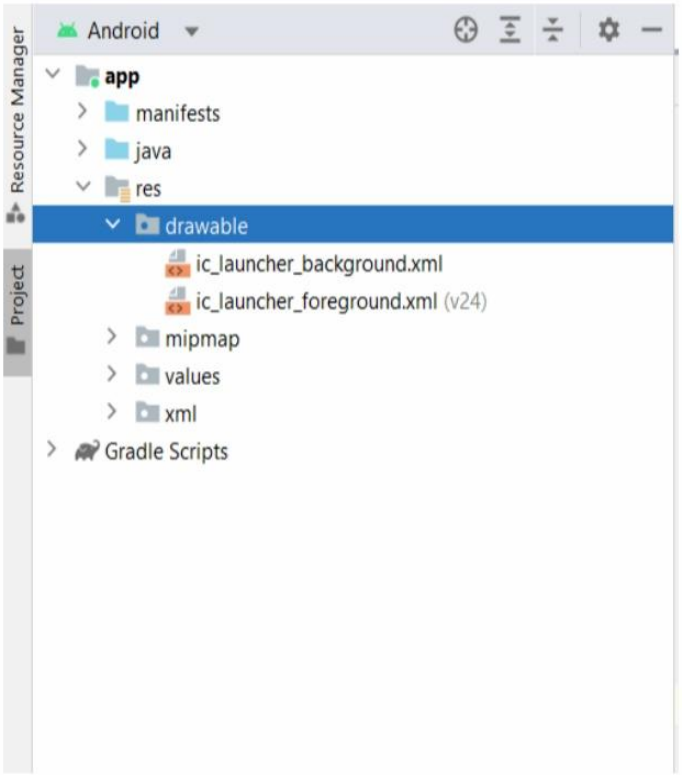
```
class RegistrationActivity : ComponentActivity() { private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper( context: this)
        setContent {
            PodcastPlayerTheme {
SleepTrackingTheme {ig the 'background' color from the theme
                Surface(
                    modifier = Modifier.fillMaxSize(),
                    color = MaterialTheme.colors.background
                ) {
                    RegistrationScreen( context: this,databaseHelper)
                }
            }
        }
    }
}

@Composable
fun RegistrationScreen(context: Context, databaseHelper: UserDatabaseHelper) {
    var username by remember { mutableStateOf( value: "") }
    var password by remember { mutableStateOf( value: "") }
    var email by remember { mutableStateOf( value: "") }
    var error by remember { mutableStateOf( value: "") }
```

Complete code in below link:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/RegisterActivity.kt

Step 3 : Creating MainActivity.kt file

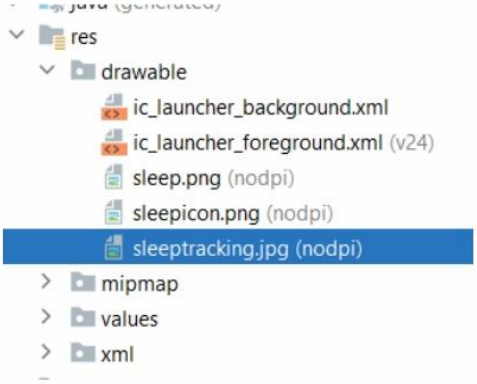
In MainActivity.kt file the main application is developed

- Before creating UI we need to add some images in drawables which are in res

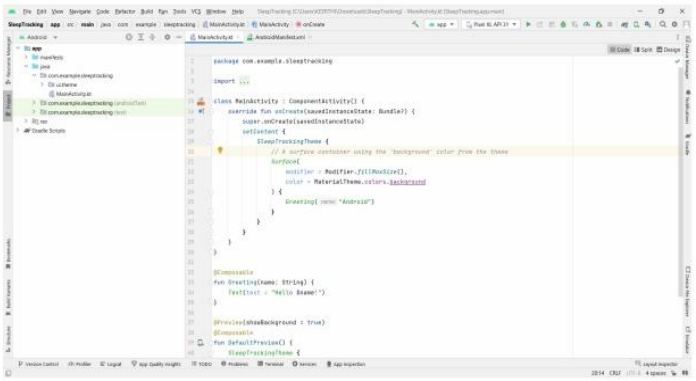


Download the required drawable from the code:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/res/drawable-nodpi

Required drawables

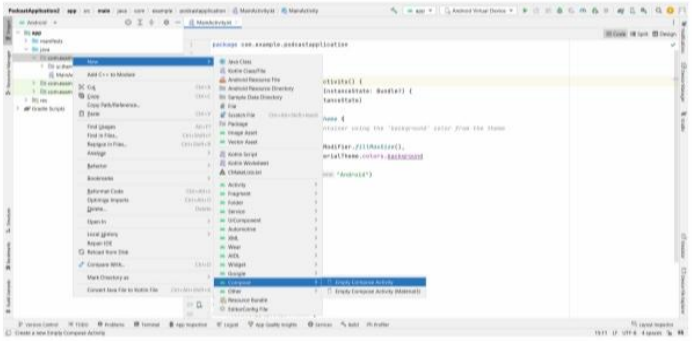


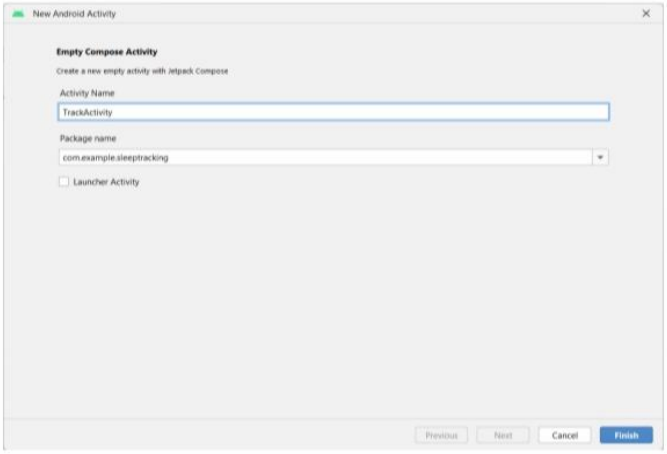
MainActivity.kt



Complete code in below link:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/MainActivity.kt

Step 4 : Creating TrackActivity.kt file



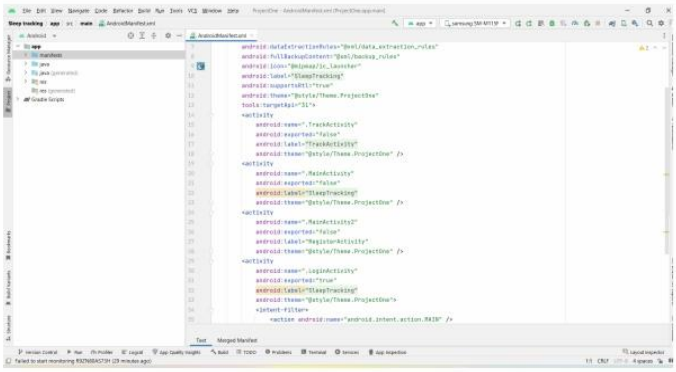


Database connection and fetching in TrackActivity.kt

```kotlin
class TrackActivity : ComponentActivity() {

    private lateinit var databaseHelper: TimeLogDatabaseHelper

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)

        databaseHelper = TimeLogDatabaseHelper( context: this)
        setContent {
            ProjectOneTheme {
                // A surface container using the 'background' color from the theme
                Surface(
                    modifier = Modifier.fillMaxSize(),
                    color = MaterialTheme.colors.background
                ) {
                    //ListListScopeSample(timeLogs)

                    val data=databaseHelper.getTimeLogs();
                    Log.d( tag: "Sandeep" ,data.toString())
                    val timeLogs = databaseHelper.getTimeLogs()
                    ListListScopeSample(timeLogs)
                }
            }
        }
    }
}
```

Complete code in below link:
https://github.com/smartinternz02/Sleep-tracking/tree/main/app/src/main/java/com/example/projectone/TrackActivity.kt

Task 6:
Modifying AndroidManifest.xml



When we run the app we will get the MainActivity.kt file as our first screen , but we want LoginActivity.kt , So we need to change in AndroidManifest.xml.

Changed AndroidManifest.xml.

```
tools:targetApi="31">
<activity
    android:name=".TrackActivity"
    android:exported="false"
    android:label="TrackActivity"
    android:theme="@style/Theme.ProjectOne" />
<activity
    android:name=".MainActivity"
    android:exported="false"
    android:label="SleepTracking"
    android:theme="@style/Theme.ProjectOne" />
<activity
    android:name=".MainActivity2"
    android:exported="false"
    android:label="RegisterActivity"
    android:theme="@style/Theme.ProjectOne" />
<activity
    android:name=".LoginActivity"
    android:exported="true"
    android:label="SleepTracking"
    android:theme="@style/Theme.ProjectOne">
    <intent-filter>
        <action android:name="android.intent.action.MAIN" />

        <category android:name="android.intent.category.LAUNCHER" />
    </intent-filter>
```

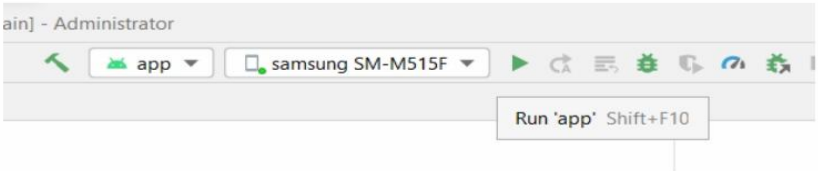
Complete AndroidManifest.xml code:

https://github.com/smartinternz02/Sleep-tracking/blob/main/app/src/main/AndroidManifest.xml

Task 7:
Running the application.

Step 1: Run apps on a hardware device
https://developer.android.com/studio/run/device

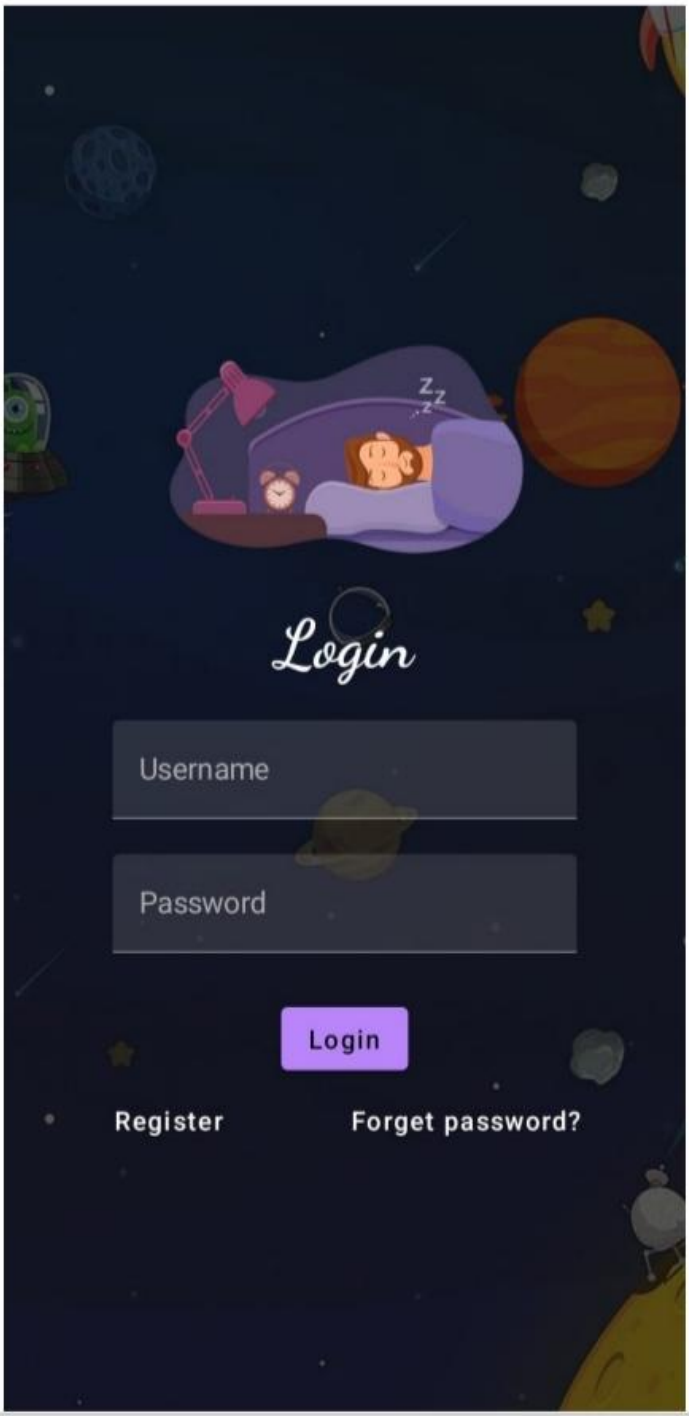
Step 2: Run the application in Mobile



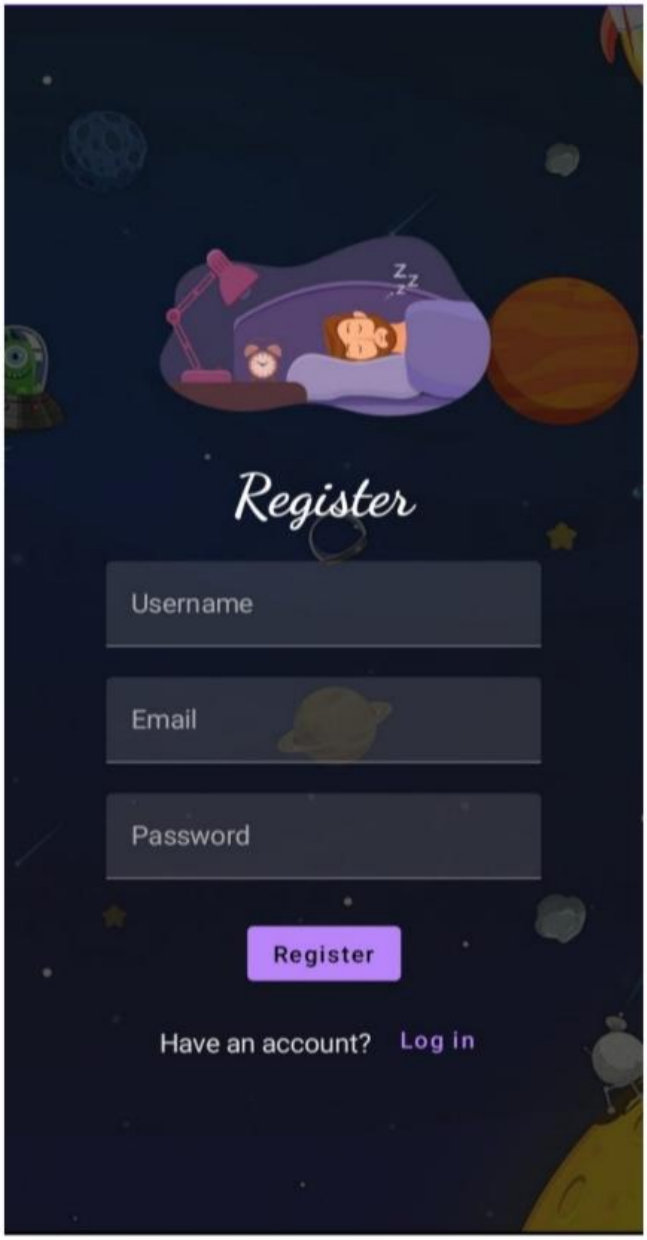
Complete Project Link: https://github.com/smartinternz02/Sleep-tracking

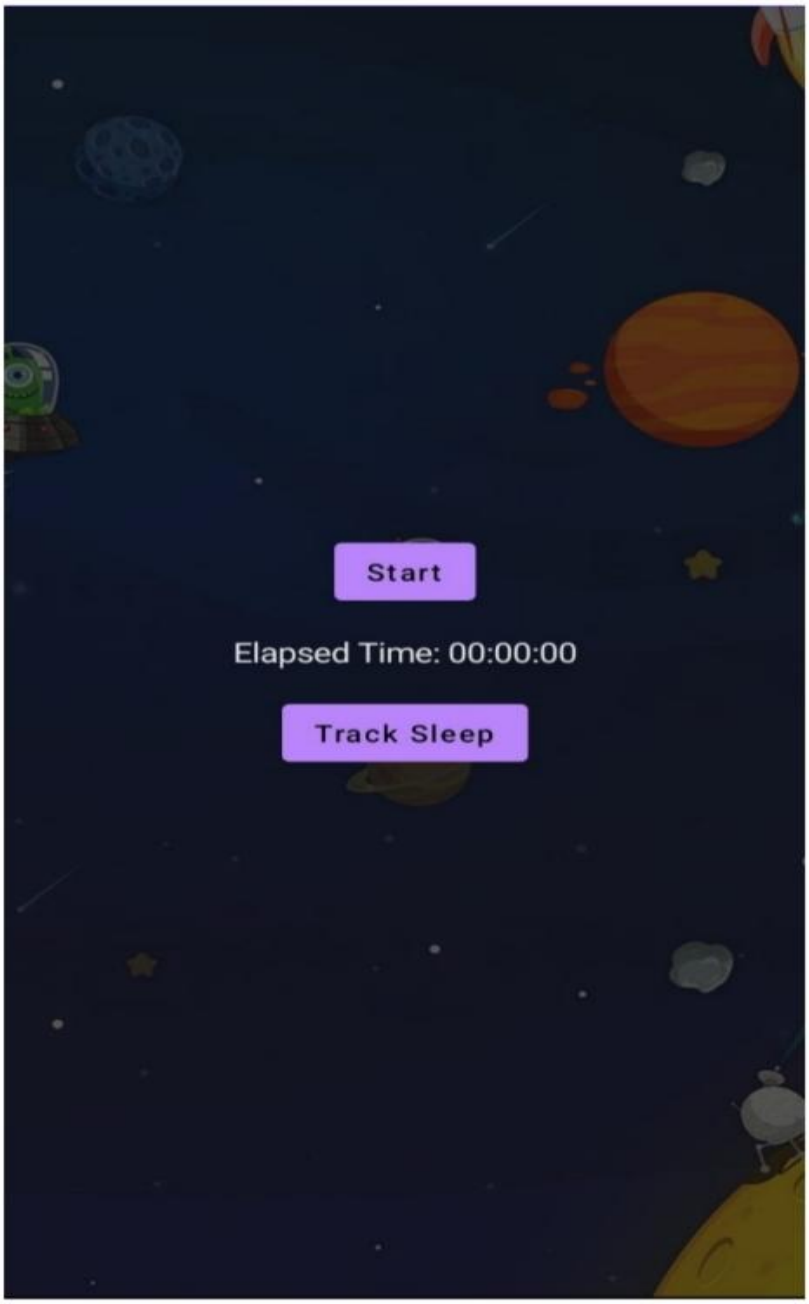
Final Output of the Application :

Login Page :

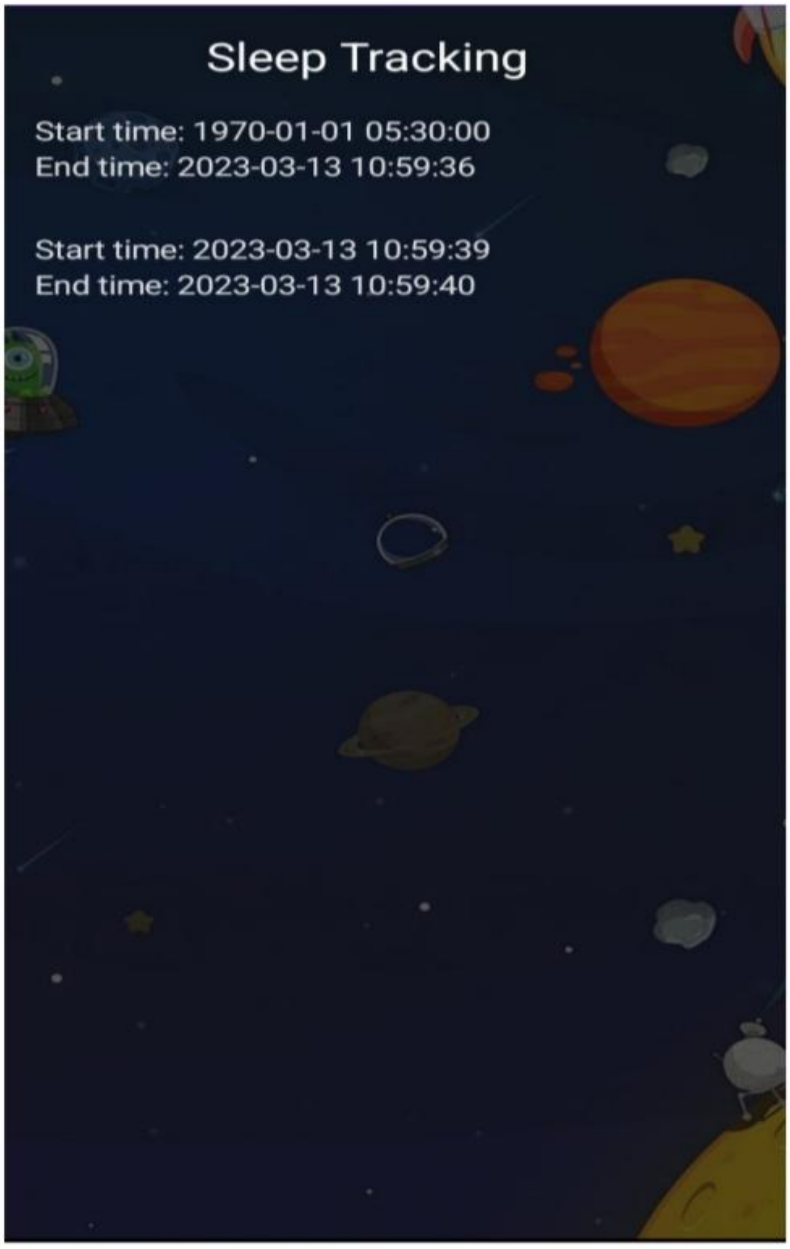


Registration Page:




Start
Elapsed Time: 00:00:00
Track Sleep

Track Sleep Page:



4. Trailhead Profile Public URL

Team Lead - https://trailblazer.me/id/rcorel
Team Member 1 -
Team Member 2 -
Team Member 3 –

5.ADVANTAGES & DISADVANTAGE

Advantage

- Sleep duration: By tracking the time you're inactive, the devices can record when you fall asleep at night and when you stir in the morning.
- Sleep quality: Trackers can detect interrupted sleep, letting you know when you're tossing and turning or waking during the night.
- Sleep phases: Some tracking systems track the phases of your sleep and time your alarm to go off during a period when you're sleeping less deeply. In theory, that makes it easier for you to rouse.
- Environmental factors: Some devices record environmental factors like the amount of light or temperature in your bedroom.

- Lifestyle factors: Some trackers prompt you to enter information about activities that can affect sleep, such as how much caffeine you've had, when you've eaten or whether your stress level is high.

Disadvantage

- Time Expenditure :Setting up and using sleep trackers can take a lot of time and research, especially if you're serious about sleep. To actually enjoy the benefits sleep trackers bring, it's important to review the data collected and reported, and consider and take any suggested action. For some users, this is just too much time and effort to invest.
- Overthinking :The mere act of buying and learning to use a sleep tracker is more than enough to make some users overthink their sleep. This can often get people into their heads and hinders sleep more than helping it.
- Limited Feedback and Reliability :Although sleep trackers track multiple aspects of physiology during sleep, false positives are possible drawbacks. Depending on the device and the type of sleeper, data reliability needs to be considered. For example, many people frequently move during the night, which can trigger your device into thinking you're no longer asleep. The same goes for sleep talking.
- The temptation to Check During the Night :Knowing that a device monitors your current state increases the temptation to look and check how your sleep is going. This is a bad idea, obviously, since it may trigger anxiety or insomnia due to less-than-optimum results.

6. APPLICATIONS

Learning Outcomes :
By end of this project:
● You'll be able to work on Android studio and build an app.
● You'll be able to integrate the database accordingly.

Project Workflow:
Users register into the application.
● After registration , user logins into the application.
● User enters into the main page
● User can track the sleep timing and he record the time

7.CONCLUSION

You should also skip sleep trackers if less-than-stellar results tend to upset you. In fact, there's a term for that: orthosomnia, a preoccupation with perfecting one's sleep data. Kelly Baron, PhD, a clinical psychologist now at the University of Utah, coined the term when she noticed a spike in patients riddled with anxiety about their supposedly poor sleep duration and quality. If that describes you, you're probably better off relying more on how you feel throughout the day to figure out how well you slept. But if you enjoy

geeking out on exploring your quantified self, come what may, give these apps a go. Many offer free trials, so you have nothing to lose (except sleep).

You can find all kinds of sleep trackers, including standalone devices that sit on your nightstand or under your mattress; wearables, such as masks or rings; and others as features built into fitness trackers and smartwatches. We focused on apps because they're accessible and relatively inexpensive, which makes them far more appealing to most people.

8 .FUTURE SCOPE

The report combines extensive quantitative analysis and exhaustive qualitative analysis, ranges from a macro overview of the total market size, industry chain, and market dynamics to micro details of segment markets by type, application and region, and, as a result, provides a holistic view of, as well as a deep insight into the Sleep Monitoring Apps market covering all its essential aspects.

For the competitive landscape, the report also introduces players in the industry from the perspective of the market share, concentration ratio, etc., and describes the leading companies in detail, with which the readers can get a better idea of their competitors and acquire an in-depth understanding of the competitive situation. Further, mergers and acquisitions, emerging market trends, the impact of COVID-19, and regional conflicts will all be considered.

In a nutshell, this report is a must-read for industry players, investors, researchers, consultants, business strategists, and all those who have any kind of stake or are planning to foray into the market in any manner.