

A SLEEP TRACKING APP

PROJECT REPORT

Submitted by

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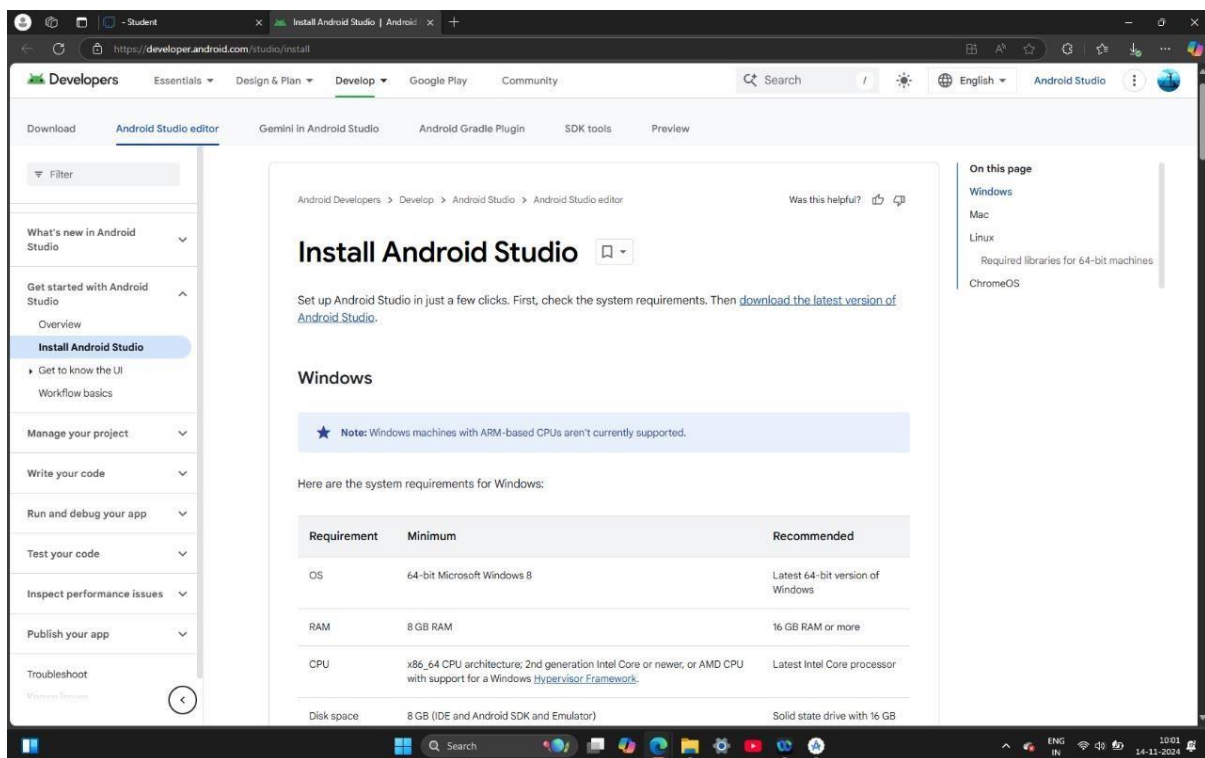
SRI SAI RANGANATHAN ENGINEERING COLLEGE

COIMBATORE - 641109

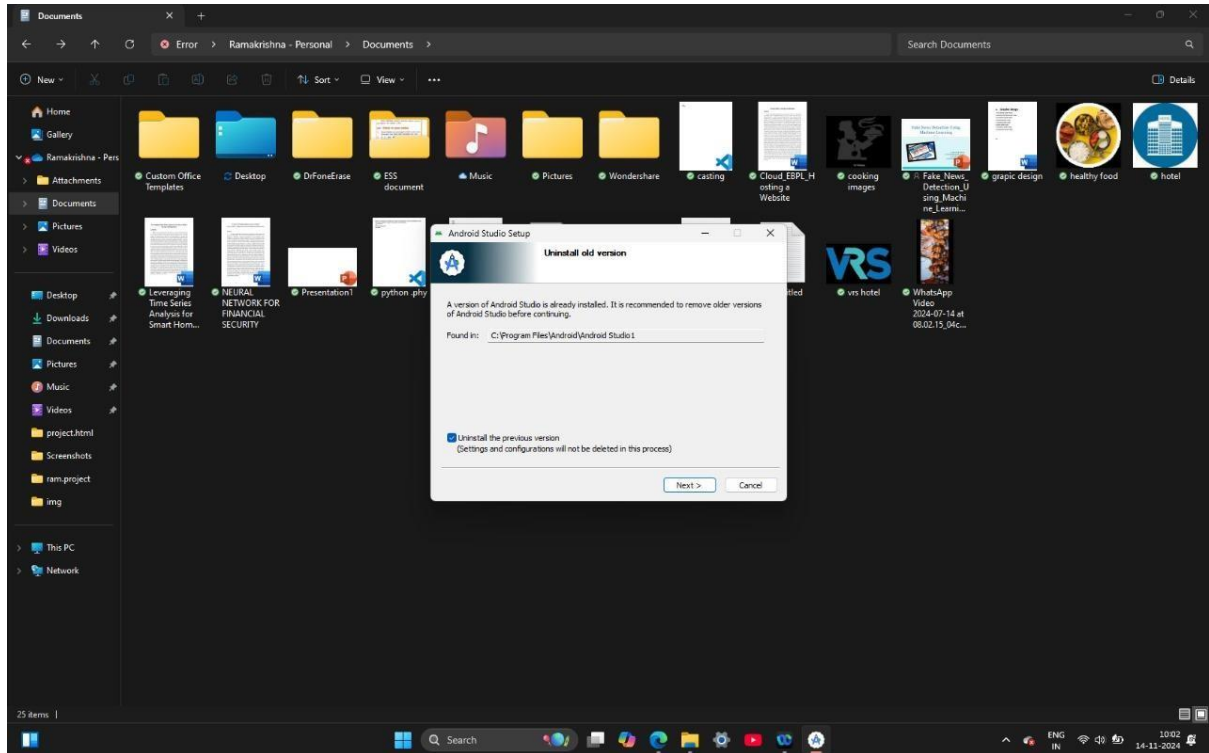
Project Description:

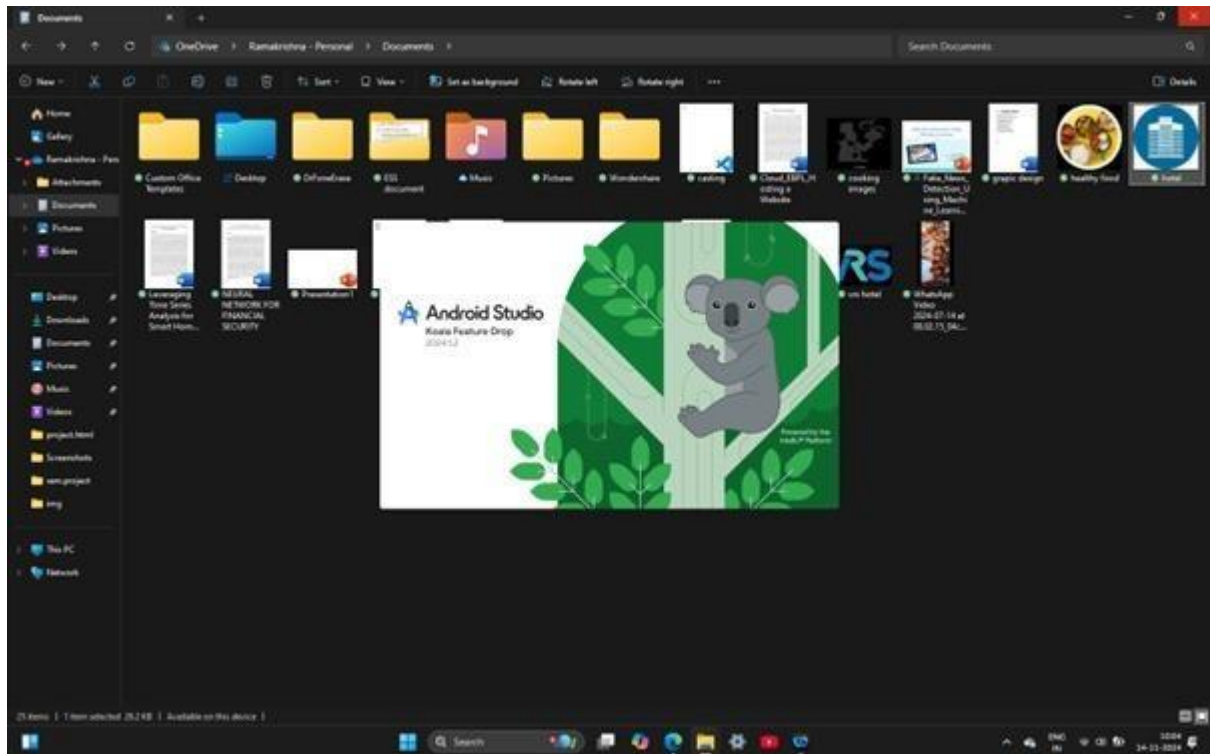
A Sleep Tracking App for a Better Night's Rest Project Description: A project that demonstrates the use of Android Jetpack Compose to build a UI for a sleep tracking app. The app allows users to track their sleep. With the “Sleep Tracker” app, you can assess the quality of sleep they have had in a day. 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.

DOWNLOAD ANDROID STUDIO :

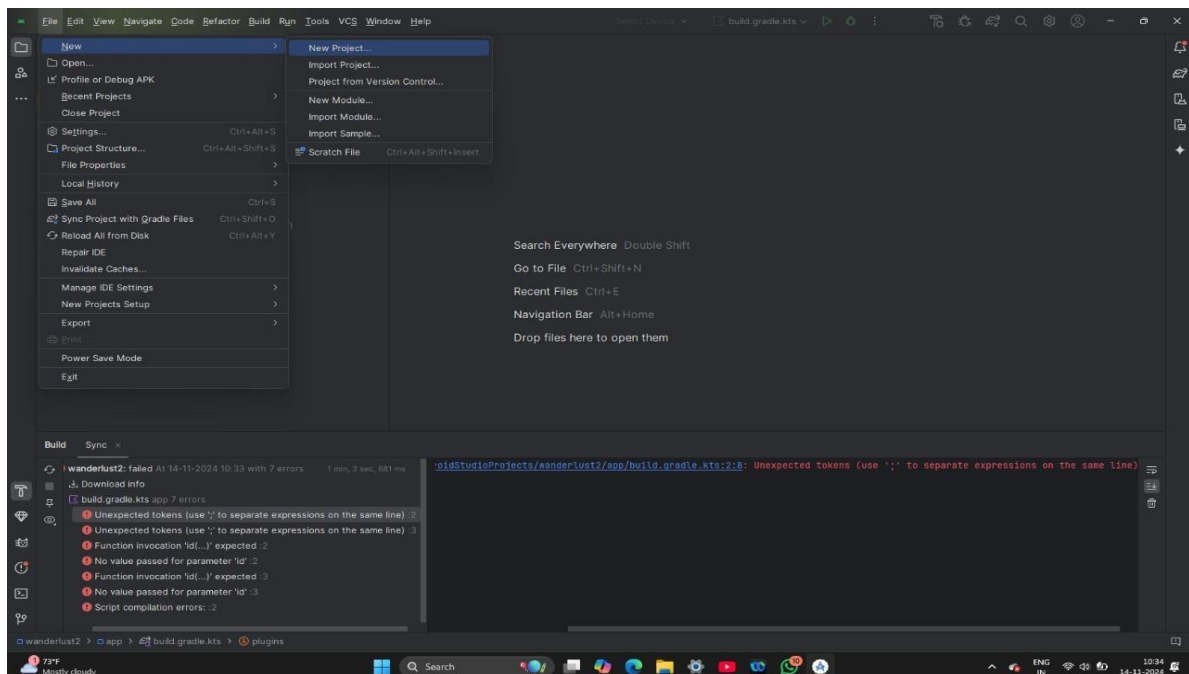


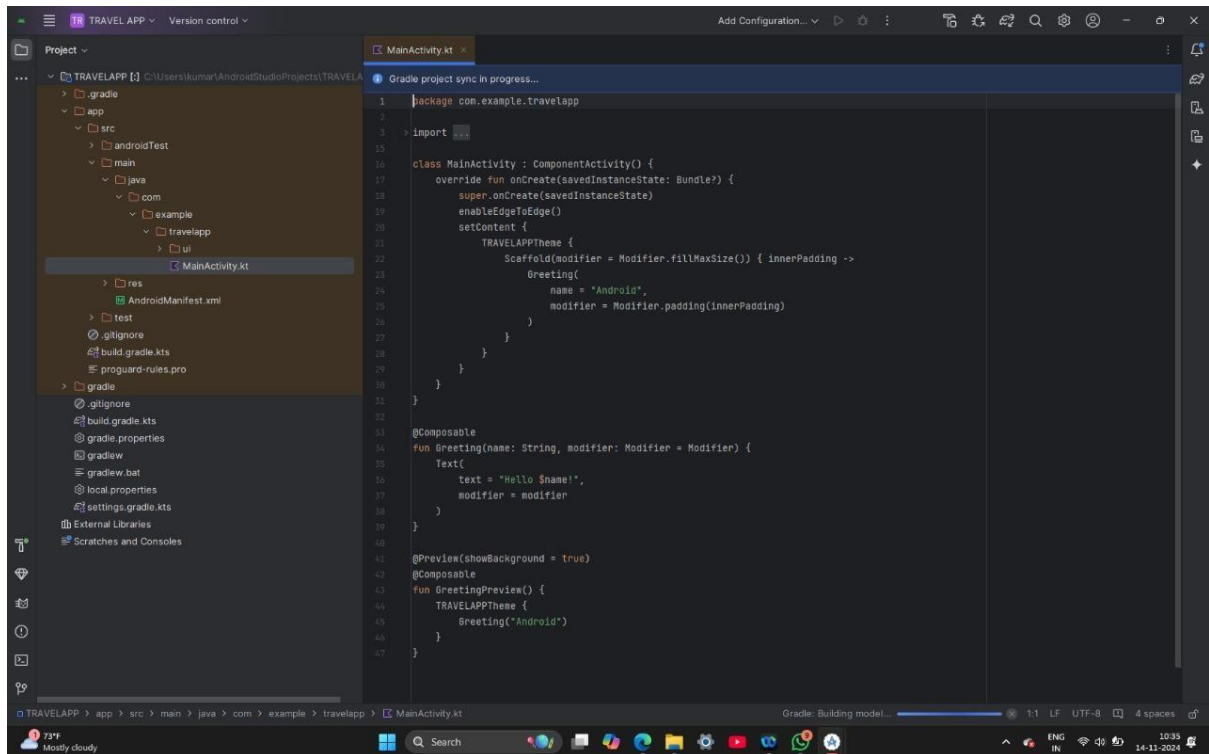
INSTALLING ANDROID STUDIO :





CREATE NEW PROJECT :





STEP 1: GRADLE SCRIPTS

plugins {

id 'com.android.application'

id 'org.jetbrains.kotlin.android'

}

android {

namespace 'com.example.travelapp'

compileSdk 33

defaultConfig {

applicationId "com.example.travelapp"

minSdk 21

targetSdk 33

versionCode 1

versionName "1.0"

testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"

vectorDrawables {

useSupportLibrary true

}

}

```

buildTypes {
    release {
        minifyEnabled false
        proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'), 'proguard-
rules.pro'
    }
}
compileOptions {
    sourceCompatibility JavaVersion.VERSION_1_8
    targetCompatibility JavaVersion.VERSION_1_8
}
kotlinOptions {
    jvmTarget = '1.8'
}
buildFeatures {
    compose true
}
composeOptions {
    kotlinCompilerExtensionVersion '1.2.0'
}
packagingOptions {
    resources {
        excludes += '/META-INF/{AL2.0,LGPL2.1}'
    }
}
}

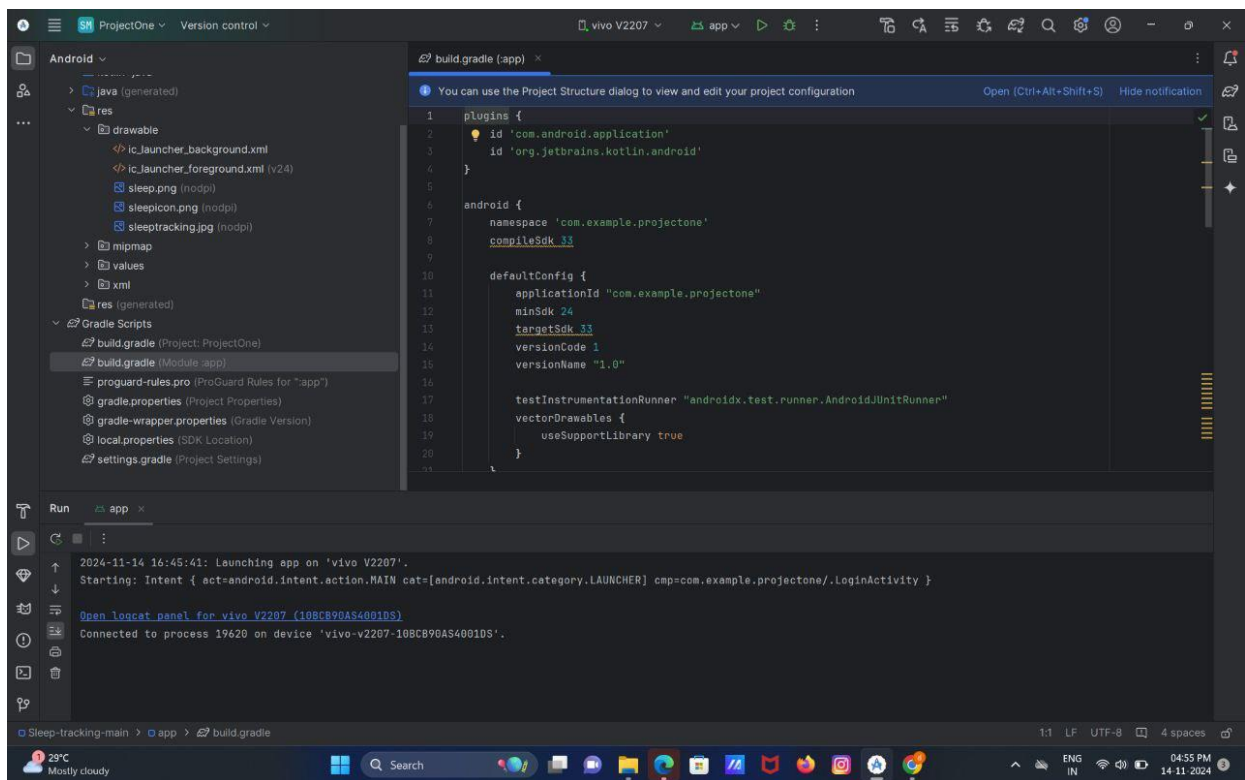
```

```

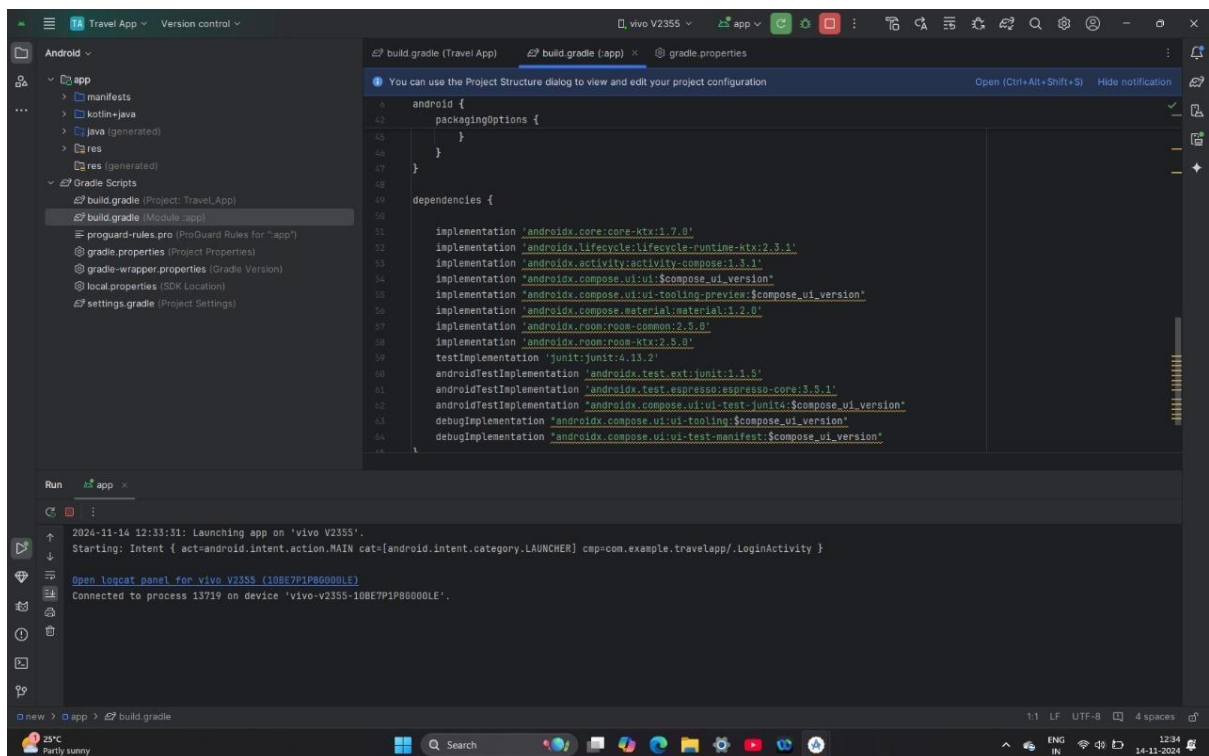
dependencies {

    implementation 'androidx.core:core-ktx:1.7.0'
    implementation 'androidx.lifecycle:lifecycle-runtime-ktx:2.3.1'
    implementation 'androidx.activity:activity-compose:1.3.1'
    implementation "androidx.compose.ui:ui:$compose_ui_version"
    implementation "androidx.compose.ui:ui-tooling-preview:$compose_ui_version"
    implementation 'androidx.compose.material:material:1.2.0'
    implementation 'androidx.room:room-common:2.5.0'
    implementation 'androidx.room:room-ktx:2.5.0'
    testImplementation 'junit:junit:4.13.2'
    androidTestImplementation 'androidx.test.ext:junit:1.1.5'
    androidTestImplementation 'androidx.test.espresso:espresso-core:3.5.1'
    androidTestImplementation "androidx.compose.ui:ui-test-junit4:$compose_ui_version"
    debugImplementation "androidx.compose.ui:ui-tooling:$compose_ui_version"
    debugImplementation "androidx.compose.ui:ui-test-manifest:$compose_ui_version"
}

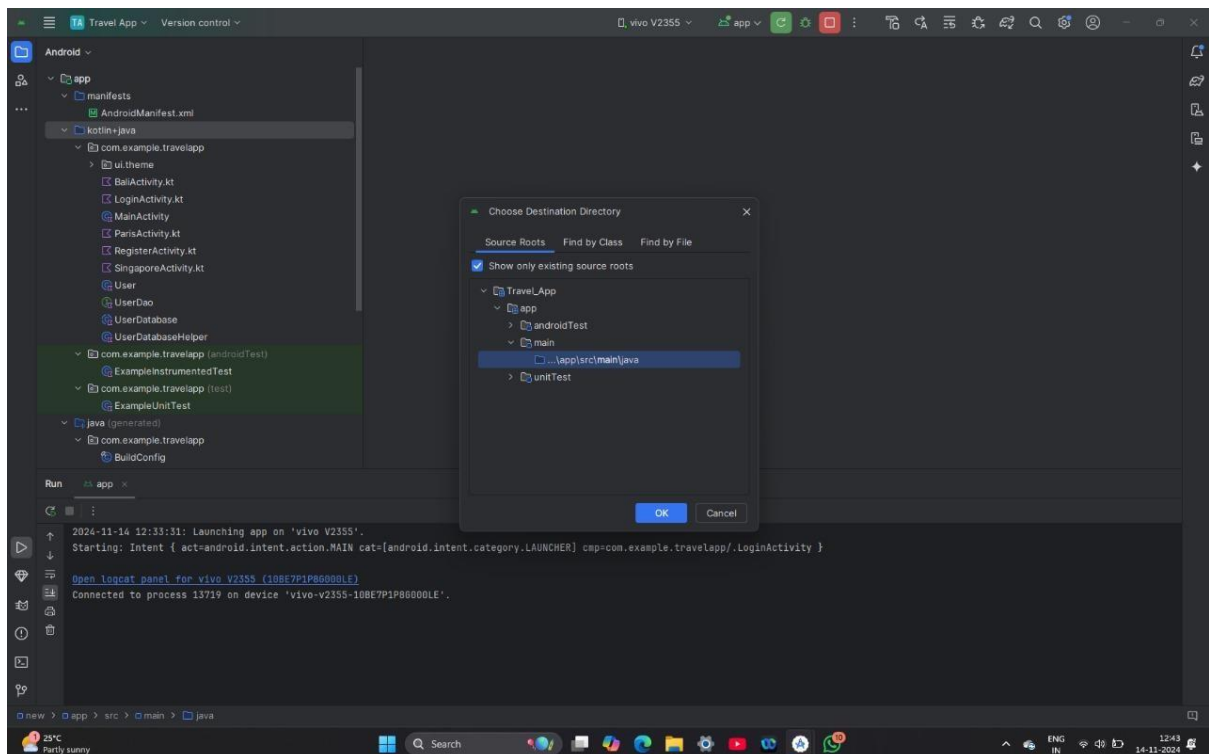
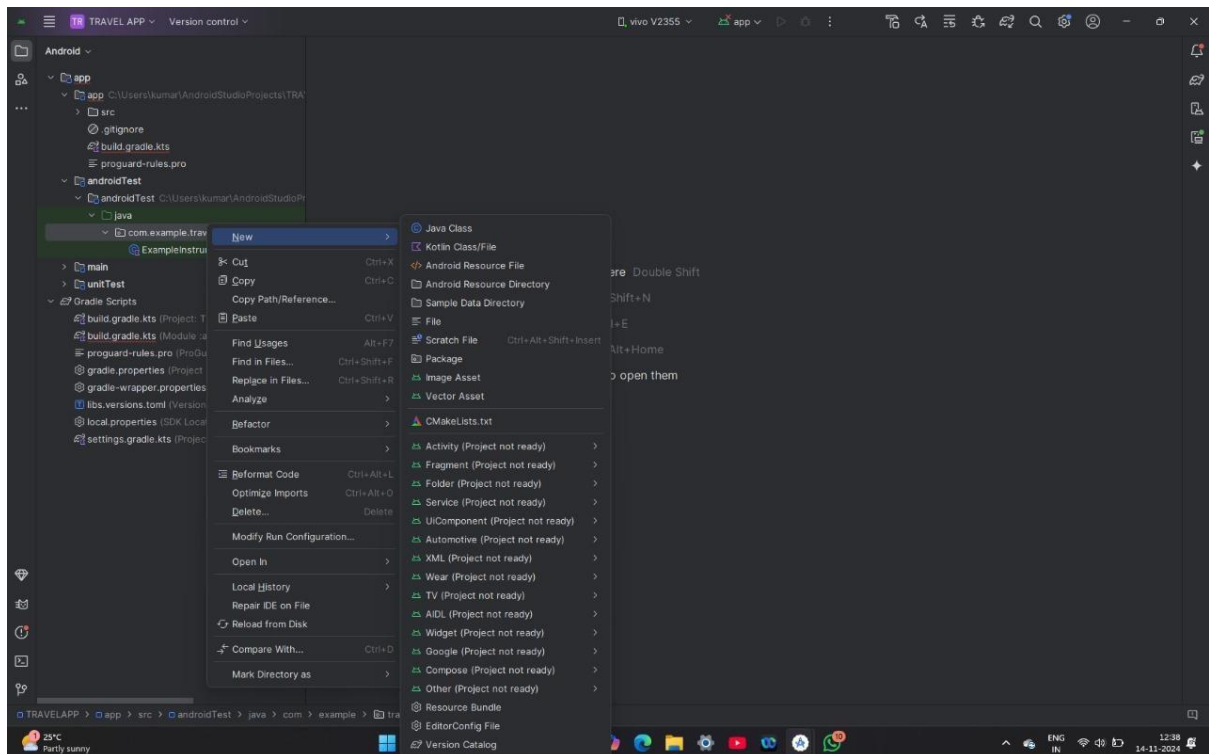
```



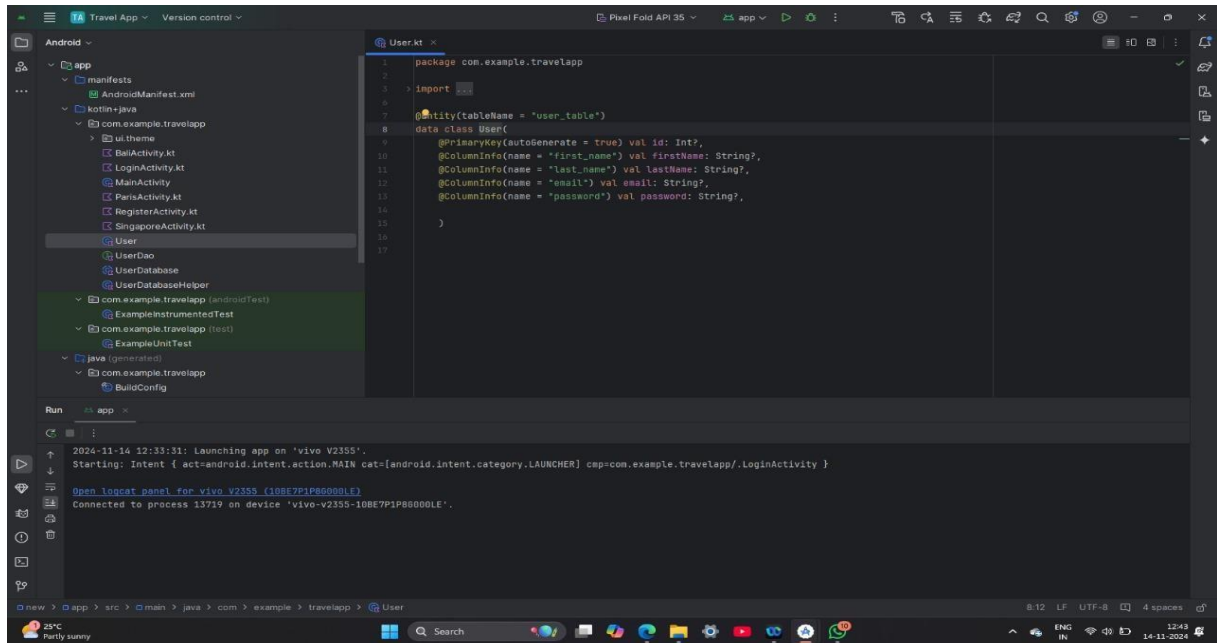
STEP 2: ADD ROOM DEPENDENCIES



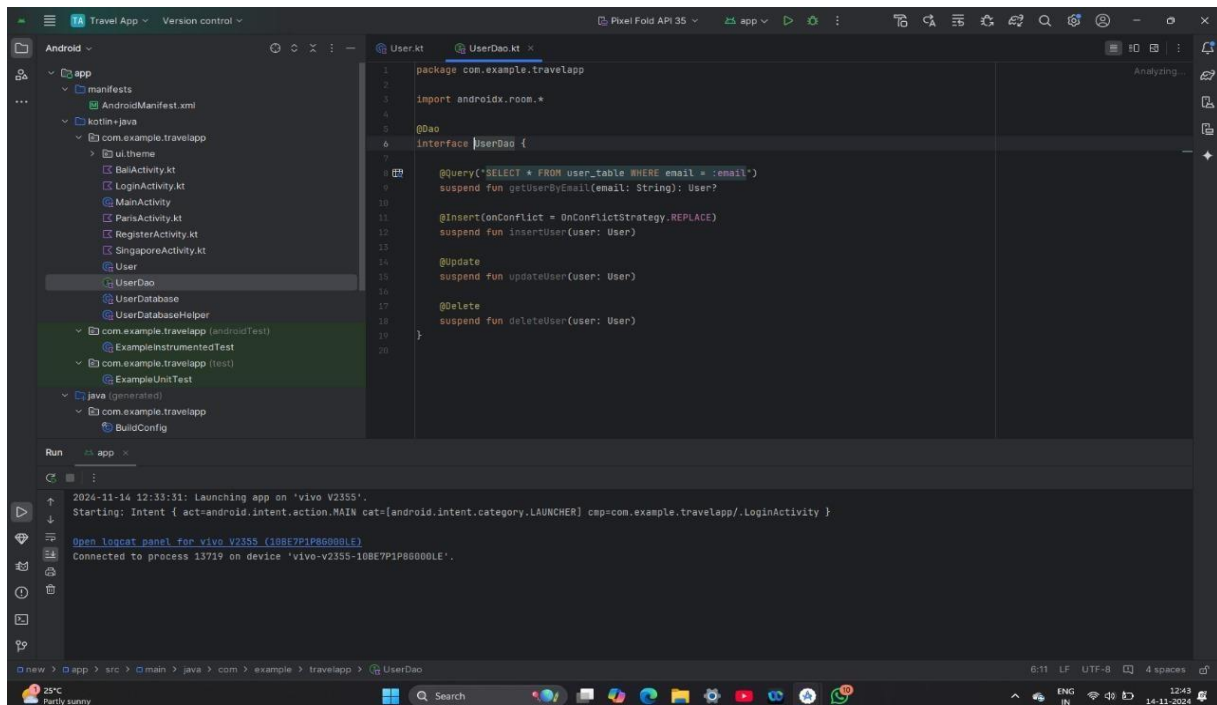
CREATE DATABASE CLASSES:



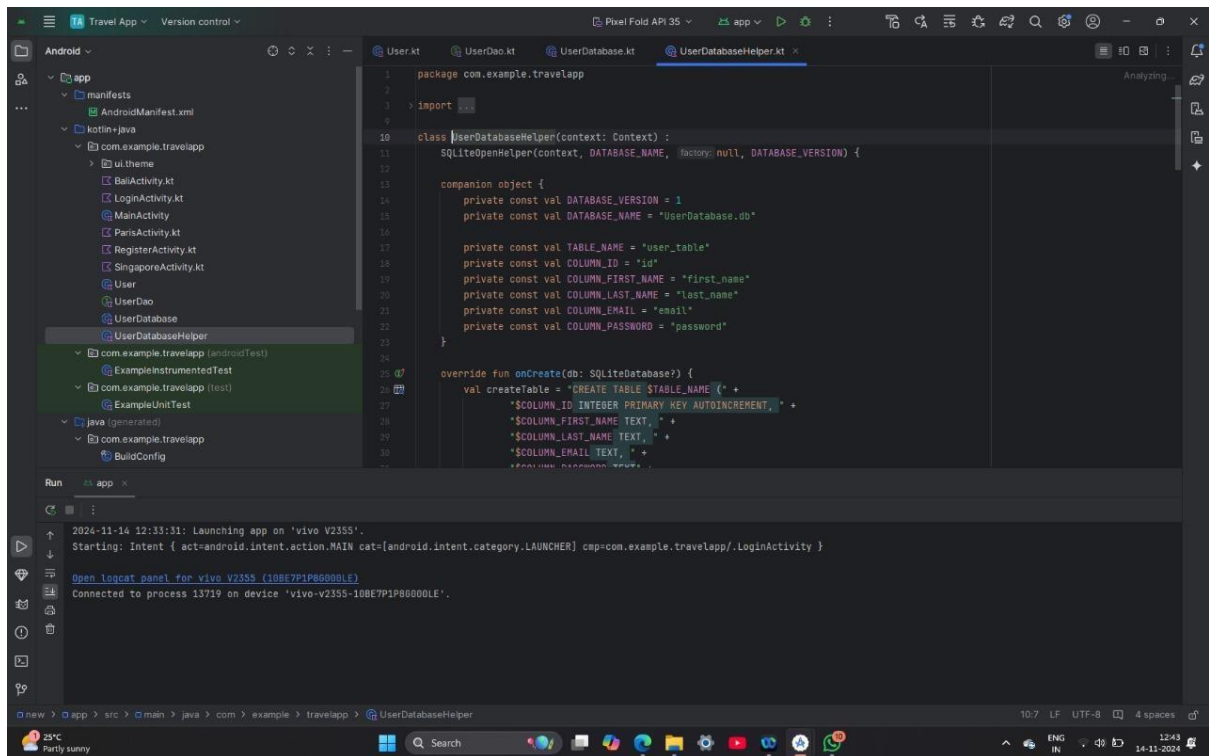
STEP 1: CREATE USER CLASS



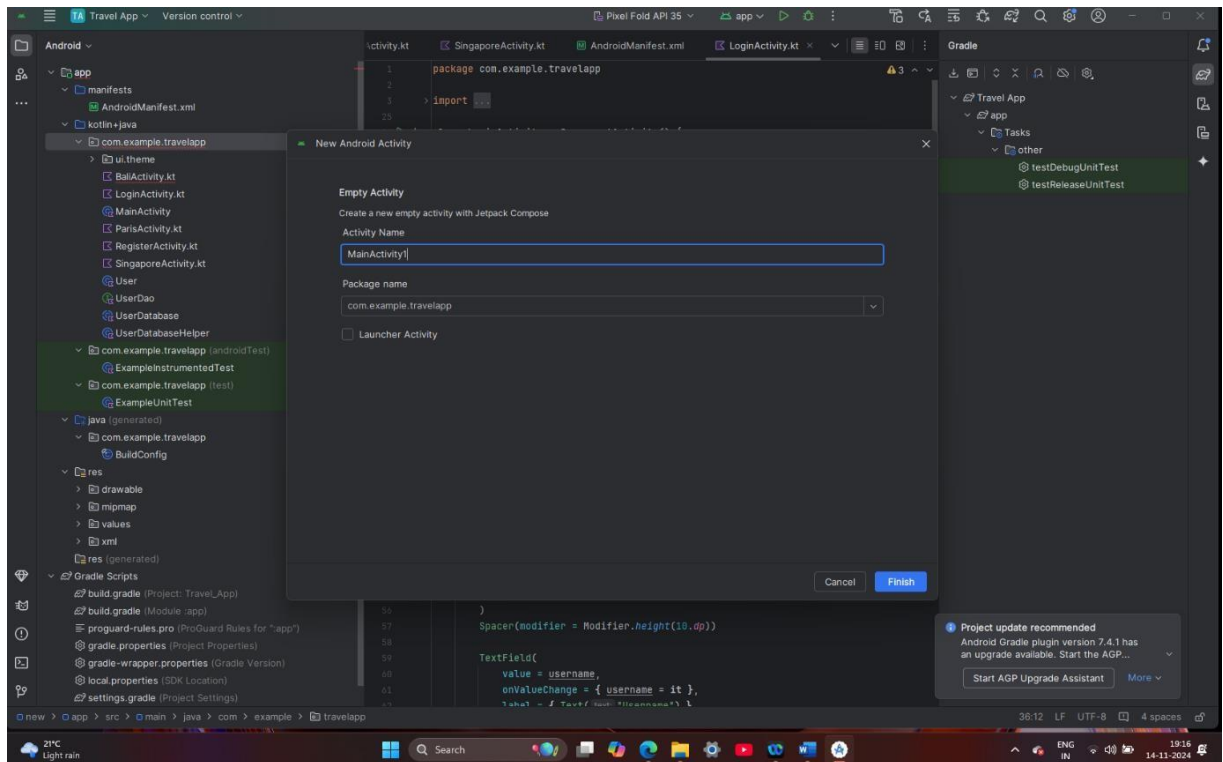
STEP 2: CREATE USERDOA CLASS



STEP 3: CREATE A USERDATABASEHELPER



CREATE LOGINACTIVITY :



```
package com.example.travelapp
```

```
import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.*
import androidx.compose.material.*
import androidx.compose.runtime.*
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.layout.ContentScale
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontFamily
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.input.PasswordVisualTransformation
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
```

```
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
```

```
class LoginActivity : ComponentActivity() {
    private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper(this)
        setContent {
            LoginScreen(this, databaseHelper)
        }
    }
}

@Composable
fun LoginScreen(context: Context, databaseHelper: UserDatabaseHelper) {

    var username by remember { mutableStateOf("") }
    var password by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }

    Column(
        modifier = Modifier.fillMaxSize().background(Color.White),
        horizontalAlignment = Alignment.CenterHorizontally,
```

```
        verticalArrangement = Arrangement.Center
    ){

        Image(painterResource(id = R.drawable.trav), contentDescription = "")

        Text(
            fontSize = 36.sp,
            fontWeight = FontWeight.ExtraBold,
            fontFamily = FontFamily.Cursive,
            text = "Login"
        )
        Spacer(modifier = Modifier.height(10.dp))

        TextField(
            value = username,
            onChange = { username = it },
            label = { Text("Username") },
            modifier = Modifier.padding(10.dp)
                .width(280.dp)
        )
    }
```

```

TextField(
    value = password,
    onValueChange = { password = it },
    label = { Text("Password") },
    visualTransformation = PasswordVisualTransformation(),
    modifier = Modifier.padding(10.dp)
        .width(280.dp)
)

if (error.isNotEmpty()) {
    Text(
        text = error,
        color = MaterialTheme.colors.error,
        modifier = Modifier.padding(vertical = 16.dp)
    )
}

Button(
    onClick = {
        if (username.isNotEmpty() && password.isNotEmpty()) {
            val user = databaseHelper.getUserByUsername(username)
            if (user != null && user.password == password) {
                error = "Successfully log in"
                context.startActivity(
                    Intent(
                        context,
                        MainActivity::class.java
                    )
                )
                //onLoginSuccess()
            }
            else {
                error = "Invalid username or password"
            }

        } else {
            error = "Please fill all fields"
        }
    },
    modifier = Modifier.padding(top = 16.dp)
) {
    Text(text = "Login")
}
Row {

```

```

        TextButton(onClick = {context.startActivity(
            Intent(
                context,
                RegisterActivity::class.java
            )
        )})
    }
    { Text(text = "Register") }
    TextButton(onClick = {
    })

    {
        Spacer(modifier = Modifier.width(60.dp))
        Text(text = "Forget password?")
    }
}
}
}
private fun startMainPage(context: Context) {
    val intent = Intent(context, MainActivity::class.java)
    ContextCompat.startActivity(context, intent, null)
}

```

CREATING REGISTER ACTIVITY :

```
package com.example.travelapp
```

```

import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.*
import androidx.compose.material.*
import androidx.compose.runtime.*
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.layout.ContentScale
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontFamily
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.input.PasswordVisualTransformation

```

```
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
```

```
class RegisterActivity : ComponentActivity() {
    private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper(this)
        setContent {
            RegistrationScreen(this, databaseHelper)
        }
    }
}
```

@Composable

```
fun RegistrationScreen(context: Context, databaseHelper: UserDatabaseHelper) {
```

```
    var username by remember { mutableStateOf("") }
    var password by remember { mutableStateOf("") }
    var email by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }
```

```
    Column(
        modifier = Modifier.fillMaxSize().background(Color.White),
        horizontalAlignment = Alignment.CenterHorizontally,
        verticalArrangement = Arrangement.Center
    ) {
```

```
        Image(painterResource(id = R.drawable.tra), contentDescription = "")
```

```
        Text(
            fontSize = 36.sp,
            fontWeight = FontWeight.ExtraBold,
            fontFamily = FontFamily.Cursive,
            text = "Register"
        )
```

```
        Spacer(modifier = Modifier.height(10.dp))
        TextField(
            value = username,
            onChange = { username = it },
            label = { Text("Username") },
```

```

        modifier = Modifier
            .padding(10.dp)
            .width(280.dp)

    )

    TextField(
        value = email,
        onChange = { email = it },
        label = { Text("Email") },
        modifier = Modifier
            .padding(10.dp)
            .width(280.dp)
    )

    TextField(
        value = password,
        onChange = { password = it },
        label = { Text("Password") },
        visualTransformation = PasswordVisualTransformation(),
        modifier = Modifier
            .padding(10.dp)
            .width(280.dp)
    )

    if (error.isNotEmpty()) {
        Text(
            text = error,
            color = MaterialTheme.colors.error,
            modifier = Modifier.padding(vertical = 16.dp)
        )
    }

    Button(
        onClick = {
            if (username.isNotEmpty() && password.isNotEmpty() && email.isNotEmpty()) {
                val user = User(
                    id = null,
                    firstName = username,
                    lastName = null,
                    email = email,
                    password = password
                )
            }
        }
    )

```



```

        databaseHelper.insertUser(user)
        error = "User registered successfully"
        // Start LoginActivity using the current context
        context.startActivity(
            Intent(
                context,
                LoginActivity::class.java
            )
        )

    } else {
        error = "Please fill all fields"
    }
},
modifier = Modifier.padding(top = 16.dp)
){
    Text(text = "Register")
}
Spacer(modifier = Modifier.width(10.dp))
Spacer(modifier = Modifier.height(10.dp))

Row() {
    Text(
        modifier = Modifier.padding(top = 14.dp), text = "Have an account?"
    )
    TextButton(onClick = {
        context.startActivity(
            Intent(
                context,
                LoginActivity::class.java
            )
        )
    })

    {
        Spacer(modifier = Modifier.width(10.dp))
        Text(text = "Log in")
    }
}
}

private fun startLoginActivity(context: Context) {
    val intent = Intent(context, LoginActivity::class.java)

```

```
ContextCompat.startActivity(context, intent, null)
}
```

CREATE MAIN ACTIVITY :

```
package com.example.travelapp
```

```
import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.clickable
import androidx.compose.foundation.layout.*
import androidx.compose.foundation.rememberScrollState
import androidx.compose.foundation.verticalScroll
import androidx.compose.material.Card
import androidx.compose.material.Text
import androidx.compose.runtime.Composable
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.draw.scale
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.res.stringResource
import androidx.compose.ui.text.font.FontFamily
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.style.TextAlign
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
```

```
class MainActivity : ComponentActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContent {
            TravelApp(this)
        }
    }
}
```

```
@Composable
fun TravelApp(context: Context) {
    Column(
        modifier = Modifier
```

```

        .padding(20.dp)
        .verticalScroll(rememberScrollState())

    ){

        Text(
            fontSize = 40.sp,
            color = Color(android.graphics.Color.rgb(120, 40, 251)),
            fontFamily = FontFamily.Cursive,
            text = "Wanderlust Travel"
        )

        Spacer(modifier = Modifier.height(20.dp))

        // 01
        Card(
            modifier = Modifier
                .fillMaxWidth()
                .height(250.dp)
                .clickable {
                    context.startActivity(
                        Intent(context, BaliActivity::class.java)

                    )
                },
            elevation = 8.dp
        )
        {
            Column(
                horizontalAlignment = Alignment.CenterHorizontally
            ){
                Image(
                    painterResource(id = R.drawable.bali), contentDescription = "",
                    modifier = Modifier
                        .height(150.dp)
                        .scale(scaleX = 1.2F, scaleY = 1F)
                )

                Text(
                    text = stringResource(id = R.string.place_1),
                    fontSize = 18.sp
                )
            }
        }
    }
}

```

```

        Text(
            text = stringResource(id = R.string.description),
            fontWeight = FontWeight.Light,
            fontSize = 16.sp,
            textAlign = TextAlign.Center,
        )

        Text(
            text = stringResource(id = R.string.plan), color = Color.Gray,
            fontSize = 16.sp
        )
    }
}

Spacer(modifier = Modifier.height(20.dp))

//02
Card(
    modifier = Modifier
        .fillMaxWidth()
        .height(250.dp)
        .clickable {
            context.startActivity(
                Intent(context, ParisActivity::class.java)
            )
        },
    elevation = 8.dp
)
{
    Column(
        horizontalAlignment = Alignment.CenterHorizontally
    ){
        Image(
            painterResource(id = R.drawable.paris), contentDescription = "",
            modifier = Modifier
                .height(150.dp)
                .scale(scaleX = 1.2F, scaleY = 1F)
        )

        Text(
            text = stringResource(id = R.string.place_2),
            fontSize = 18.sp
        )
    }
}

```

```

    )

    Text(
        text = stringResource(id = R.string.description),
        fontWeight = FontWeight.Light,
        fontSize = 16.sp,
        textAlign = TextAlign.Center,
    )

    Text(
        text = stringResource(id = R.string.plan), color = Color.Gray,
        fontSize = 16.sp
    )
}
}

Spacer(modifier = Modifier.height(20.dp))

//03
Card(
    modifier = Modifier
        .fillMaxWidth()
        .height(250.dp)
        .clickable {
            context.startActivity(
                Intent(context, SingaporeActivity::class.java)
            )
        },
    elevation = 8.dp
)
{
    Column(
        horizontalAlignment = Alignment.CenterHorizontally
    ){
        Image(
            painterResource(id = R.drawable.singapore), contentDescription = "",
            modifier = Modifier
                .height(150.dp)
                .scale(scaleX = 1.2F, scaleY = 1F)
        )

        Text(

```

```

        text = stringResource(id = R.string.place_3),
        fontSize = 18.sp
    )

    Text(
        text = stringResource(id = R.string.description),
        fontWeight = FontWeight.Light,
        fontSize = 16.sp,
        textAlign = TextAlign.Center,
    )

    Text(
        text = stringResource(id = R.string.plan), color = Color.Gray,
        fontSize = 16.sp
    )
}
}

Spacer(modifier = Modifier.height(20.dp))
}
}
}

```

CREATE TRACK ACTIVITY :

```

package com.example.projectone

import android.icu.text.SimpleDateFormat
import android.os.Bundle
import android.util.Log
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.layout.*
import androidx.compose.foundation.lazy.LazyColumn
import androidx.compose.foundation.lazy.LazyRow
import androidx.compose.foundation.lazy.items
import androidx.compose.material.MaterialTheme
import androidx.compose.material.Surface

```

```
import androidx.compose.material.Text
import androidx.compose.runtime.Composable
import androidx.compose.ui.Modifier
import androidx.compose.ui.draw.alpha
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.layout.ContentScale
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import com.example.projectone.ui.theme.ProjectOneTheme
import java.util.*
```

```
class TrackActivity : ComponentActivity() {
```

```
    private lateinit var databaseHelper: TimeLogDatabaseHelper
```

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

```
        databaseHelper = TimeLogDatabaseHelper(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("Sandeep" ,data.toString())
```

```

        val timeLogs = databaseHelper.getTimeLogs()
        ListListScopeSample(timeLogs)
    }
}
}
}
}
}

```

@Composable

```

fun ListListScopeSample(timeLogs: List<TimeLogDatabaseHelper.TimeLog>) {
    val imageModifier = Modifier
    Image(
        painterResource(id = R.drawable.sleeptracking),
        contentScale = ContentScale.FillHeight,
        contentDescription = "",
        modifier = imageModifier
            .alpha(0.3F),
    )

    Text(text = "Sleep Tracking", modifier = Modifier.padding(top = 16.dp, start = 106.dp ),
        color = Color.White, fontSize = 24.sp)

    Spacer(modifier = Modifier.height(30.dp))

    LazyRow(
        modifier = Modifier
            .fillMaxSize()
            .padding(top = 56.dp),

        horizontalArrangement = Arrangement.SpaceBetween
    ){
        item {

```



```

LazyColumn {
    items(timeLogs) { timeLog ->
        Column(modifier = Modifier.padding(16.dp)) {
            //Text("ID: ${timeLog.id}")
            Text("Start time: ${formatDateTime(timeLog.startTime)}")
            Text("End time: ${timeLog.endTime?.let { formatDateTime(it) }}")
        }
    }
}

}

}

```

```

private fun formatDateTime(timestamp: Long): String {
    val dateFormat = SimpleDateFormat("yyyy-MM-dd HH:mm:ss", Locale.getDefault())
    return dateFormat.format(Date(timestamp))
}

```

MODIFY ANDROID MANIFEST :

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.TravelApp"
        tools:targetApi="31">
        <activity
            android:name=".RegisterActivity"
            android:exported="false"
            android:label="RegisterActivity"
            android:theme="@style/Theme.TravelApp" />
        <activity
            android:name=".SingaporeActivity"
            android:exported="false"
            android:label="@string/title_activity_singapore"
            android:theme="@style/Theme.TravelApp" />
        <activity
            android:name=".ParisActivity"
            android:exported="false"
            android:label="@string/title_activity_paris"
            android:theme="@style/Theme.TravelApp" />
        <activity
            android:name=".BaliActivity"
            android:exported="false"
            android:label="@string/title_activity_bali"
            android:theme="@style/Theme.TravelApp" />
        <activity
            android:name=".MainActivity"
            android:exported="true"
            android:label="@string/app_name"
            android:theme="@style/Theme.TravelApp"/>
        <activity
            android:name=".LoginActivity"
            android:exported="true"
            android:label="@string/app_name"
            android:theme="@style/Theme.TravelApp">
            <intent-filter>
```


```
        <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

RUNNING APPLICATION:

9:11 70%



Login

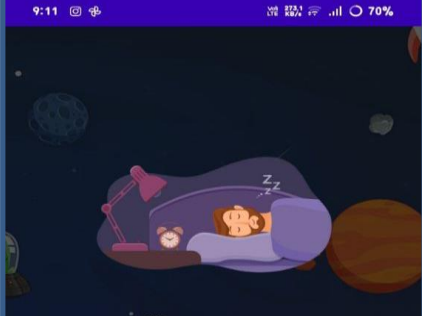
Username

Password

Login

Sign up Forget password?

9:11 70%



Register

Username

Email

Password

Register

Have an account? [Log in](#)

9:12 70%

Start

Elapsed Time: 00:00:00

Track Sleep

9:12 70%

Sleep Tracking

Start time: 1970-01-01 05:30:00
End time: 2024-11-15 09:12:23

Start time: 2024-11-15 09:12:24
End time: 2024-11-15 09:12:24

Start time: 2024-11-15 09:12:25
End time: 2024-11-15 09:12:26

Start time: 2024-11-15 09:12:27
End time: 2024-11-15 09:12:28

Start time: 2024-11-15 09:12:29
End time: 2024-11-15 09:12:29

Start time: 2024-11-15 09:12:30
End time: 2024-11-15 09:12:30

CONCLUSION :

In conclusion, the development of a sleep-tracking app provides users with invaluable insights into their sleep patterns and quality. By leveraging technology to monitor sleep duration, stages, and disturbances, this app empowers users to make informed decisions about their sleep habits and lifestyle choices. The comprehensive data collected can help users identify factors affecting their sleep and take proactive steps towards achieving better rest and overall health.

Ultimately, this sleep-tracking app is more than just a tool; it is a companion on the journey to better sleep and well-being. By embracing this technology, users can unlock the power of restorative sleep and wake up each day feeling refreshed, rejuvenated, and ready to conquer the world.

