

20CYS404

Android Application Development

Lab Exam

Exercise App

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# Experiment Number: Lab Exam - 04

**Aim:** To create an exercise app for body building and cardio exercise.

# Code:

**File :** activity\_main.xml

<LinearLayout  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:gravity="center"  
 android:background="@color/backgroundColor"  
 android:padding="16dp">  
  
 <!-- Title -->  
 <TextView  
 android:id="@+id/title"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Select Exercise Type"  
 android:textSize="24sp"  
 android:textColor="@color/titleColor"  
 android:layout\_gravity="center"  
 android:padding="16dp" />  
  
 <!-- Button for Body Building -->  
 <com.google.android.material.button.MaterialButton  
 android:id="@+id/bodyBuildingButton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Body Building"  
 android:textColor="@color/white"  
 android:backgroundTint="@color/primaryColor"  
 android:layout\_marginTop="16dp"  
 app:cornerRadius="24dp"  
 android:elevation="6dp"  
 android:paddingHorizontal="32dp"  
 android:paddingVertical="12dp"  
 app:icon="@drawable/ic\_bodybuilding"  
 app:iconGravity="textStart"  
 app:iconPadding="8dp"/>  
  
 <!-- Button for Cardio -->  
 <com.google.android.material.button.MaterialButton  
 android:id="@+id/cardioButton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Cardio"  
 android:textColor="@color/white"  
 android:backgroundTint="@color/secondaryColor"  
 android:layout\_marginTop="24dp"  
 app:cornerRadius="24dp"  
 android:elevation="6dp"  
 android:paddingHorizontal="32dp"  
 android:paddingVertical="12dp"  
 app:icon="@drawable/ic\_cardio"  
 app:iconGravity="textStart"  
 app:iconPadding="8dp"/>  
  
</LinearLayout>

**File :** MainActivity.java:

# package com.example.exercise; import android.os.Bundle; import androidx.activity.EdgeToEdge; import androidx.appcompat.app.AppCompatActivity; import androidx.core.graphics.Insets; import androidx.core.view.ViewCompat; import androidx.core.view.WindowInsetsCompat; import android.content.Intent; import android.os.Bundle; import android.view.View; import android.widget.Button; import androidx.appcompat.app.AppCompatActivity; public class MainActivity extends AppCompatActivity { @Override protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); Button bodyBuildingButton = findViewById(R.id.bodyBuildingButton); Button cardioButton = findViewById(R.id.cardioButton); bodyBuildingButton.setOnClickListener(new View.OnClickListener() { @Override public void onClick(View v) { Intent intent = new Intent(MainActivity.this, BodyBuildingActivity.class); startActivity(intent); } }); cardioButton.setOnClickListener(new View.OnClickListener() { @Override public void onClick(View v) { Intent intent = new Intent(MainActivity.this, CardioActivity.class); startActivity(intent); } }); } }

**File :** activity\_body\_building.xml

<LinearLayout  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:padding="16dp"  
 android:gravity="center">  
  
 <TextView  
 android:id="@+id/exerciseTitle"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Body Building"  
 android:textSize="24sp"  
 android:layout\_gravity="center" />  
  
 <!-- Sets and Reps input -->  
 <EditText  
 android:id="@+id/setsInput"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter Sets" />  
  
 <EditText  
 android:id="@+id/repsInput"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter Reps"  
 android:layout\_marginTop="10dp"/>  
  
 <!-- Timer display -->  
 <TextView  
 android:id="@+id/timerDisplay"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="00:00"  
 android:textSize="30sp"  
 android:layout\_gravity="center"  
 android:layout\_marginTop="20dp"/>  
  
 <!-- Button to start Timer -->  
 <Button  
 android:id="@+id/startTimerButton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Start Timer"  
 android:layout\_marginTop="20dp"/>  
  
</LinearLayout>

**File :** BodyBuildingActivity.java

# package com.example.exercise; import android.os.Bundle; import android.os.CountDownTimer; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.TextView; import android.widget.Toast; import androidx.appcompat.app.AppCompatActivity; import com.google.firebase.database.DatabaseReference; import com.google.firebase.database.FirebaseDatabase; public class BodyBuildingActivity extends AppCompatActivity { private TextView timerDisplay; private EditText setsInput, repsInput; private Button startTimerButton; private CountDownTimer timer; // SQLite and Firebase initialization DatabaseHelper databaseHelper; FirebaseDatabase firebaseDatabase; DatabaseReference databaseReference; @Override protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_body\_building*); // Initialize components setsInput = findViewById(R.id.*setsInput*); repsInput = findViewById(R.id.*repsInput*); timerDisplay = findViewById(R.id.*timerDisplay*); startTimerButton = findViewById(R.id.*startTimerButton*); // Initialize SQLite and Firebase databaseHelper = new DatabaseHelper(this); firebaseDatabase = FirebaseDatabase.*getInstance*(); databaseReference = firebaseDatabase.getReference("ExerciseData"); startTimerButton.setOnClickListener(new View.OnClickListener() { @Override public void onClick(View v) { startTimer(); } }); } private void startTimer() { timerDisplay.setText("30"); // Reset display to 30 seconds (example) // Start 30 seconds timer (example) timer = new CountDownTimer(30000, 1000) { public void onTick(long millisUntilFinished) { timerDisplay.setText(String.*valueOf*(millisUntilFinished / 1000)); } public void onFinish() { timerDisplay.setText("Done!"); calculateCalories(); } }.start(); } private void calculateCalories() { if (setsInput.getText().toString().isEmpty() || repsInput.getText().toString().isEmpty()) { Toast.*makeText*(this, "Please enter sets and reps", Toast.*LENGTH\_SHORT*).show(); return; } int sets, reps; try { sets = Integer.*parseInt*(setsInput.getText().toString()); reps = Integer.*parseInt*(repsInput.getText().toString()); } catch (NumberFormatException e) { Toast.*makeText*(this, "Invalid input", Toast.*LENGTH\_SHORT*).show(); return; } int caloriesBurned = sets \* reps \* 2; // Example calculation // Display calories burned timerDisplay.setText("Calories Burned: " + caloriesBurned); // Save the data in SQLite boolean isInserted = databaseHelper.insertData("BodyBuilding", sets, reps, caloriesBurned); Toast.*makeText*(BodyBuildingActivity.this, isInserted ? "Data Saved Locally" : "Error Saving Data Locally", Toast.*LENGTH\_SHORT*).show(); // Save the data in Firebase String key = databaseReference.push().getKey(); ExerciseData exerciseData = new ExerciseData("BodyBuilding", sets, reps, caloriesBurned); databaseReference.child(key).setValue(exerciseData); } // ExerciseData model class public static class ExerciseData { public String exerciseType; public int sets; public int reps; public int caloriesBurned; public ExerciseData(String exerciseType, int sets, int reps, int caloriesBurned) { this.exerciseType = exerciseType; this.sets = sets; this.reps = reps; this.caloriesBurned = caloriesBurned; } } }

# File: activity\_cardio.xml: <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android" android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:orientation="vertical" android:padding="16dp" android:gravity="center"> <TextView android:id="@+id/cardioExerciseTitle" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Cardio" android:textSize="24sp" android:layout\_gravity="center"/> <!-- Time duration input for cardio --> <EditText android:id="@+id/cardioDurationInput" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Enter Duration (minutes)" android:layout\_marginTop="20dp"/> <!-- Timer display --> <TextView android:id="@+id/cardioTimerDisplay" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="00:00" android:textSize="30sp" android:layout\_gravity="center" android:layout\_marginTop="20dp"/> <!-- Start timer button --> <Button android:id="@+id/startCardioTimerButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Start Timer" android:layout\_marginTop="20dp"/> </LinearLayout>

# File: CardioActivity.java: package com.example.exercise; import android.os.Bundle; import android.os.CountDownTimer; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.TextView; import android.widget.Toast; import androidx.appcompat.app.AppCompatActivity; import com.google.firebase.database.DatabaseReference; import com.google.firebase.database.FirebaseDatabase; public class CardioActivity extends AppCompatActivity { private EditText cardioDurationInput; private TextView cardioTimerDisplay; private Button startCardioTimerButton; private CountDownTimer cardioTimer; // Database helper for SQLite DatabaseHelper databaseHelper; // Firebase reference FirebaseDatabase firebaseDatabase; DatabaseReference databaseReference; @Override protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_cardio*); // Initialize UI components cardioDurationInput = findViewById(R.id.*cardioDurationInput*); cardioTimerDisplay = findViewById(R.id.*cardioTimerDisplay*); startCardioTimerButton = findViewById(R.id.*startCardioTimerButton*); // Initialize SQLite and Firebase databaseHelper = new DatabaseHelper(this); firebaseDatabase = FirebaseDatabase.*getInstance*(); databaseReference = firebaseDatabase.getReference("ExerciseData"); startCardioTimerButton.setOnClickListener(new View.OnClickListener() { @Override public void onClick(View v) { startCardioTimer(); } }); } private void startCardioTimer() { String input = cardioDurationInput.getText().toString(); if (input.isEmpty()) { Toast.*makeText*(this, "Please enter a duration", Toast.*LENGTH\_SHORT*).show(); return; } int durationMinutes; try { durationMinutes = Integer.*parseInt*(input); } catch (NumberFormatException e) { Toast.*makeText*(this, "Invalid duration", Toast.*LENGTH\_SHORT*).show(); return; } long durationMillis = durationMinutes \* 60000; // 1 minute = 60000 milliseconds cardioTimerDisplay.setText(String.*format*("%02d:%02d", durationMinutes, 0)); // Reset display // Create a timer for the entered duration cardioTimer = new CountDownTimer(durationMillis, 1000) { public void onTick(long millisUntilFinished) { long minutes = millisUntilFinished / 60000; long seconds = (millisUntilFinished % 60000) / 1000; cardioTimerDisplay.setText(String.*format*("%02d:%02d", minutes, seconds)); } public void onFinish() { cardioTimerDisplay.setText("Done!"); calculateCardioCalories(durationMinutes); // Call to calculate calories burned } }.start(); } private void calculateCardioCalories(int durationMinutes) { // Simple formula for calories burned during cardio int caloriesBurned = durationMinutes \* 10; // Update the UI to show calories burned cardioTimerDisplay.setText("Calories Burned: " + caloriesBurned); // Save the data in SQLite boolean isInserted = databaseHelper.insertData("Cardio", durationMinutes, 0, caloriesBurned); Toast.*makeText*(CardioActivity.this, isInserted ? "Data Saved Locally" : "Error Saving Data Locally", Toast.*LENGTH\_SHORT*).show(); // Save the data in Firebase String key = databaseReference.push().getKey(); ExerciseData cardioData = new ExerciseData("Cardio", durationMinutes, 0, caloriesBurned); databaseReference.child(key).setValue(cardioData); } // ExerciseData model class public static class ExerciseData { public String exerciseType; public int sets; public int reps; public int caloriesBurned; public ExerciseData(String exerciseType, int sets, int reps, int caloriesBurned) { this.exerciseType = exerciseType; this.sets = sets; this.reps = reps; this.caloriesBurned = caloriesBurned; } } }

# Output:

# Result: 1. Create an activity Exercise

# 2. Exercise type should be Body budling and cardio.

# 3. Based on the button selection, the page should change.

# 4. Create a Push up activity with a sets and reps, and keep a timer running. 5. After the timer is over Calories burned should be displayed.

# 6. Store the data in SQLite and Firebase