**Midterm**

**Group 9 WorkOut**

**Commented code**

MainActivity.java

package com.example.gp9workout;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Context;  
import android.os.Bundle;  
  
import android.content.SharedPreferences;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.SeekBar;  
import android.widget.TextView;  
import android.content.Intent;  
  
import com.example.gp9workout.model.WorkoutModel;  
import com.google.gson.Gson;  
import com.google.gson.reflect.TypeToken;  
  
import java.lang.reflect.Type;  
import java.util.ArrayList;  
import java.util.List;  
  
  
public class MainActivity extends AppCompatActivity {  
 private SeekBar seekBar;  
 private TextView stepCountTextView;  
 private EditText heightEditText;  
 private EditText weightEditText;  
 private Button addSessionButton;  
  
 private static SharedPreferences *sharedPreferences*;  
  
  
 static String *sharedPrefKey* = "WorkoutPreferences";  
 static String *json\_key* = "workout\_list";  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 seekBar = findViewById(R.id.*slider*);  
 stepCountTextView = findViewById(R.id.*steps*);  
 heightEditText = findViewById(R.id.*edtHeightType*);  
 weightEditText = findViewById(R.id.*edtWeightType*);  
 addSessionButton = findViewById(R.id.*btnSession*);  
  
 *sharedPreferences* = getSharedPreferences(*sharedPrefKey*, *MODE\_PRIVATE*);  
  
 // SeekBar listener  
 seekBar.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {  
 @Override  
 public void onProgressChanged(SeekBar seekBar, int progress, boolean fromUser) {  
 stepCountTextView.setText("Step Count: " + progress);  
 }  
  
 @Override  
 public void onStartTrackingTouch(SeekBar seekBar) {}  
  
 @Override  
 public void onStopTrackingTouch(SeekBar seekBar) {}  
 });  
  
 // Add Session button click listener  
 addSessionButton.setOnClickListener(view -> {  
 // Retrieve inputs  
 int stepCount = seekBar.getProgress();  
 int height = Integer.*parseInt*(heightEditText.getText().toString());  
 int weight = Integer.*parseInt*(weightEditText.getText().toString());  
  
 // Calculate calories burned  
 double calories = Calculation.*calculateCalories*(stepCount, height, weight);  
  
 // Save session details in SharedPreferences  
 SharedPreferences.Editor editor = *sharedPreferences*.edit();  
  
 WorkoutModel workoutModel = new WorkoutModel(stepCount,weight,height,calories);  
  
 this.*saveObject*(getApplicationContext(), workoutModel);  
  
  
 // Navigate to session list activity  
 startActivity(new Intent(MainActivity.this, SessionListActivity.class));  
 });  
 }  
  
 //Save the added model into session  
 public static void saveObject(Context context, WorkoutModel object) {  
 List<WorkoutModel> objectList = *getObjectList*(context);  
 if (objectList == null) {  
 objectList = new ArrayList<>();  
 }  
 objectList.add(object);  
  
  
 SharedPreferences.Editor editor = *sharedPreferences*.edit();  
 editor.putString(*json\_key*, new Gson().toJson(objectList));  
 editor.apply();  
 }  
  
 //update the list for sharedpreference  
 public static List<WorkoutModel> getObjectList(Context context) {  
 SharedPreferences sharedPreferences = context.getSharedPreferences(*sharedPrefKey*, Context.*MODE\_PRIVATE*);  
 String json = sharedPreferences.getString(*json\_key*, null);  
 Type type = new TypeToken<List<WorkoutModel>>() {}.getType();  
 return new Gson().fromJson(json, type);  
 }  
}

SessionListActivity.java

package com.example.gp9workout;  
  
import android.content.Context;  
import android.content.SharedPreferences;  
import android.os.Bundle;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.wear.widget.WearableLinearLayoutManager;  
import androidx.wear.widget.WearableRecyclerView;  
  
import com.example.gp9workout.adapter.WorkOutAdapter;  
import com.example.gp9workout.databinding.ActivitySessionListBinding;  
import com.example.gp9workout.model.WorkoutModel;  
import com.google.gson.Gson;  
import com.google.gson.reflect.TypeToken;  
  
import java.lang.reflect.Type;  
import java.util.ArrayList;  
import java.util.List;  
  
  
//Session List activity class to set the data into list for a session  
public class SessionListActivity extends AppCompatActivity {  
  
 private SharedPreferences sharedPreferences;  
 ActivitySessionListBinding activitySessionListBinding;  
 WearableRecyclerView sessionRecyclerView;  
 List<WorkoutModel> sessionDetails = new ArrayList<>();  
  
 WorkOutAdapter workOutAdapter;  
  
 static String *sharedPrefKey* = "WorkoutPreferences";  
 static String *json\_key* = "workout\_list";  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
  
 activitySessionListBinding = ActivitySessionListBinding.*inflate*(getLayoutInflater());  
 setContentView(activitySessionListBinding.getRoot());  
  
  
 sharedPreferences = getSharedPreferences("WorkoutPreferences", *MODE\_PRIVATE*);  
 sessionRecyclerView = activitySessionListBinding.sessionRecyclerView;  
  
 init();  
 }  
 //method to initiate instance  
 public void init(){  
 sessionRecyclerView.setHasFixedSize(true);  
 sessionRecyclerView.setEdgeItemsCenteringEnabled(true);  
 sessionRecyclerView.setLayoutManager(new WearableLinearLayoutManager(getApplicationContext()));  
  
 sessionDetails = *getObjectList*(getApplicationContext());  
  
 workOutAdapter = new WorkOutAdapter(sessionDetails,getApplicationContext());  
 sessionRecyclerView.setAdapter(workOutAdapter);  
 workOutAdapter.notifyDataSetChanged(); //changed data will get replaced  
  
 }  
  
 //get the list of models added to the session  
 //this function will set the json data to list  
 public static List<WorkoutModel> getObjectList(Context context) {  
 SharedPreferences sharedPreferences = context.getSharedPreferences(*sharedPrefKey*, Context.*MODE\_PRIVATE*);  
 String json = sharedPreferences.getString(*json\_key*, null);  
 Type type = new TypeToken<List<WorkoutModel>>() {}.getType();  
 return new Gson().fromJson(json, type);  
 }  
}

Calculation.java

package com.example.gp9workout;  
  
public class Calculation {  
 public static double calculateCalories(int stepCount, int height, int weight) {  
 double stride = height \* 0.414;  
 double distance = stride \* stepCount;  
 double time = distance / *determineSpeed*(stepCount);  
 double calories = time \* 3.5 \* weight / (200 \* 60);  
 return calories;  
 }  
  
 public static double determineSpeed(int stepCount) {  
 if (stepCount <= 79)  
 return 0.9;  
 else if (stepCount <= 99)  
 return 1.34;  
 else  
 return 1.79;  
 }  
}

WorkOutModel.java

package com.example.gp9workout.model;  
  
public class WorkoutModel {  
 public double steps;  
 public double weight;  
 public double height;  
 public double calories;  
  
 //model to set params of steps, weight, height, and calories  
 public WorkoutModel(double steps, double weight, double height, double calories) {  
 this.steps = steps;  
 this.weight = weight;  
 this.height = height;  
 this.calories = calories;  
 }  
  
 public double getSteps() {  
 return steps;  
 }  
  
 public void setSteps(double steps) {  
 this.steps = steps;  
 }  
  
 public double getWeight() {  
 return weight;  
 }  
  
 public void setWeight(double weight) {  
 this.weight = weight;  
 }  
  
 public double getHeight() {  
 return height;  
 }  
  
 public void setHeight(double height) {  
 this.height = height;  
 }  
  
 public double getCalories() {  
 return calories;  
 }  
  
 public void setCalories(double calories) {  
 this.calories = calories;  
 }  
  
 @Override  
 public String toString() {  
 return "steps:" + steps +  
 " weight:" + weight +  
 " height:" + height +  
 " calories:" + calories;  
 }  
}

WorkOutAdapter.java

package com.example.gp9workout.adapter;  
  
import android.content.Context;  
import android.view.LayoutInflater;  
import android.view.ViewGroup;  
  
import androidx.annotation.NonNull;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.gp9workout.databinding.WorkoutRowBinding;  
import com.example.gp9workout.model.WorkoutModel;  
  
import java.util.ArrayList;  
import java.util.List;  
  
public class WorkOutAdapter extends RecyclerView.Adapter<RecyclerView.ViewHolder> {  
  
 List<WorkoutModel> workoutModelList = new ArrayList<>();  
 WorkoutRowBinding workoutRowBinding;  
  
 public WorkOutAdapter(List<WorkoutModel> workoutModelList, Context context) {  
 this.workoutModelList = workoutModelList;  
 }  
  
 @NonNull  
 @Override  
 public RecyclerView.ViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {  
 LayoutInflater layoutInflater = LayoutInflater.*from*(parent.getContext());  
 workoutRowBinding = WorkoutRowBinding.*inflate*(layoutInflater,parent,false);  
 return new ViewHolder(workoutRowBinding);  
 }  
  
 @Override  
 public void onBindViewHolder(@NonNull RecyclerView.ViewHolder holder, int position) {  
 ((ViewHolder) holder).bindView(workoutModelList.get(position));  
 }  
  
 @Override  
 public int getItemCount() {  
 return workoutModelList.size();  
 }  
  
 private class ViewHolder extends RecyclerView.ViewHolder {  
 WorkoutRowBinding binding;  
 public ViewHolder(WorkoutRowBinding workoutRowBinding) {  
 super(workoutRowBinding.getRoot());  
 binding = workoutRowBinding;  
 }  
 public void bindView(WorkoutModel workoutModel){  
 binding.txtWorkout.setText(workoutModel.toString());  
 }  
 }  
}

**Screenshots**

A screenshot of a device

Description automatically generated

A screenshot of a device

Description automatically generated

A screenshot of a cell phone

Description automatically generated