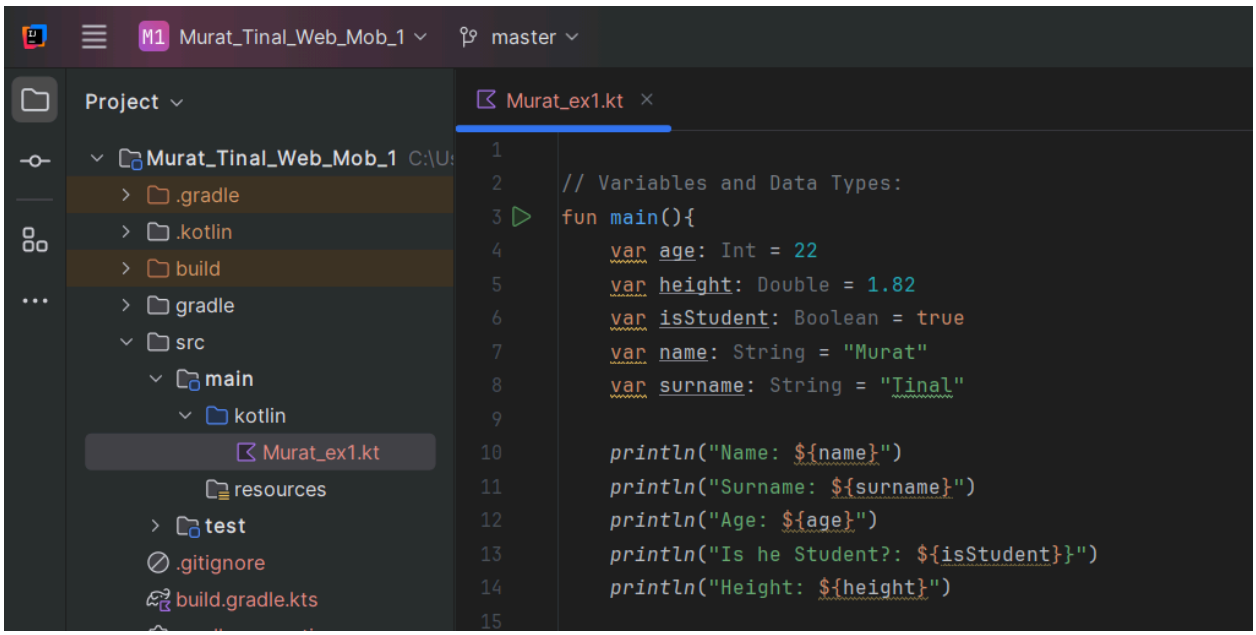
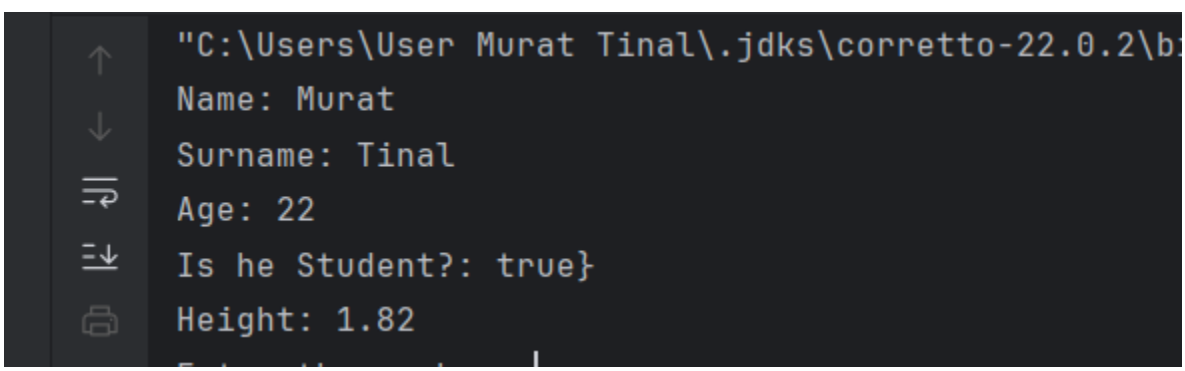
Assignment 1, Mobile Programming
Murat Tinal (23MD0442)

Exercise 1: Kotlin Syntax Basics

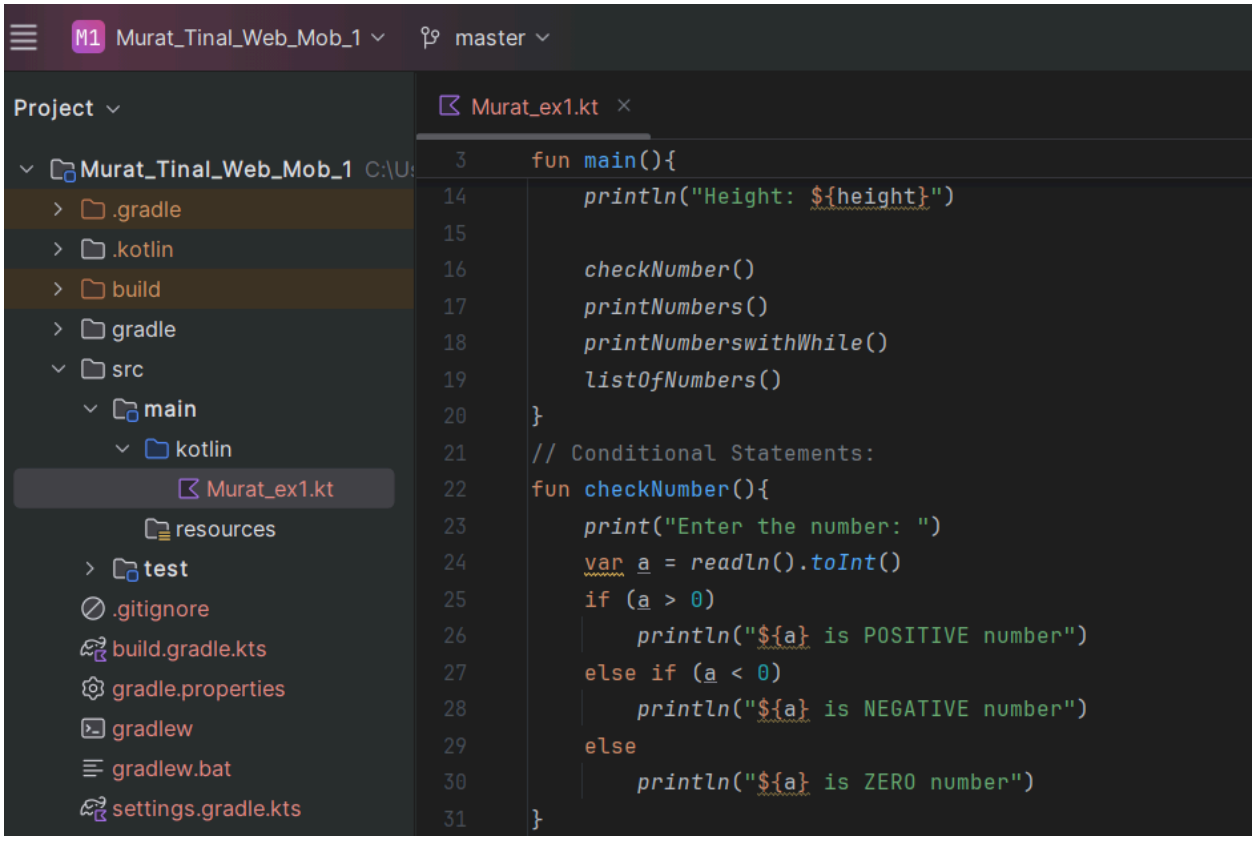
1. **Variables and Data Types:**
   - Create variables of different data types: `Int`, `Double`, `String`, `Boolean`.
   - Print the variables using `println`.

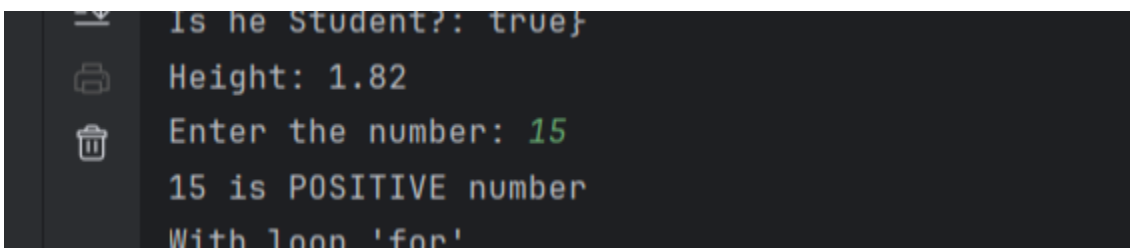




Conditional Statements:

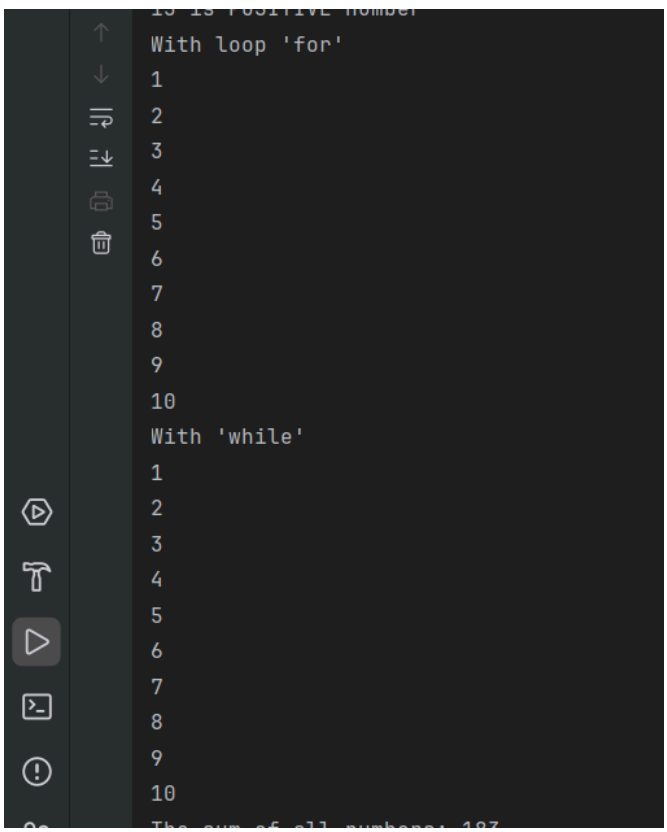
- Create a simple program that checks if a number is positive, negative, or zero.





Loops:

- Write a program that prints numbers from 1 to 10 using `for` and `while` loops



Collections:

- Create a list of numbers, iterate through the list, and print the sum of all numbers.

```kotlin
//Collections:
fun listOfNumbers(){
    var listsNumbers  = listOf(5,7,8,9,36,46,12,35,25)
    var sum = 0
    for (i in listsNumbers){
        sum = sum + i
    }
    println("The sum of all numbers: ${sum}")
}
```

```
10
The sum of all numbers: 183

Process finished with exit code 0
```

Murat_Tinal_Web_Mob_1 > src > main > kotlin > Murat_ex1.kt >

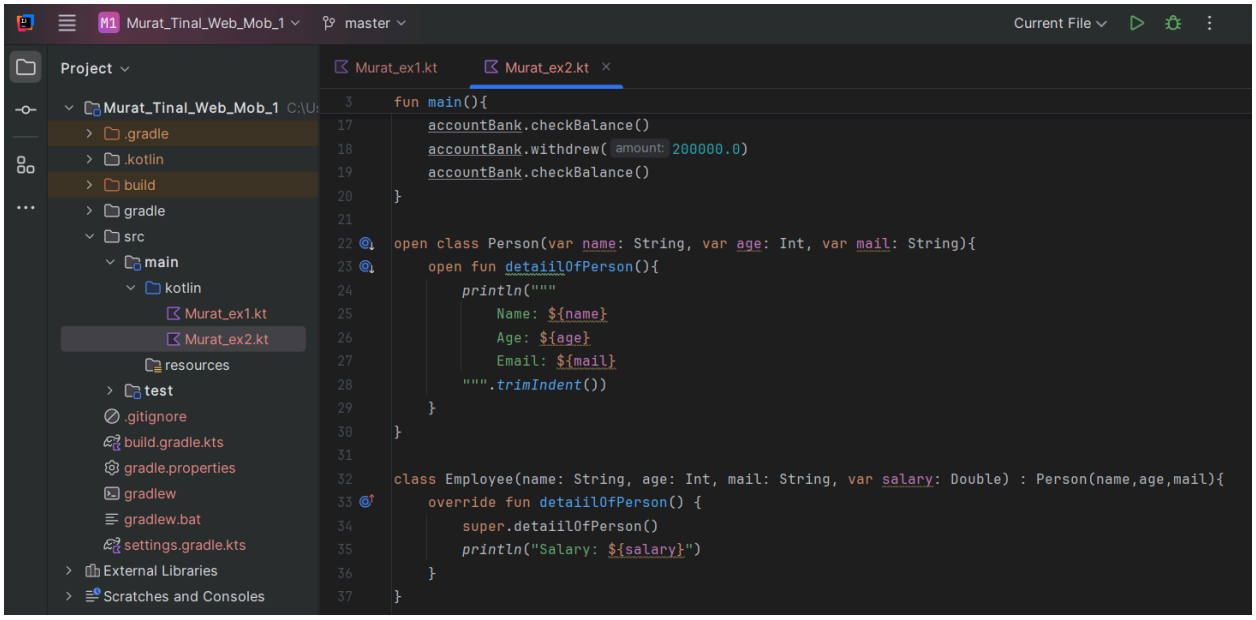
Exercise 2: Kotlin OOP (Object-Oriented Programming)

1. **Create a `Person` class:**
    - Define properties for `name`, `age`, and `email`.
    - Create a method to display the person's details.

```kotlin

open class Person(var name: String, var age: Int, var mail: String){
    open fun detaiilOfPerson(){
        println("""
            Name: ${name}
            Age: ${age}
            Email: ${mail}
        """.trimIndent())
    }
}

```

Inheritance:

- Create a class `Employee` that inherits from the `Person` class.
- Add a property for `salary`.
- Override the `displayInfo` method to include the salary.



Encapsulation:

- Create a `BankAccount` class with a private property `balance`.
- Provide methods to `deposit` and `withdraw` money, ensuring the balance never goes negative

Murat_Tinal_Web_Mob_1 master Current File

Murat_ex1.kt Murat_ex2.kt

```kotlin
class Employee(name: String, age: Int, mail: String, var salary: Double) : Person(name,age,mail){
}

class BankAcc(private var balans: Double){
    fun deposit(amount: Double){
        if (amount > 0){
            balans = balans + amount
            println("Deposit: ${amount}")
            println("Balance: ${balans}")
        }else{
            println("Invalid amount")

        }
    }

    fun withdrew(amount: Double){
        if (amount > 0 && amount <= balans){
            balans = balans - amount
            println("Withdrew: ${amount}")
            println("Balance: ${balans}")
        } else{
            println("Invalid amout")
        }
    }

    fun checkBalance(){
        println("Current balace: ${balans}")
    }
}
```

Murat_Tinal_Web_Mob_1 master Current File

Murat_ex1.kt Murat_ex2.kt

```kotlin


fun main(){
    var personInfo = Person( name: "Murat Tinal",  age: 22, mail: "murattnl02@gmail.com")
    personInfo.detaiilOfPerson()
    println()

    var employee = Employee( name: "Marlen Sovet",  age: 22,  mail: "marlen02@gmail.com",  salary: 300000.5)
    employee.detaiilOfPerson()
    println()

    var accountBank = BankAcc( balans: 350000.0)
    accountBank.checkBalance()
    accountBank.deposit( amount: 100000.0)
    accountBank.checkBalance()
    accountBank.deposit( amount: 500000.0)
    accountBank.checkBalance()
    accountBank.withdrew( amount: 200000.0)
    accountBank.checkBalance()
}
```

M1 Murat_Tinal_Web_Mob_1 master

Project Murat_ex1.kt Murat_ex2.k

Run Murat_ex2Kt

```
"C:\Users\User Murat Tinal\.jdks\corretto-22.0.2\bin\jav
Name: Murat Tinal
Age: 22
Email: murattnl02@gmail.com

Name: Marlen Sovet
Age: 22
Email: marlen02@gmail.com
Salary: 300000.5

Current balace: 350000.0
Deposit: 100000.0
Balance: 450000.0
Current balace: 450000.0
Deposit: 500000.0
Balance: 950000.0
Current balace: 950000.0
Withdrew: 200000.0
Balance: 750000.0
Current balace: 750000.0

Process finished with exit code 0
```

Exercise 3: Kotlin Functions

1. **Basic Function:**
    - Write a function that takes two integers as arguments and returns their sum

```kotlin


fun plus(number1: Int, number2: Int):Int{
    return number1 + number2
}
```

Lambda Functions:

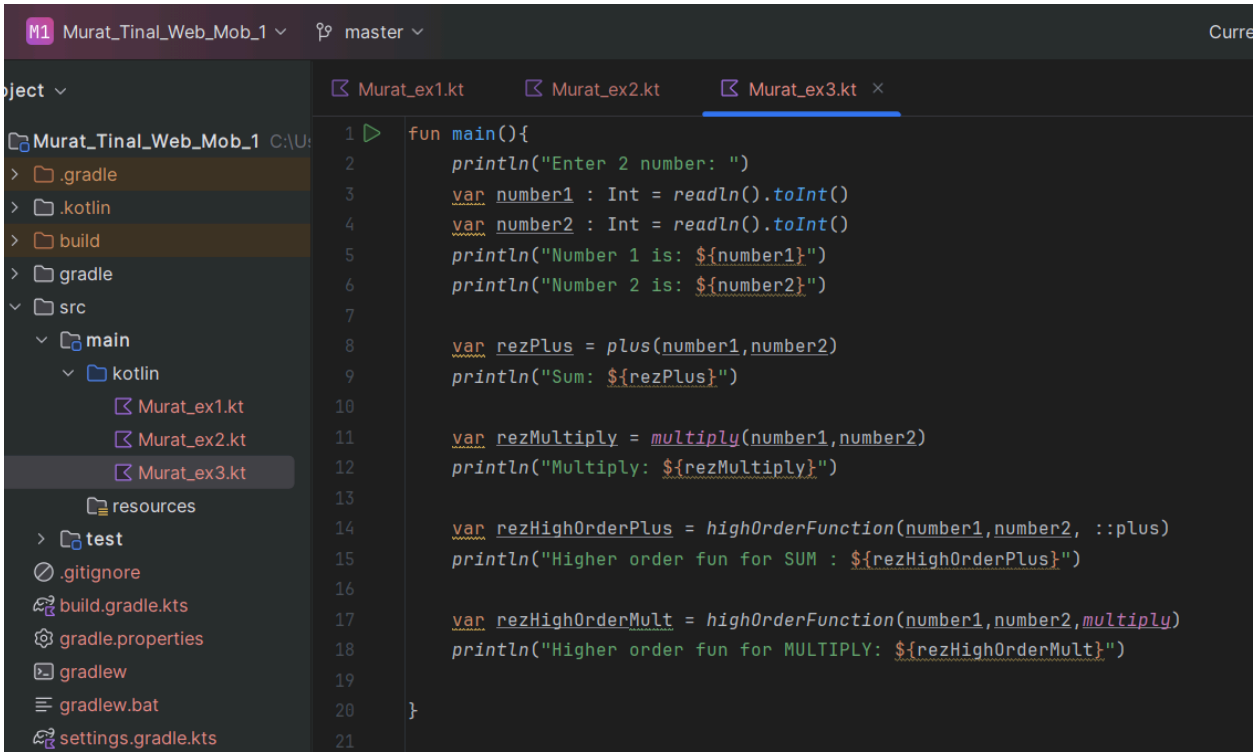
- Create a lambda function that multiplies two numbers and returns the result

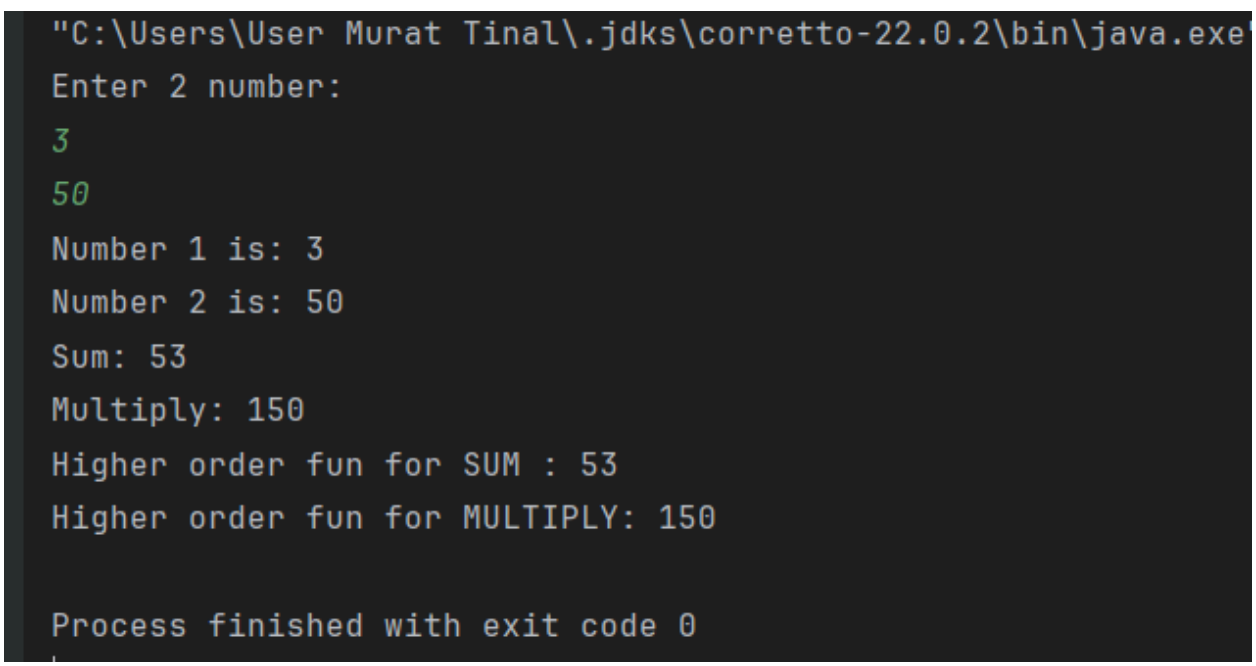
```kotlin
}

var multiply : (Int, Int) -> Int = {a,b -> a*b}

```

Higher-Order Functions:

- Write a function that takes a lambda function as a parameter and applies it to two integers.

```kotlin

fun highOrderFunction(number1: Int, number2: Int, op : (Int,Int) -> Int): Int{
    return op(number1,number2)
}
```


M1 Murat_Tinal_Web_Mob_1
master
Murat_ex1.kt
Murat_ex2.kt
Murat_ex3.kt
Murat_Tinal_Web_Mob_1
.gradle
.kotlin
build
gradle
src
main
kotlin
Murat_ex1.kt
Murat_ex2.kt
Murat_ex3.kt
resources
test
.gitignore
build.gradle.kts
gradle.properties
gradlew
gradlew.bat
settings.gradle.kts
fun main(){
    println("Enter 2 number: ")
    var number1 : Int = readln().toInt()
    var number2 : Int = readln().toInt()
    println("Number 1 is: ${number1}")
    println("Number 2 is: ${number2}")
    var rezPlus = plus(number1,number2)
    println("Sum: ${rezPlus}")
    var rezMultiply = multiply(number1,number2)
    println("Multiply: ${rezMultiply}")
    var rezHighOrderPlus = highOrderFunction(number1,number2, ::plus)
    println("Higher order fun for SUM : ${rezHighOrderPlus}")
    var rezHighOrderMult = highOrderFunction(number1,number2,multiply)
    println("Higher order fun for MULTIPLY: ${rezHighOrderMult}")
}


"C:\Users\User Murat Tinal\.jdks\corretto-22.0.2\bin\java.exe"
Enter 2 number:
3
50
Number 1 is: 3
Number 2 is: 50
Sum: 53
Multiply: 150
Higher order fun for SUM : 53
Higher order fun for MULTIPLY: 150
Process finished with exit code 0

Exercise 4: Android Layout in Kotlin (Instagram-like Layout)

1. **Set Up the Android Project:**
   - Create a new Android project in Android Studio.
   - Ensure you have a Kotlin-based project.
2. **Design the Layout:**
   - Create a new XML layout file (`activity_main.xml`) for a simple Instagram-like user interface.
   - Include elements like `ImageView`, `TextView`, and `RecyclerView` for the feed

Create the RecyclerView Adapter:

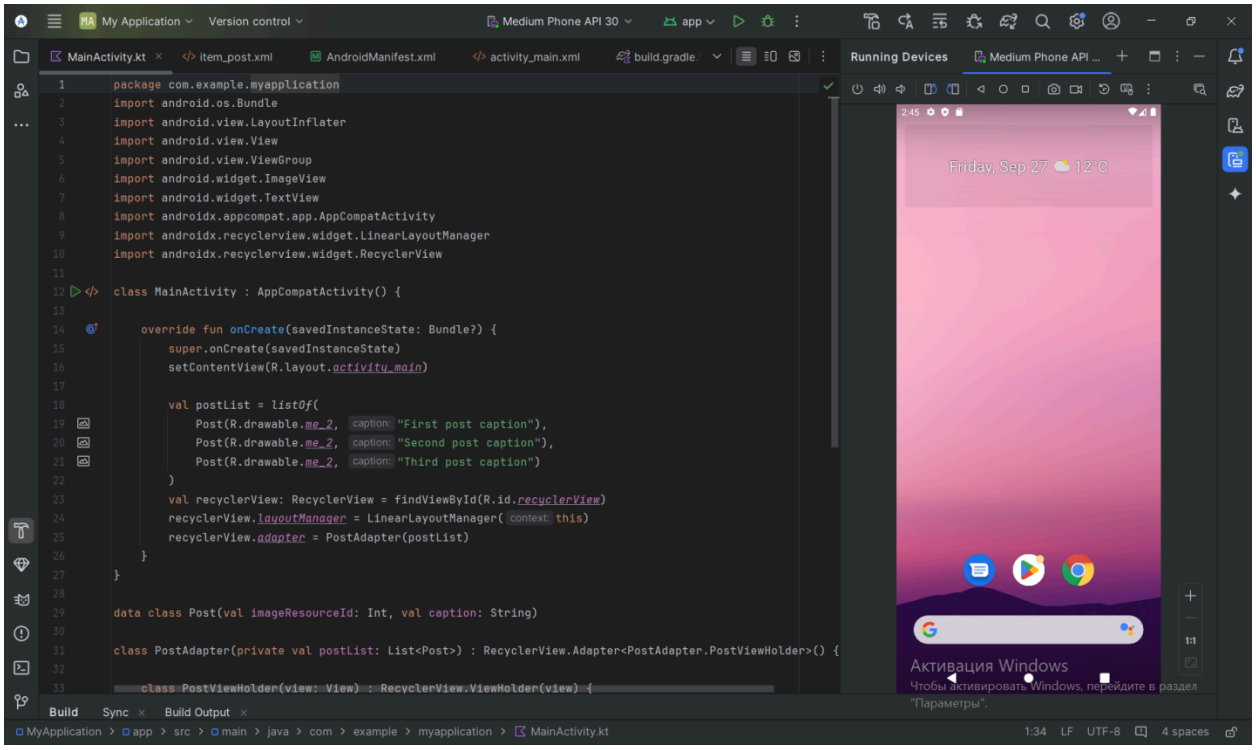
- Set up the RecyclerView to display a feed of posts with `ImageView` for the picture and `TextView` for the caption.

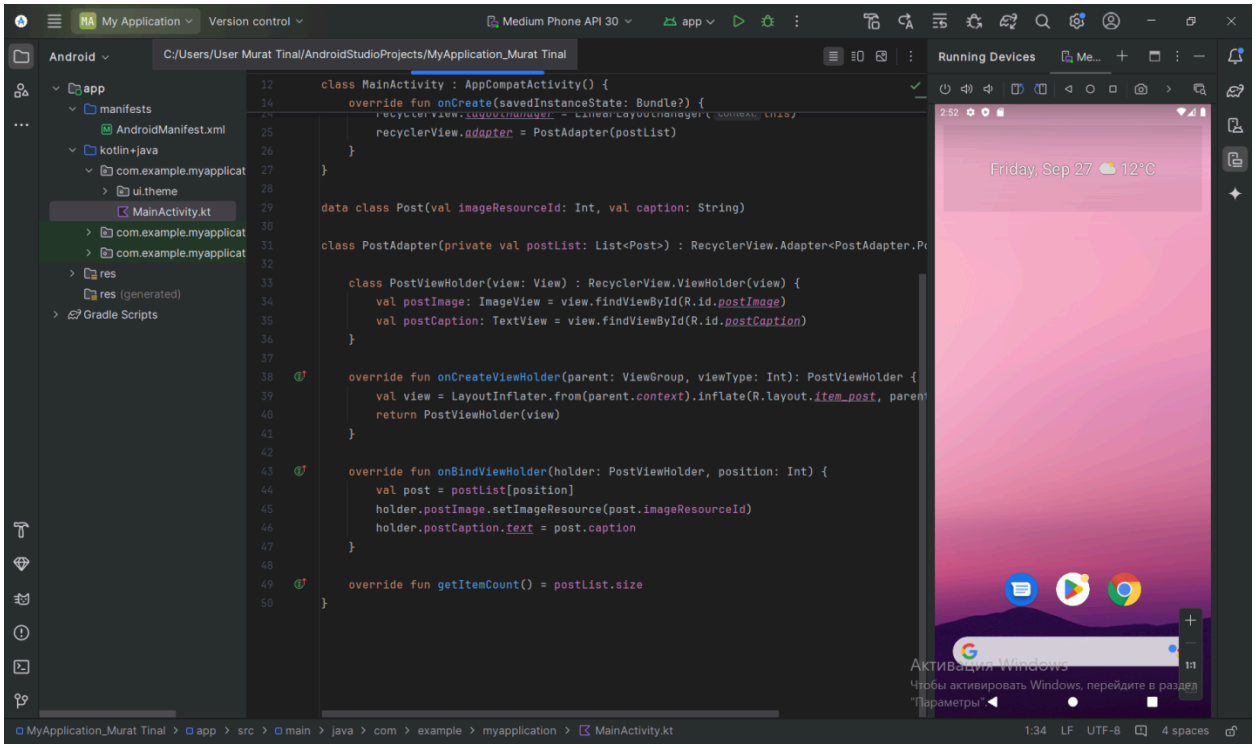
MainActivity Setup:

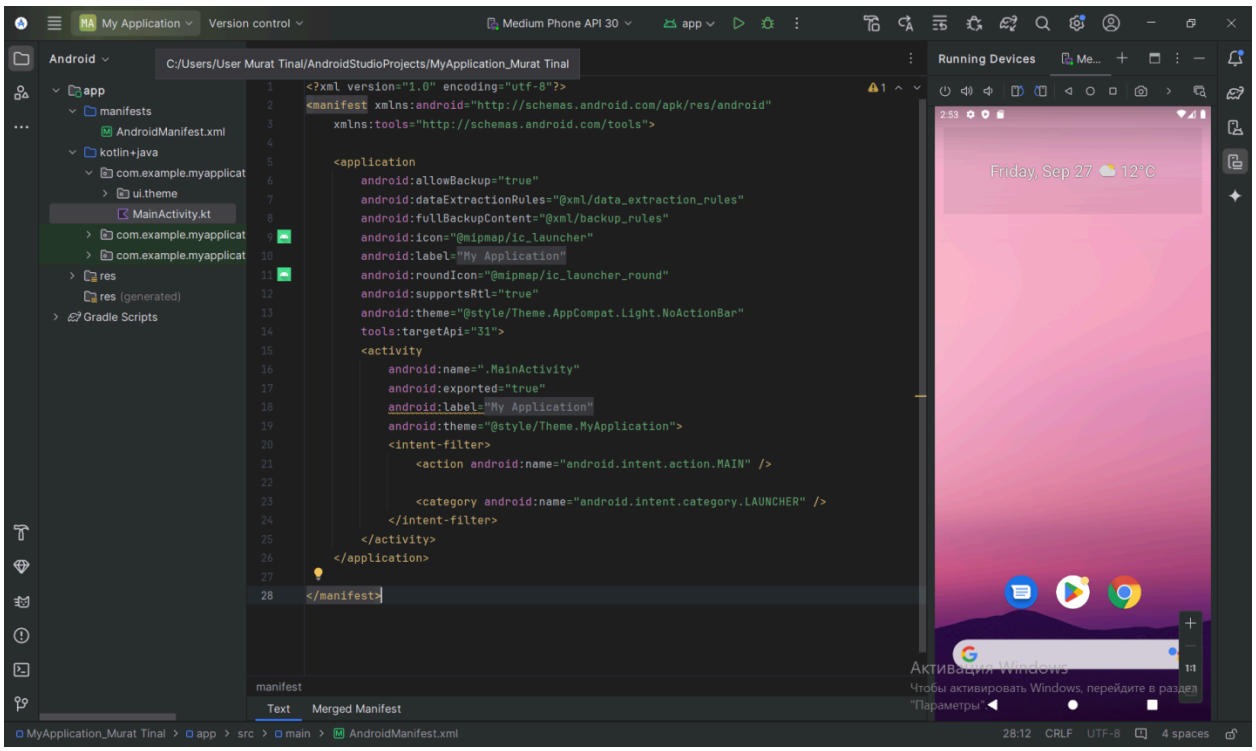
- Initialize the `RecyclerView` in `MainActivity` and populate it with sample data

I had a problem with my App, so can I update my project later if I found my mistake?

There is my code that I tried to do.




My Application
Version control
Medium Phone API 30
app
Android
C:/Users/User Murat Tinal/AndroidStudioProjects/MyApplication_Murat Tinal
app
manifests
AndroidManifest.xml
kotlin+java
com.example.myapplicat
ui.theme
MainActivity.kt
com.example.myapplicat
com.example.myapplicat
res
res (generated)
Gradle Scripts
class MainActivity : AppCompatActivity() {
override fun onCreate(savedInstanceState: Bundle?) {
recyclerView.adapter = PostAdapter(postList)
}
}
data class Post(val imageResourceId: Int, val caption: String)
class PostAdapter(private val postList: List<Post>) : RecyclerView.Adapter<PostAdapter.Po
class PostViewHolder(view: View) : RecyclerView.ViewHolder(view) {
val postImage: ImageView = view.findViewById(R.id.postImage)
val postCaption: TextView = view.findViewById(R.id.postCaption)
}
override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): PostViewHolder {
val view = LayoutInflater.from(parent.context).inflate(R.layout.item_post, parent
return PostViewHolder(view)
}
override fun onBindViewHolder(holder: PostViewHolder, position: Int) {
val post = postList[position]
holder.postImage.setImageResource(post.imageResourceId)
holder.postCaption.text = post.caption
}
override fun getItemCount() = postList.size
}
Running Devices
Me...
Friday, Sep 27 12°C
Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры"
MyApplication_Murat Tinal > app > src > main > java > com > example > myapplication > MainActivity.kt
1:34
LF
UTF-8
4 spaces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AndroidManifest.xml
kotlin+java
com.example.myapplicat
ui.theme
MainActivity.kt
com.example.myapplicat
com.example.myapplicat
res
res (generated)
Gradle Scripts
<?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="My Application"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/Theme.AppCompat.Light.NoActionBar"
tools:targetApi="31">
<activity
android:name=".MainActivity"
android:exported="true"
android:label="My Application"
android:theme="@style/Theme.MyApplication">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
manifest
Text
Merged Manifest
Running Devices
Me...
Friday, Sep 27 12°C
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MyApplication_Murat Tinal > app > src > main > AndroidManifest.xml
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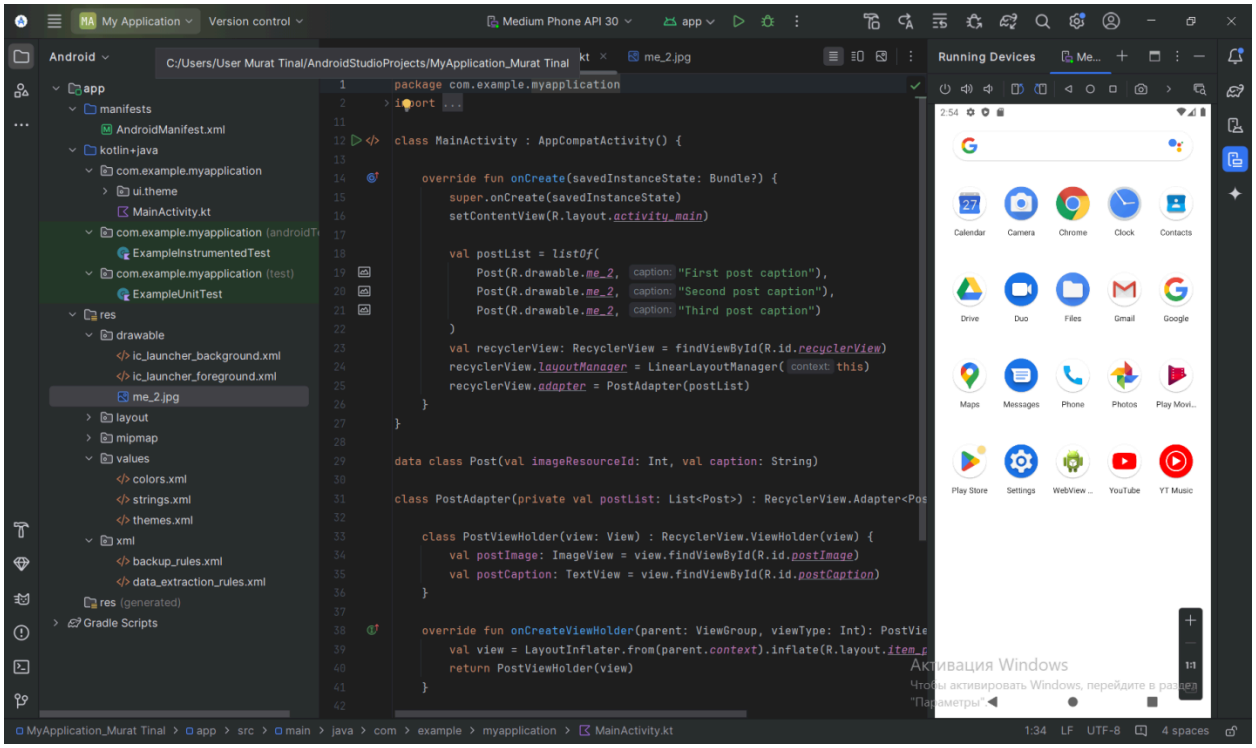
CRLF
UTF-8
4 spaces


My Application
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app
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me_2.jpg
app
manifests
AndroidManifest.xml
kotlin+java
com.example.myapplication
ui.theme
MainActivity.kt
com.example.myapplication (androidTe
ExampleInstrumentedTest
com.example.myapplication (test)
ExampleUnitTest
res
drawable
ic_launcher_background.xml
ic_launcher_foreground.xml
me_2.jpg
layout
mipmap
values
colors.xml
strings.xml
themes.xml
xml
backup_rules.xml
data_extraction_rules.xml
res (generated)
Gradle Scripts
package com.example.myapplication
import ...
class MainActivity : AppCompatActivity() {
override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
setContentView(R.layout.activity_main)
val postList = listOf(
Post(R.drawable.me_2, caption: "First post caption"),
Post(R.drawable.me_2, caption: "Second post caption"),
Post(R.drawable.me_2, caption: "Third post caption")
)
val recyclerView: RecyclerView = findViewById(R.id.recyclerView)
recyclerView.layoutManager = LinearLayoutManager(context: this)
recyclerView.adapter = PostAdapter(postList)
}
}
data class Post(val imageResourceId: Int, val caption: String)
class PostAdapter(private val postList: List<Post>) : RecyclerView.Adapter<Pos
class PostViewHolder(view: View) : RecyclerView.ViewHolder(view) {
val postImage: ImageView = view.findViewById(R.id.postImage)
val postCaption: TextView = view.findViewById(R.id.postCaption)
}
override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): PostVie
val view = LayoutInflater.from(parent.context).inflate(R.layout.item_p
return PostViewHolder(view)
}
Running Devices
Calendar
Camera
Chrome
Clock
Contacts
Drive
Duo
Files
Gmail
Google
Maps
Messages
Phone
Photos
Play Store
Settings
WebView ...
YouTube
YT Music
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