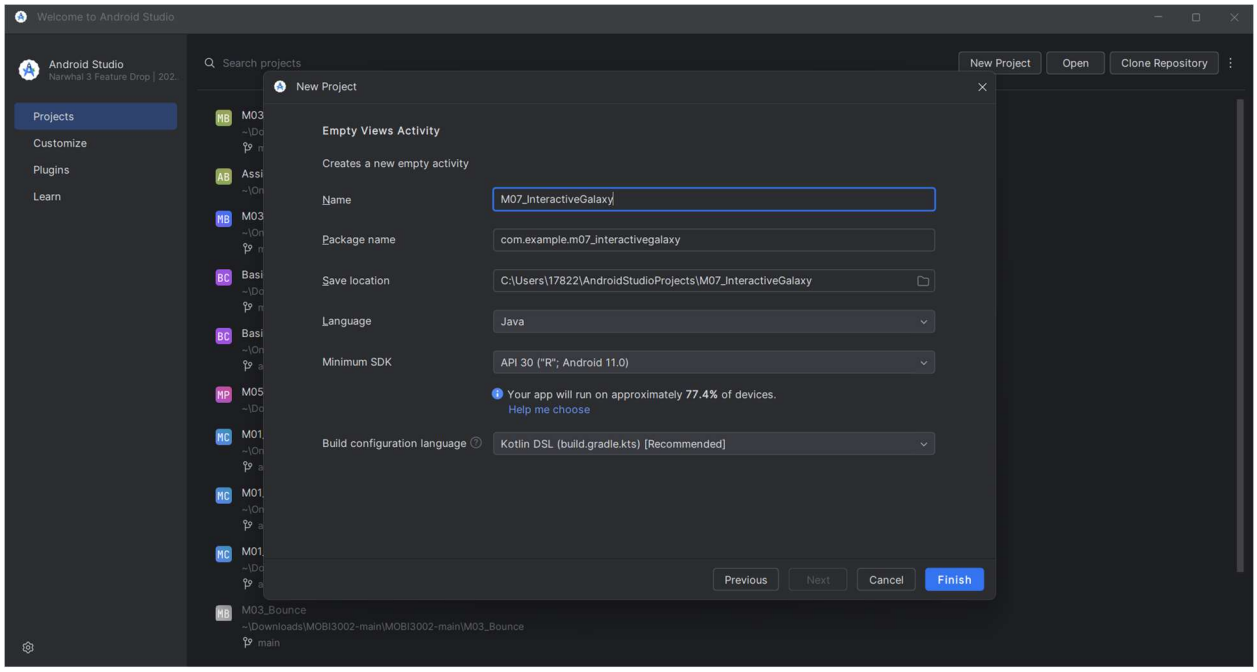
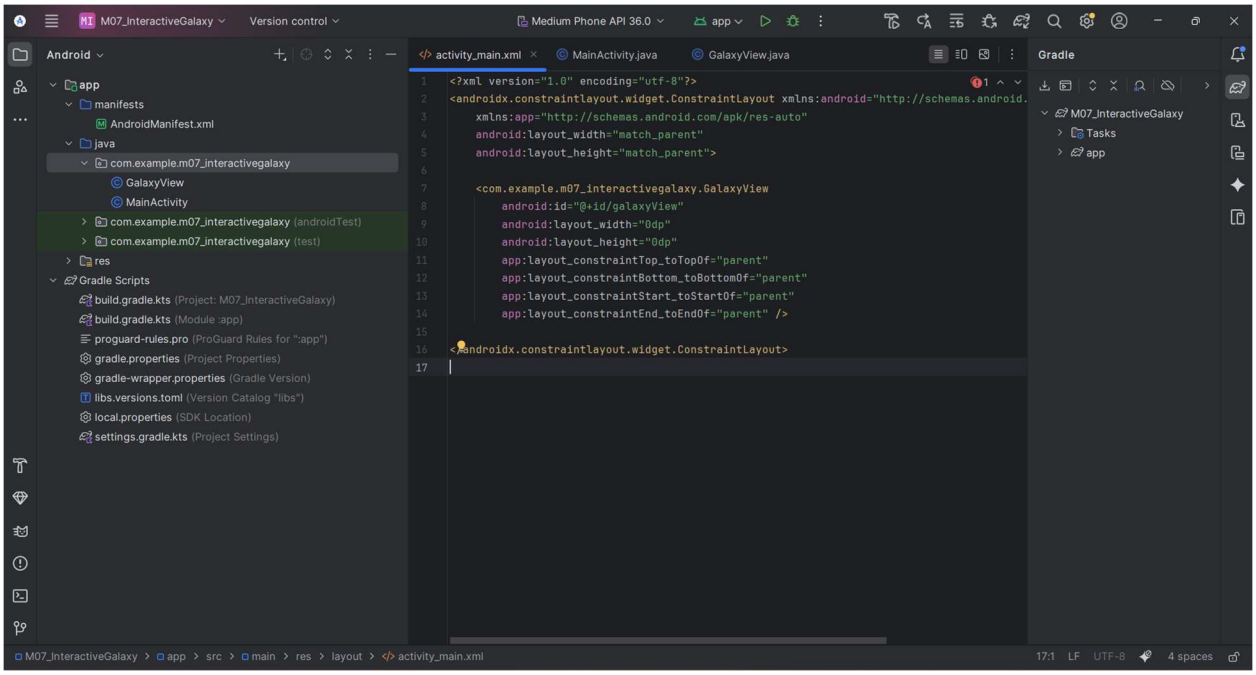
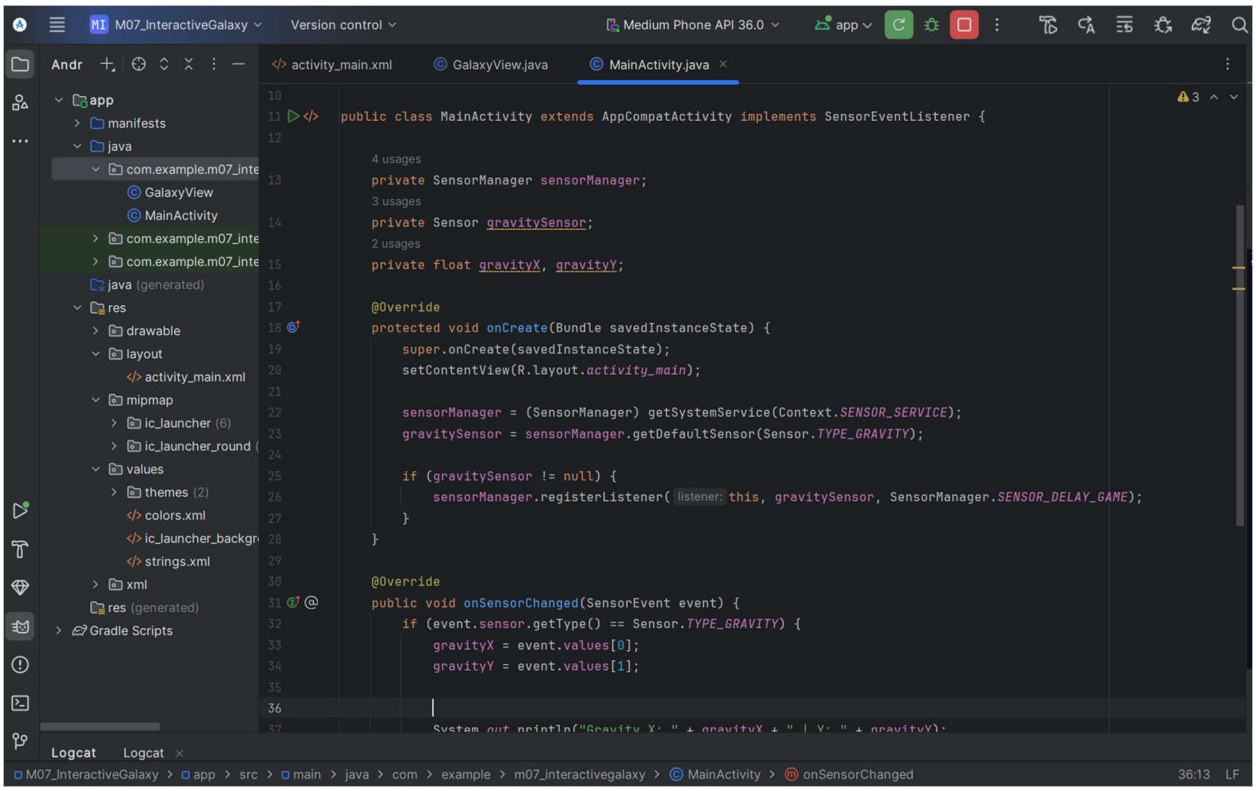
A7 - Sensors

Esraa Abdelmoein

2025-10-20

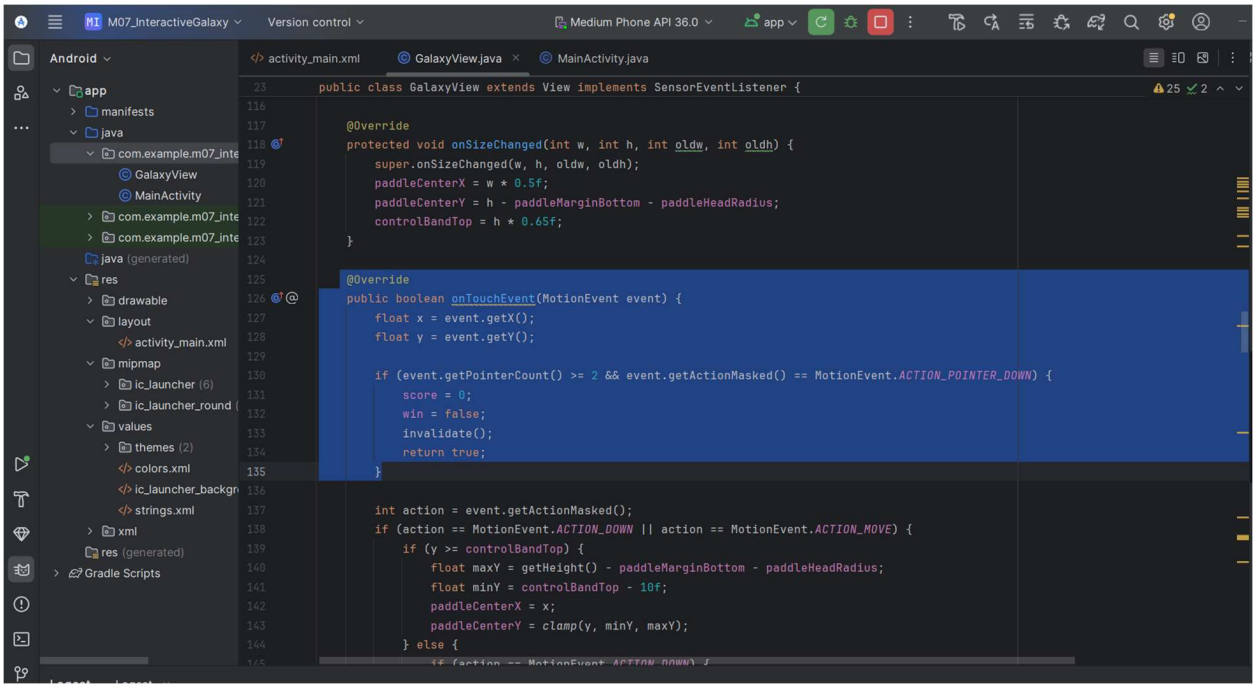






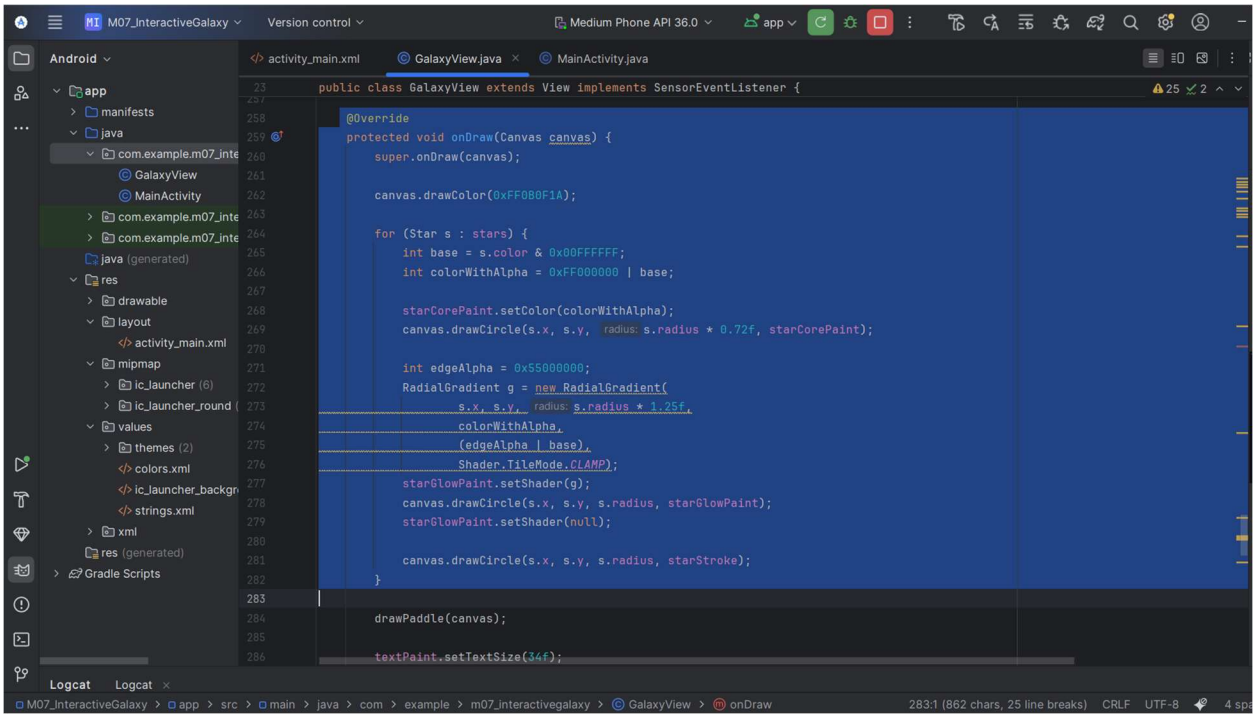
Gravity Sensor Setup (MainActivity.java)

This code registers the gravity sensor and updates the object's X and Y positions in real time. The values are used to simulate tilt movement inside the game



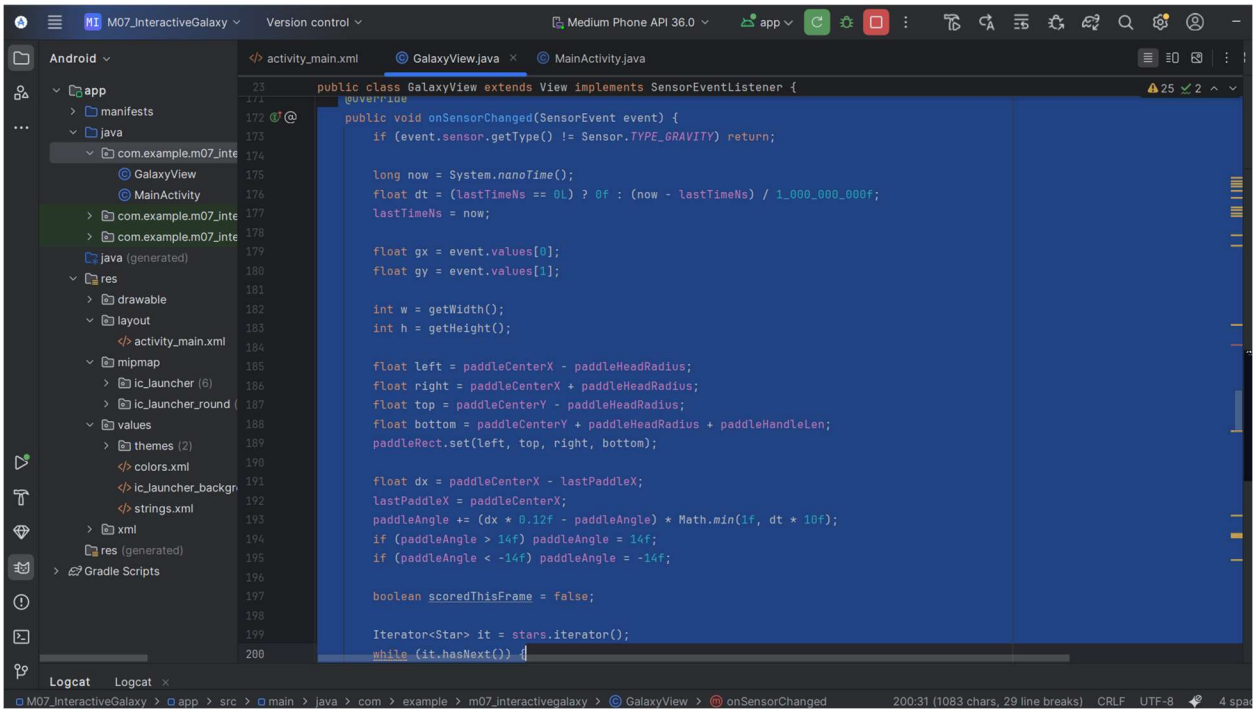
Touch Input Handling (GalaxyView.java)

This part of the code detects when the user touches or drags on the screeN.The paddle moves or new balls are created according to the touch actions



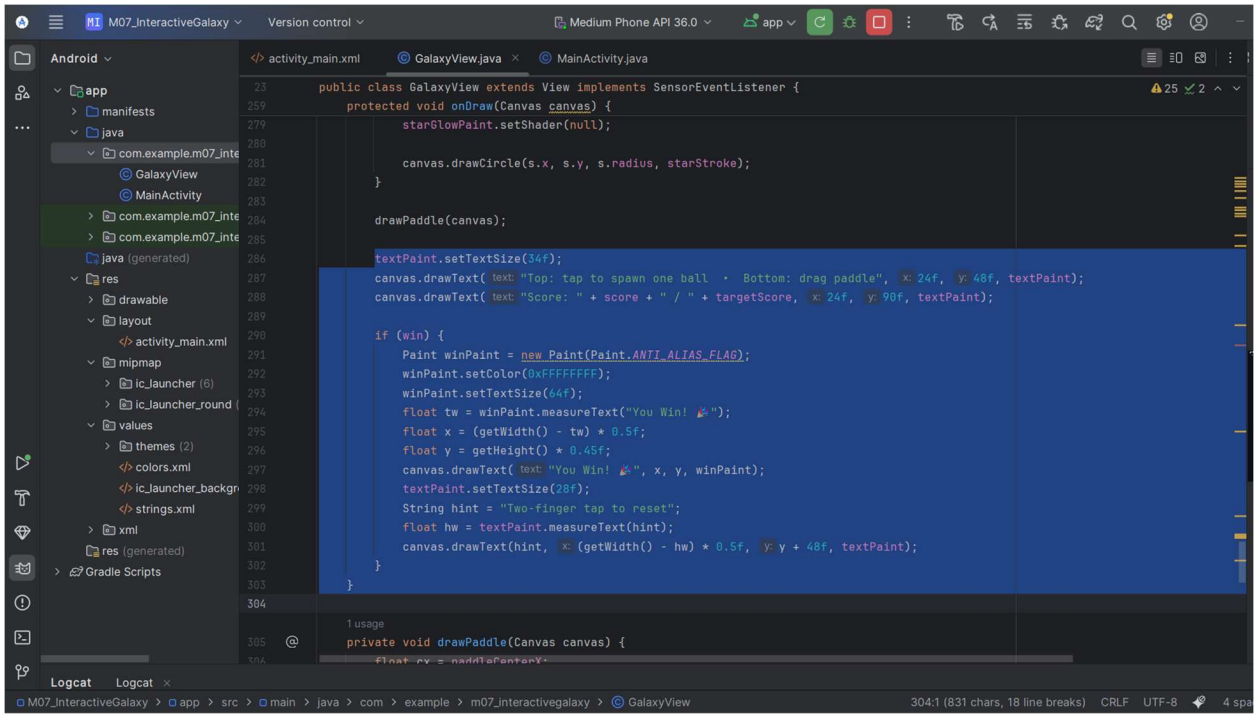
Drawing and Game Updates (GalaxyView.java)

This section draws the paddle, balls, and score on the canvas. It updates the positions continuously to create the animation



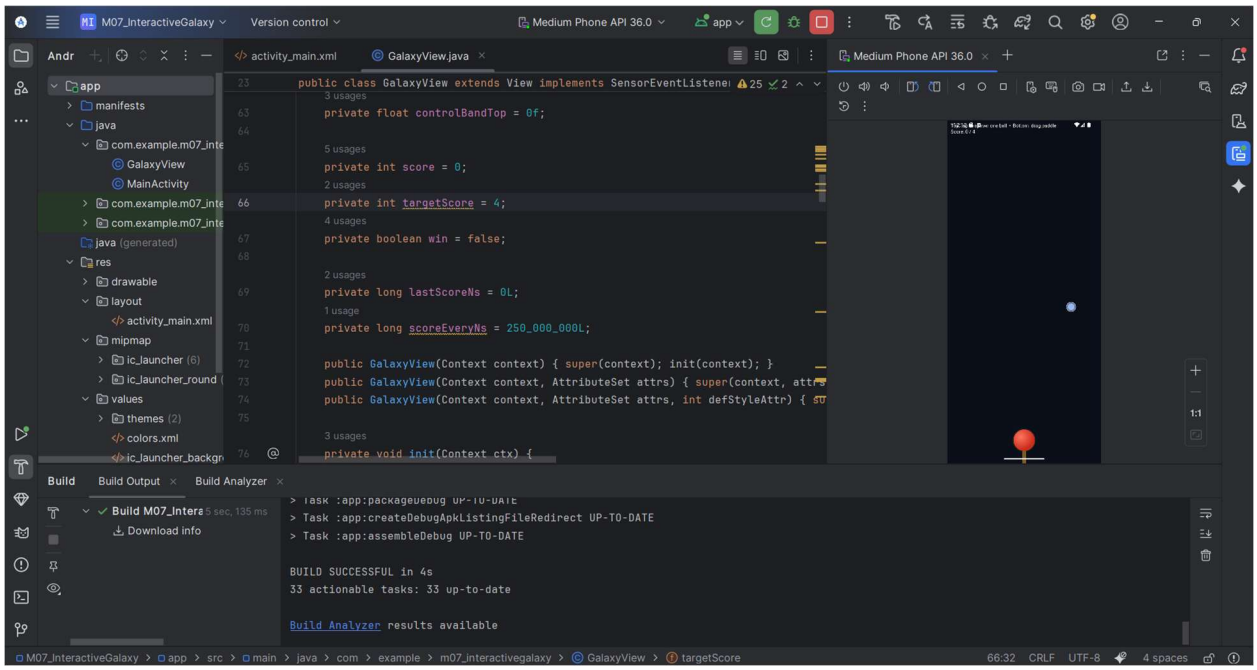
Gravity Sensor Handling (GalaxyView.java)

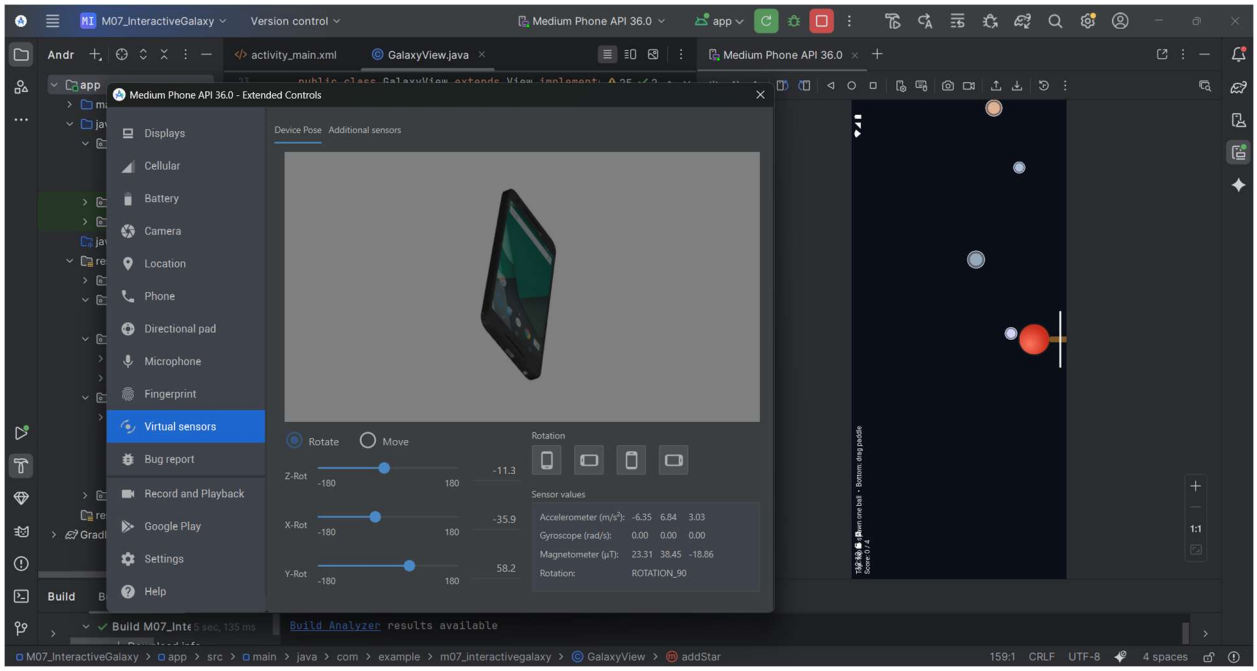
This part receives gravity sensor data and uses it to control the paddle movement in the game

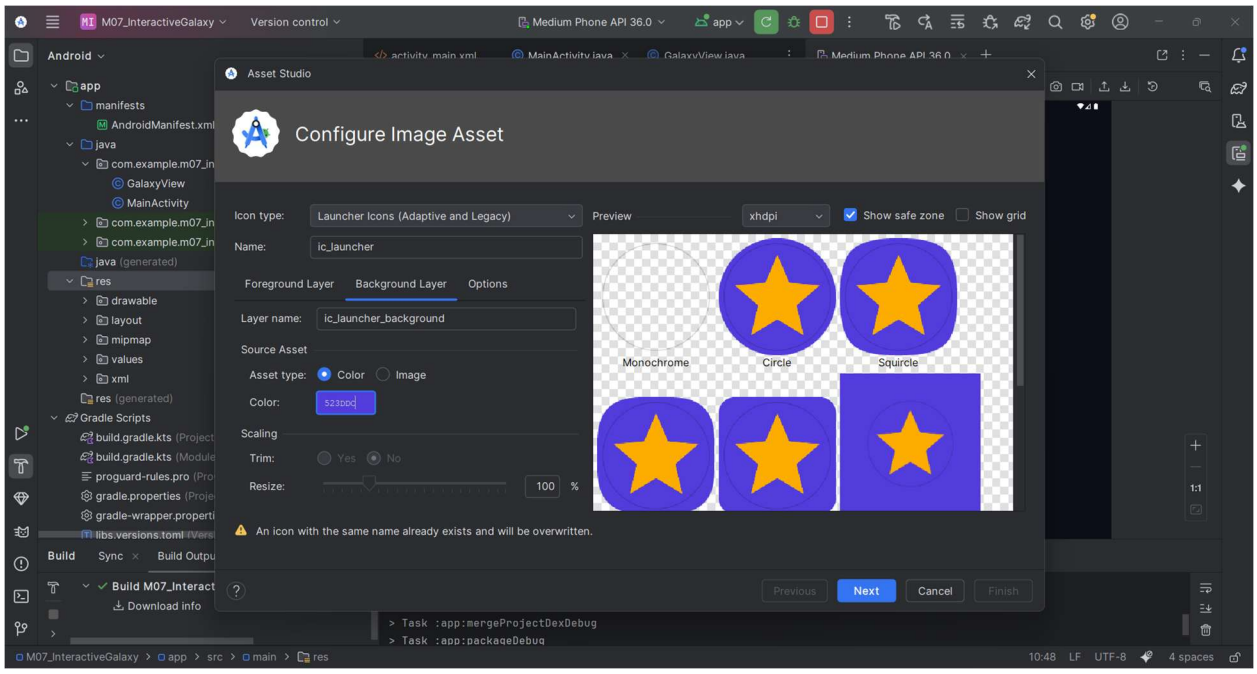


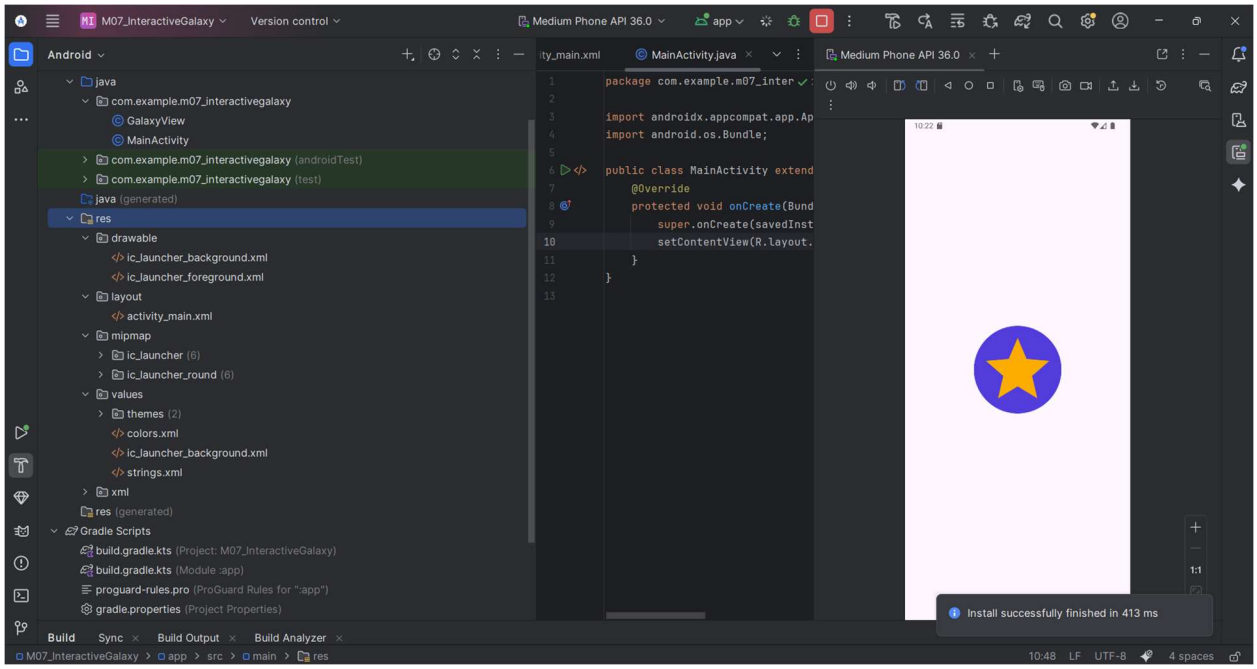
Scoring and Winning Logic (GalaxyView.java)

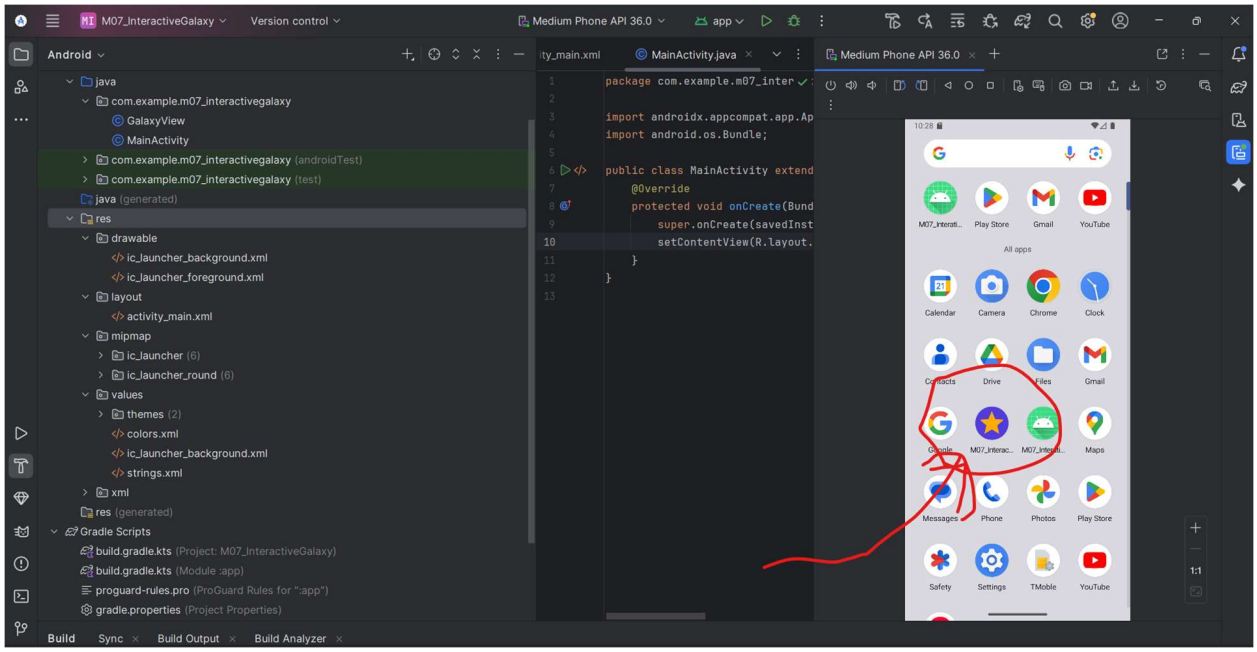
This part of the code increases the score each time the paddle hits a ball and displays a “You Win”message when the player reaches the target score




M07_InteractiveGalaxy
Version control
Medium Phone API 36.0
app
activity_main.xml
GalaxyView.java
Medium Phone API 36.0
Medium Phone API 36.0 - Extended Controls
Displays
Cellular
Battery
Camera
Location
Phone
Directional pad
Microphone
Fingerprint
Virtual sensors
Bug report
Record and Playback
Google Play
Settings
Help
Device Pose
Additional sensors
Rotate
Move
Rotation
Z-Rot
-180
180
-11.3
X-Rot
-180
180
-35.9
Y-Rot
-180
180
58.2
Sensor values
Accelerometer (m/s²): -6.35 6.84 3.03
Gyroscope (rad/s): 0.00 0.00 0.00
Magnetometer (μT): 23.31 38.45 -18.86
Rotation: ROTATION_90
1:1
Build
Build M07_Inte 5 sec, 135 ms
Build Analyzer results available
M07_InteractiveGalaxy › app › src › main › java › com › example › m07_interactivegalaxy › GalaxyView › addStar
159:1
CRLF
UTF-8
4 spaces


Asset Studio
Configure Image Asset
Icon type:
Launcher Icons (Adaptive and Legacy)
Preview
xhdpi
Show safe zone
Show grid
Name:
ic_launcher
Foreground Layer
Background Layer
Options
Layer name:
ic_launcher_background
Source Asset
Asset type:
Color
Image
Color:
523DDC
Scaling
Trim:
Yes
No
Resize:
100
%
Monochrome
Circle
Squircle
An icon with the same name already exists and will be overwritten.
Previous
Next
Cancel
Finish


M07_InteractiveGalaxy
Version control
Medium Phone API 36.0
app
Android
MainActivity.java
Medium Phone API 36.0
java
com.example.m07_interactivegalaxy
GalaxyView
MainActivity
com.example.m07_interactivegalaxy (androidTest)
com.example.m07_interactivegalaxy (test)
java (generated)
res
drawable
ic_launcher_background.xml
ic_launcher_foreground.xml
layout
activity_main.xml
mipmap
ic_launcher (6)
ic_launcher_round (6)
values
themes (2)
colors.xml
ic_launcher_background.xml
strings.xml
xml
res (generated)
Gradle Scripts
build.gradle.kts (Project: M07_InteractiveGalaxy)
build.gradle.kts (Module :app)
proguard-rules.pro (ProGuard Rules for ":app")
gradle.properties (Project Properties)
Install successfully finished in 413 ms
Build
Sync
Build Output
Build Analyzer
M07_InteractiveGalaxy > app > src > main > res
10:48
LF
UTF-8
4 spaces


M07_InteractiveGalaxy
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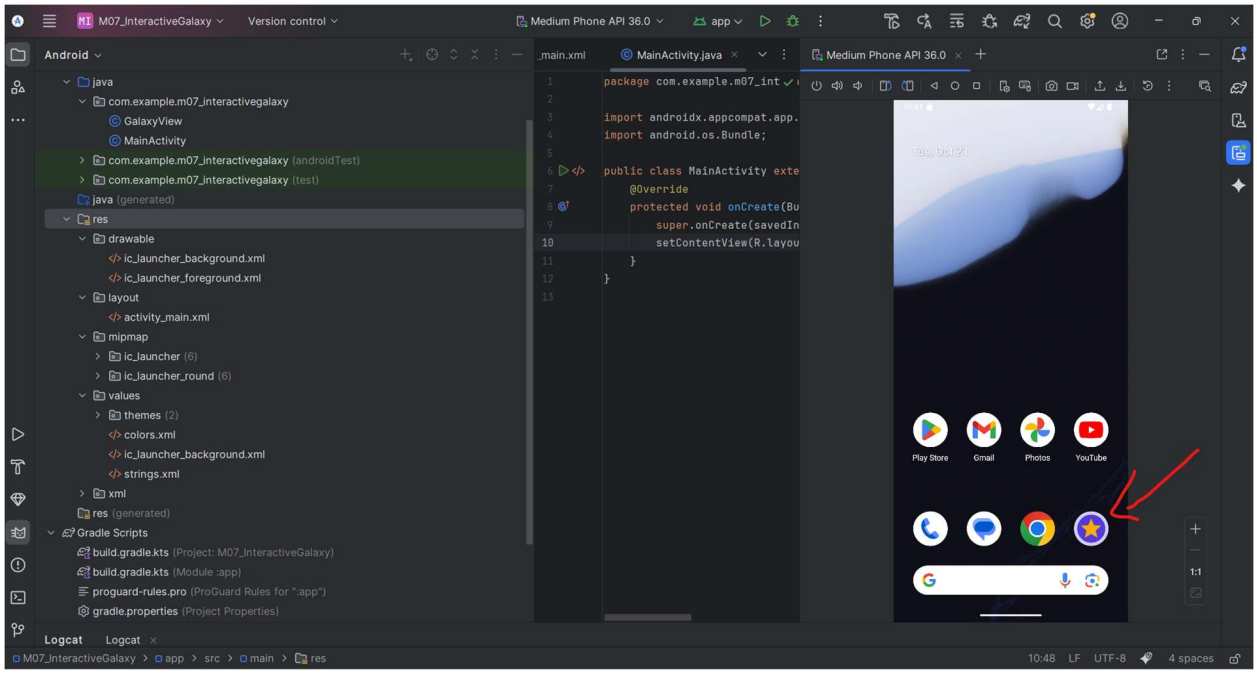
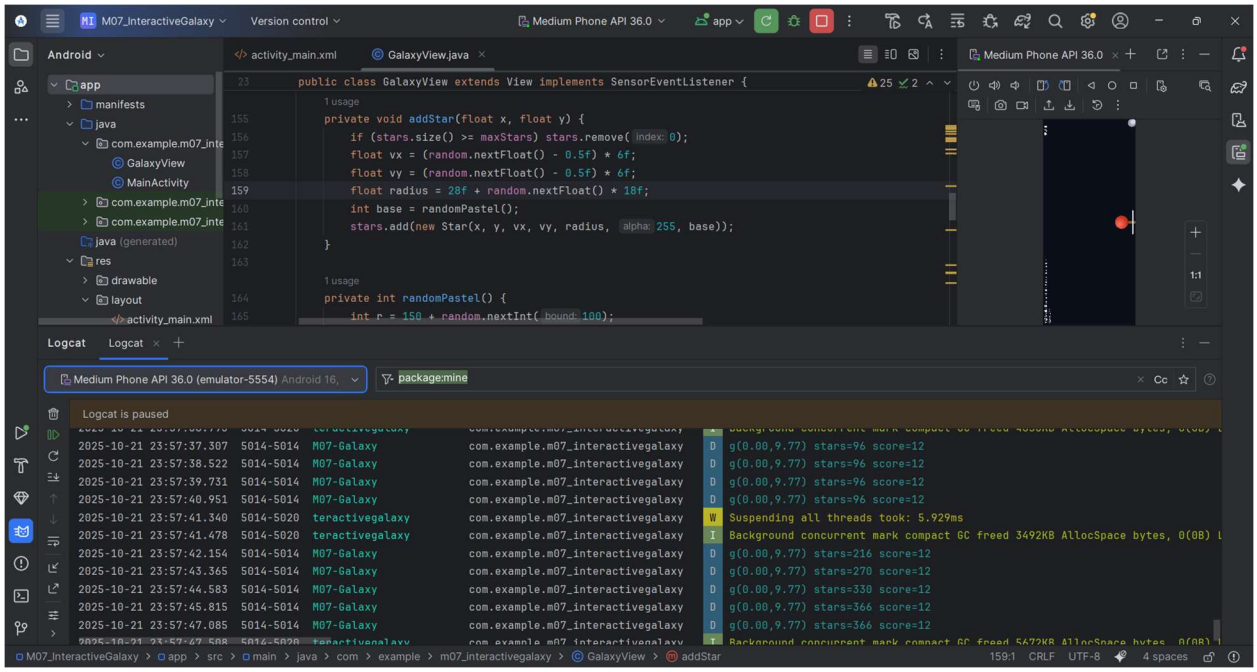
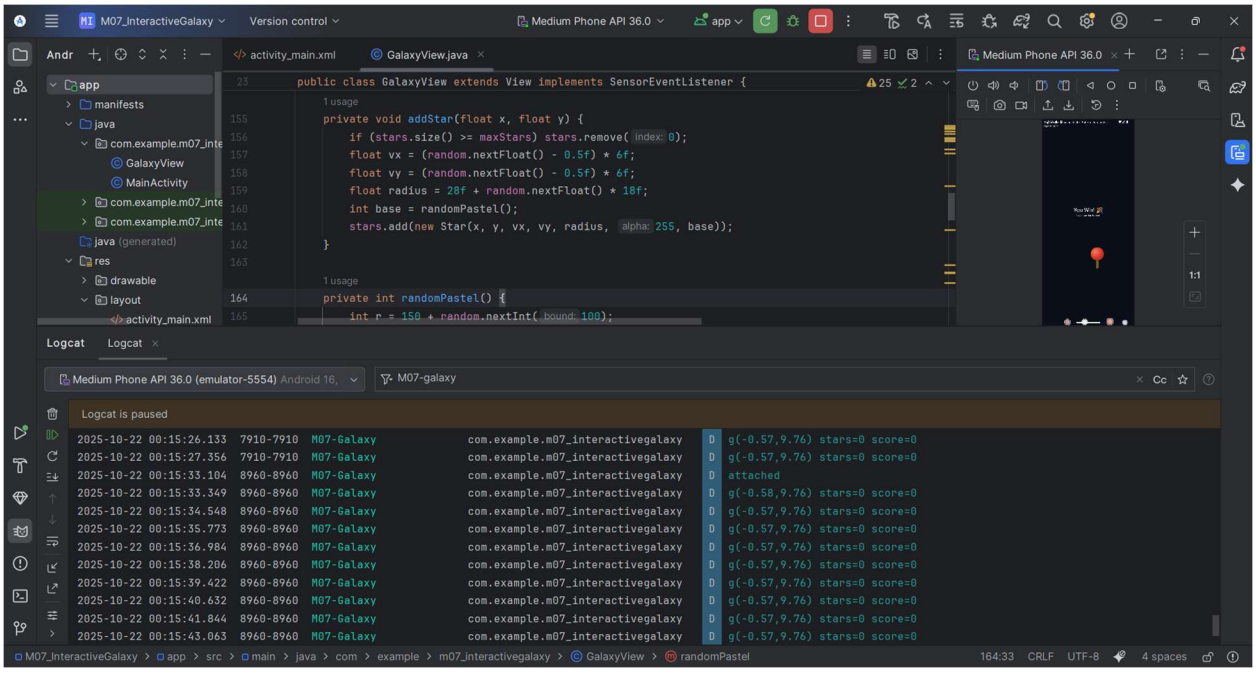
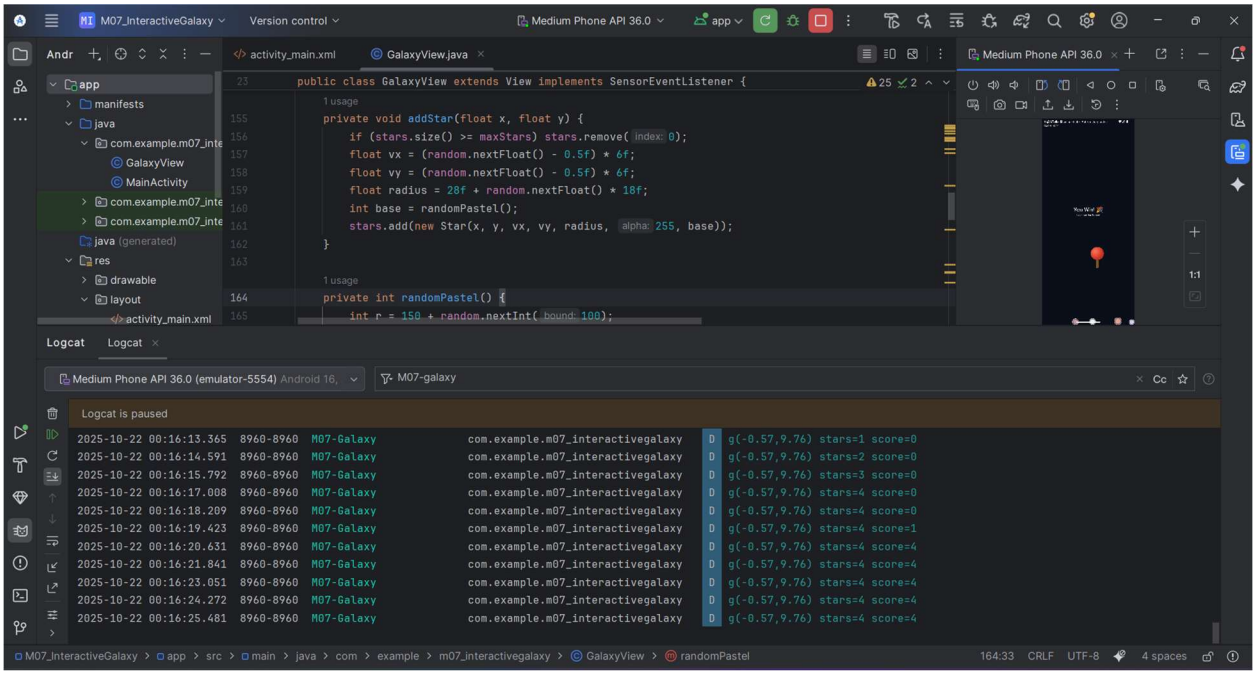
Medium Phone API 36.0
app
Android
MainActivity.java
Medium Phone API 36.0
java
com.example.m07_interactivegalaxy
GalaxyView
MainActivity
com.example.m07_interactivegalaxy (androidTest)
com.example.m07_interactivegalaxy (test)
java (generated)
res
drawable
ic_launcher_background.xml
ic_launcher_foreground.xml
layout
activity_main.xml
mipmap
ic_launcher (6)
ic_launcher_round (6)
values
themes (2)
colors.xml
ic_launcher_background.xml
strings.xml
xml
res (generated)
Gradle Scripts
build.gradle.kts (Project: M07_InteractiveGalaxy)
build.gradle.kts (Module :app)
proguard-rules.pro (ProGuard Rules for ":app")
gradle.properties (Project Properties)
All apps
Calendar
Camera
Chrome
Clock
Drive
Files
Gmail
Maps
Messages
Phone
Photos
Play Store
Safety
Settings
YouTube
Build
Sync
Build Output
Build Analyzer


M07_InteractiveGalaxy
Version control
Medium Phone API 36.0
app
Android
java
com.example.m07_interactivegalaxy
GalaxyView
MainActivity
com.example.m07_interactivegalaxy (androidTest)
com.example.m07_interactivegalaxy (test)
java (generated)
res
drawable
ic_launcher_background.xml
ic_launcher_foreground.xml
layout
activity_main.xml
mipmap
ic_launcher (6)
ic_launcher_round (6)
values
themes (2)
colors.xml
ic_launcher_background.xml
strings.xml
xml
res (generated)
Gradle Scripts
build.gradle.kts (Project: M07_InteractiveGalaxy)
build.gradle.kts (Module :app)
proguard-rules.pro (ProGuard Rules for ":app")
gradle.properties (Project Properties)
_main.xml
MainActivity.java
package com.example.m07_int
import androidx.appcompat.app.
import android.os.Bundle;
public class MainActivity exte
@Override
protected void onCreate(Bu
super.onCreate(savedIn
setContentView(R.layou
}
}
Play Store
Gmail
Photos
YouTube
Logcat
Logcat
M07_InteractiveGalaxy > app > src > main > res
10:48
LF
UTF-8
4 spaces


M07_InteractiveGalaxy
Version control
Medium Phone API 36.0
app
Android
activity_main.xml
GalaxyView.java
app
manifests
java
com.example.m07_inte
GalaxyView
MainActivity
java (generated)
res
drawable
layout
activity_main.xml
public class GalaxyView extends View implements SensorEventListener {
1 usage
private void addStar(float x, float y) {
if (stars.size() >= maxStars) stars.remove(index: 0);
float vx = (random.nextFloat() - 0.5f) * 6f;
float vy = (random.nextFloat() - 0.5f) * 6f;
float radius = 28f + random.nextFloat() * 18f;
int base = randomPastel();
stars.add(new Star(x, y, vx, vy, radius, alpha: 255, base));
}
1 usage
private int randomPastel() {
int r = 150 + random.nextInt(bound: 100);
Medium Phone API 36.0
Logcat
Logcat
Medium Phone API 36.0 (emulator-5554) Android 16,
package:mine
Logcat is paused
2025-10-21 23:57:37.307 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=96 score=12
2025-10-21 23:57:38.522 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=96 score=12
2025-10-21 23:57:39.731 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=96 score=12
2025-10-21 23:57:40.951 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=96 score=12
2025-10-21 23:57:41.340 5014-5020 teractivegalaxy com.example.m07_interactivegalaxy W Suspending all threads took: 5.929ms
2025-10-21 23:57:41.478 5014-5020 teractivegalaxy com.example.m07_interactivegalaxy I Background concurrent mark compact GC freed 3492KB AllocSpace bytes, 0(0B)
2025-10-21 23:57:42.154 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=216 score=12
2025-10-21 23:57:43.365 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=270 score=12
2025-10-21 23:57:44.583 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=330 score=12
2025-10-21 23:57:45.815 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=366 score=12
2025-10-21 23:57:47.085 5014-5014 M07-Galaxy com.example.m07_interactivegalaxy D g(0.00,9.77) stars=366 score=12
M07_InteractiveGalaxy > app > src > main > java > com > example > m07_interactivegalaxy > GalaxyView > addStar
159:1
CRLF
UTF-8
4 spaces





Logcat output confirming that the app runs successfully without any errors