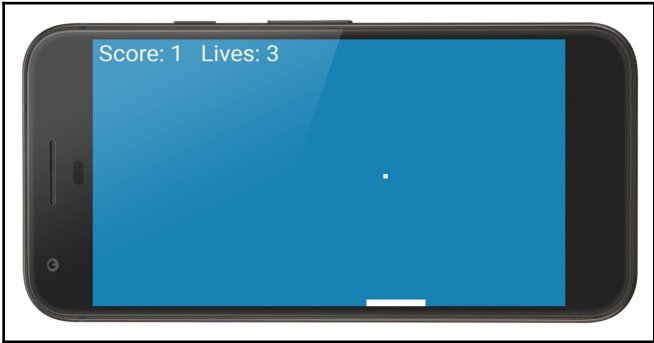
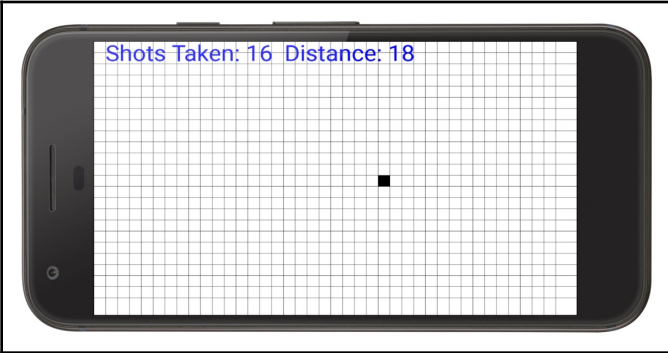
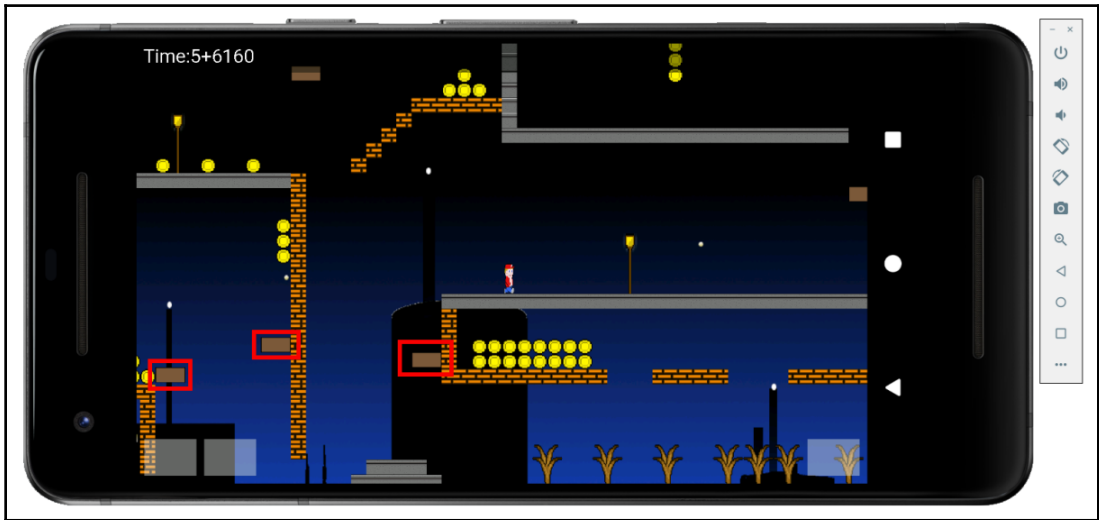
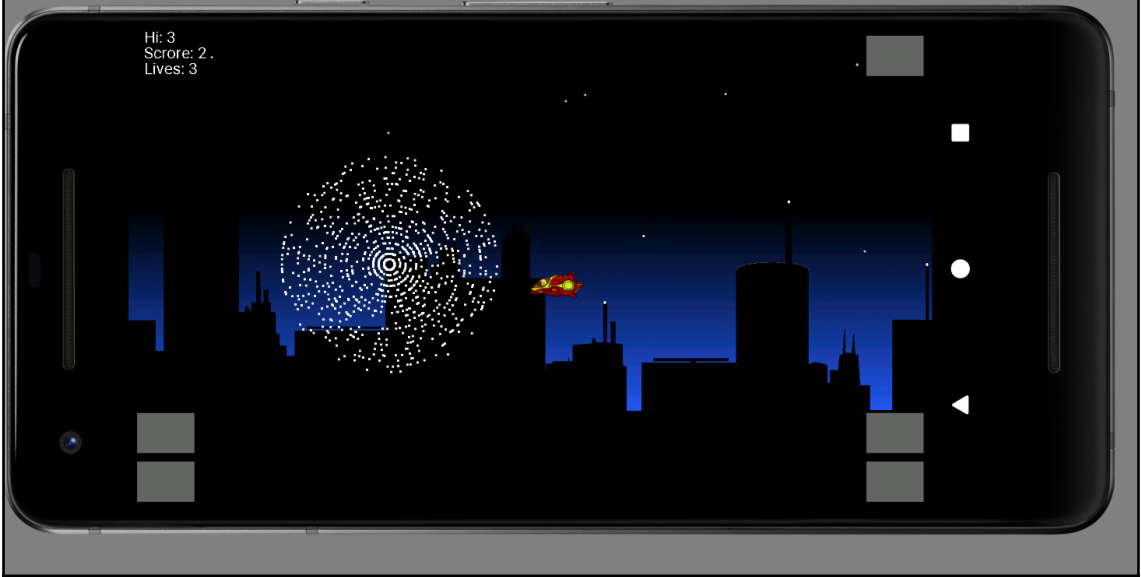
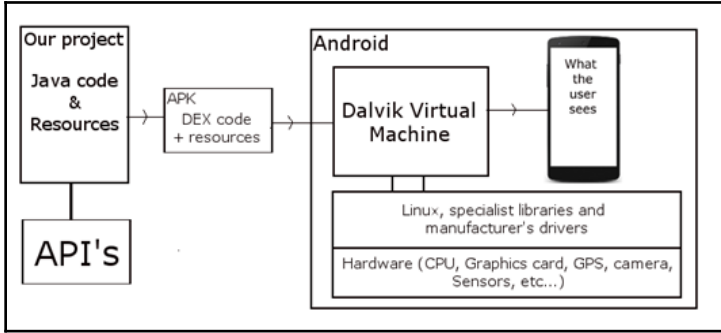
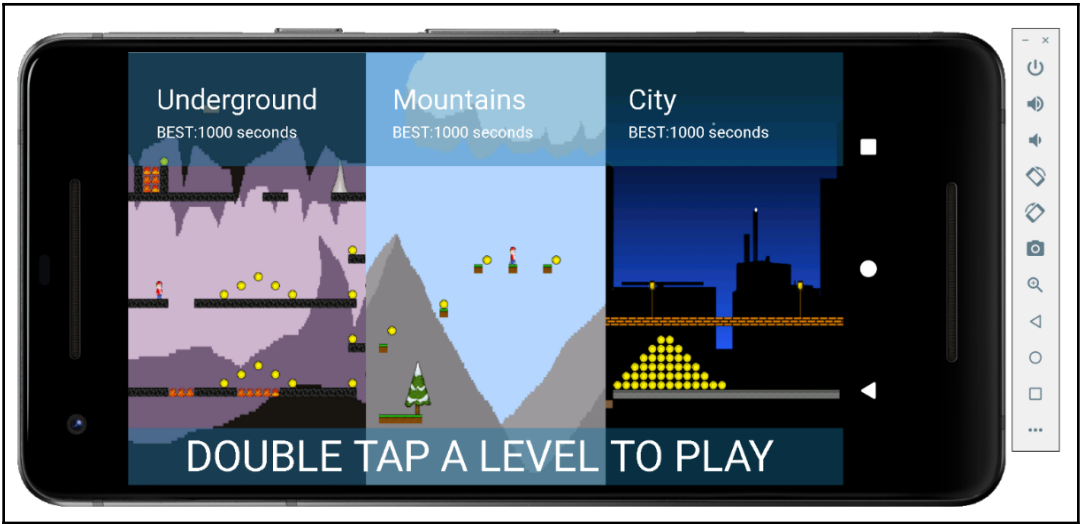


# Chapter 1: Java, Android, and Game Development









# Android Studio

The Official IDE for Android

Android Studio provides the fastest tools for building apps on every type of Android device.

World-class code editing, debugging, performance tooling, a flexible build system, and an instant build/deploy system all allow you to focus on building unique and high quality apps.

[DOWNLOAD ANDROID STUDIO](#)  
3.0.1 FOR WINDOWS (683 MB)

[Read the docs](#)   [See the release notes](#)

## Download Android Studio

Before downloading, you must agree to the following terms and conditions.

### Terms and Conditions

This is the Android Software Development Kit License Agreement

#### 1. Introduction

1.1 The Android Software Development Kit (referred to in the License Agreement as the "SDK" and specifically including the Android system files, packaged APIs, and Google APIs add-ons) is licensed to you subject to the terms of the License Agreement. The License Agreement forms a legally binding contract between you and Google in relation to your use of the SDK.

1.2 "Android" means the Android software stack for devices, as made available under the Android Open Source Project, which is located at the following URL: <http://source.android.com/>, as updated from time to time.

1.3 A "compatible implementation" means any Android device that (i) complies with the Android Compatibility Definition document, which

I have read and agree with the above terms and conditions

**DOWNLOAD ANDROID STUDIO FOR WINDOWS**

### Android Studio Setup

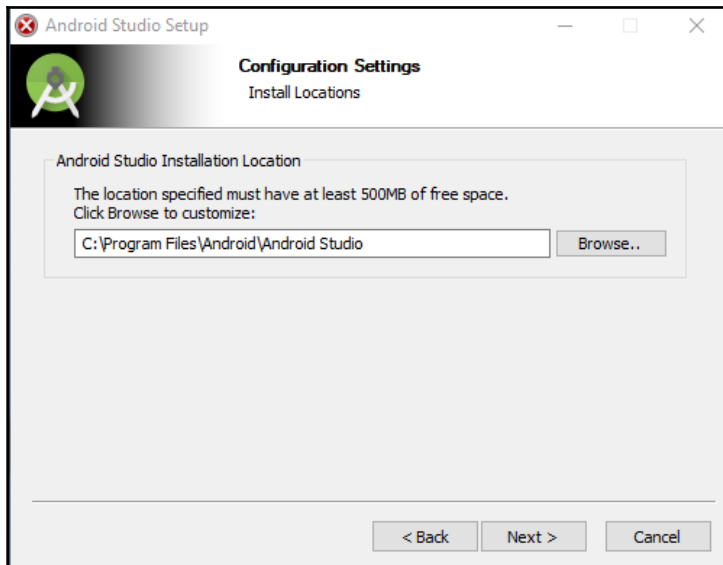
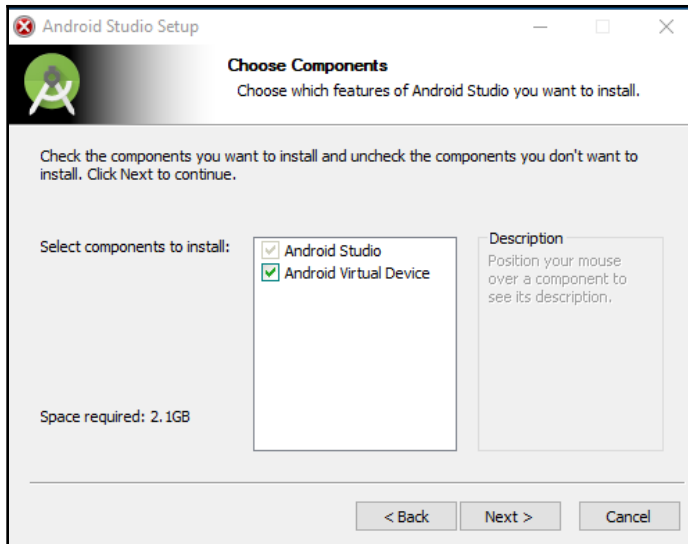
## Welcome to Android Studio Setup

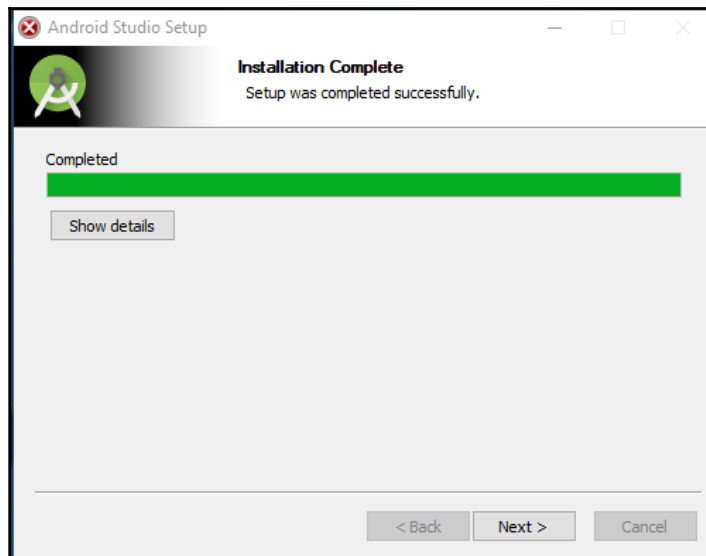
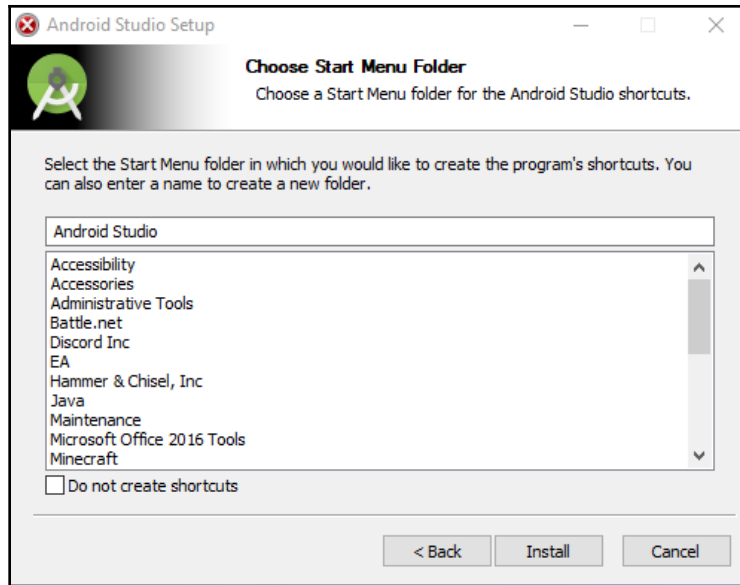
Setup will guide you through the installation of Android Studio.

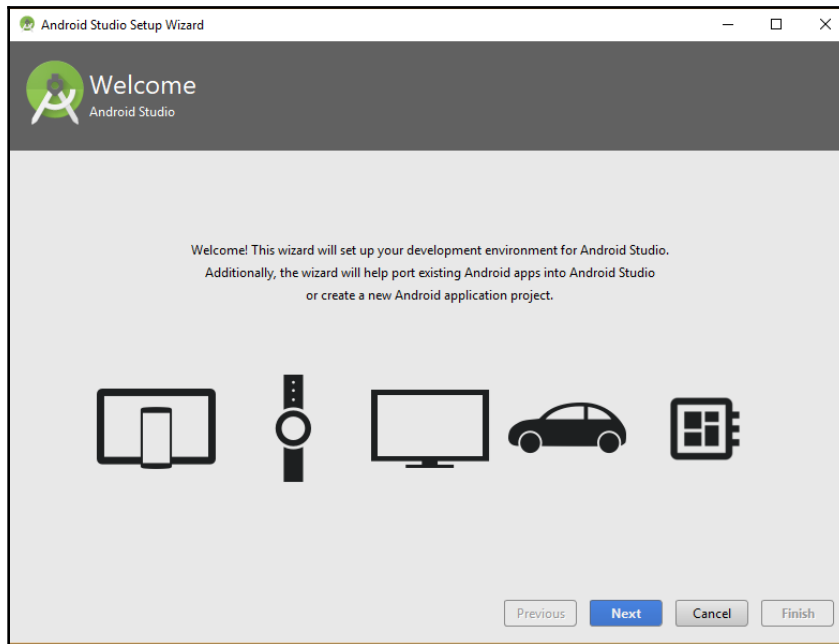
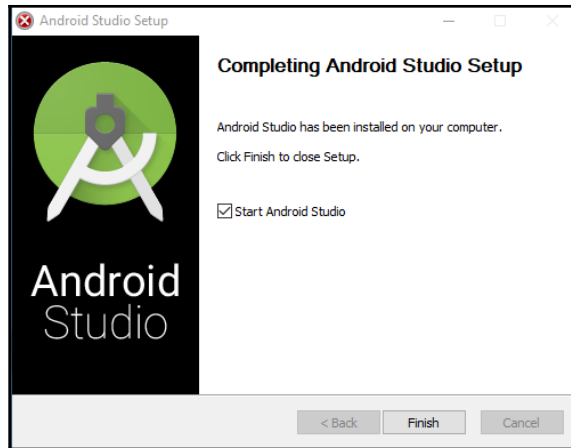
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.

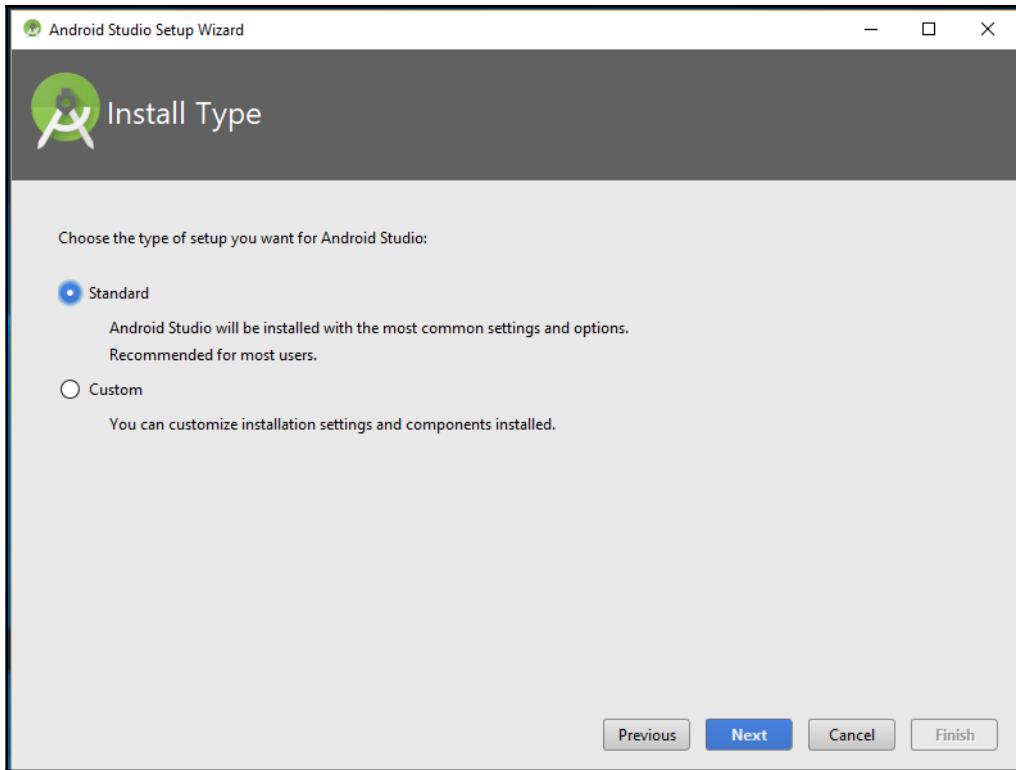
< Back   **Next >**   Cancel

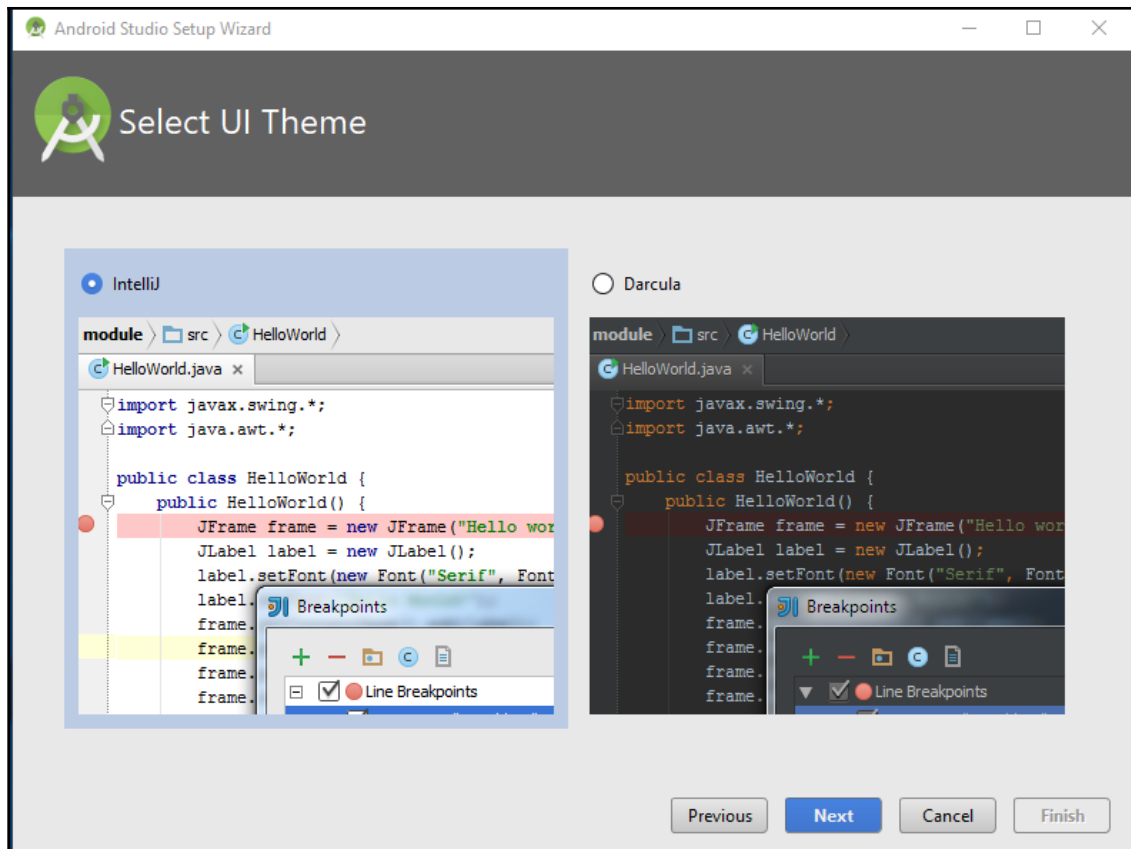


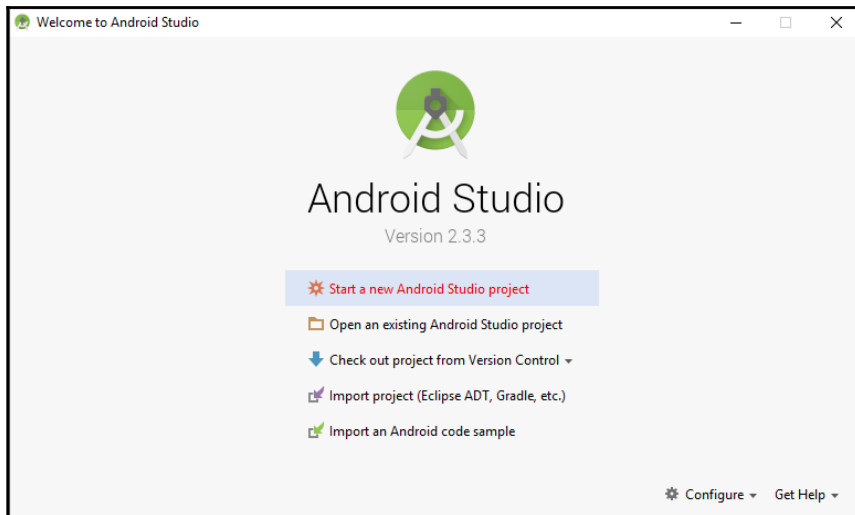
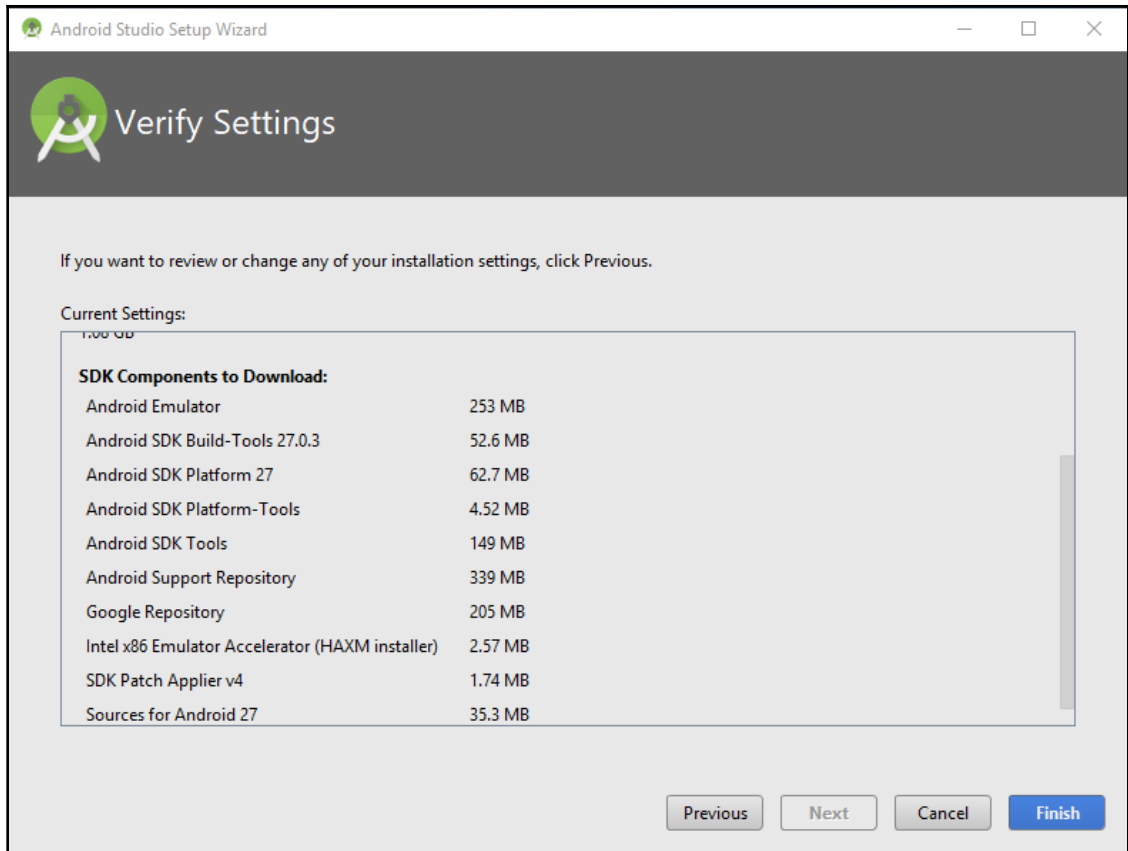


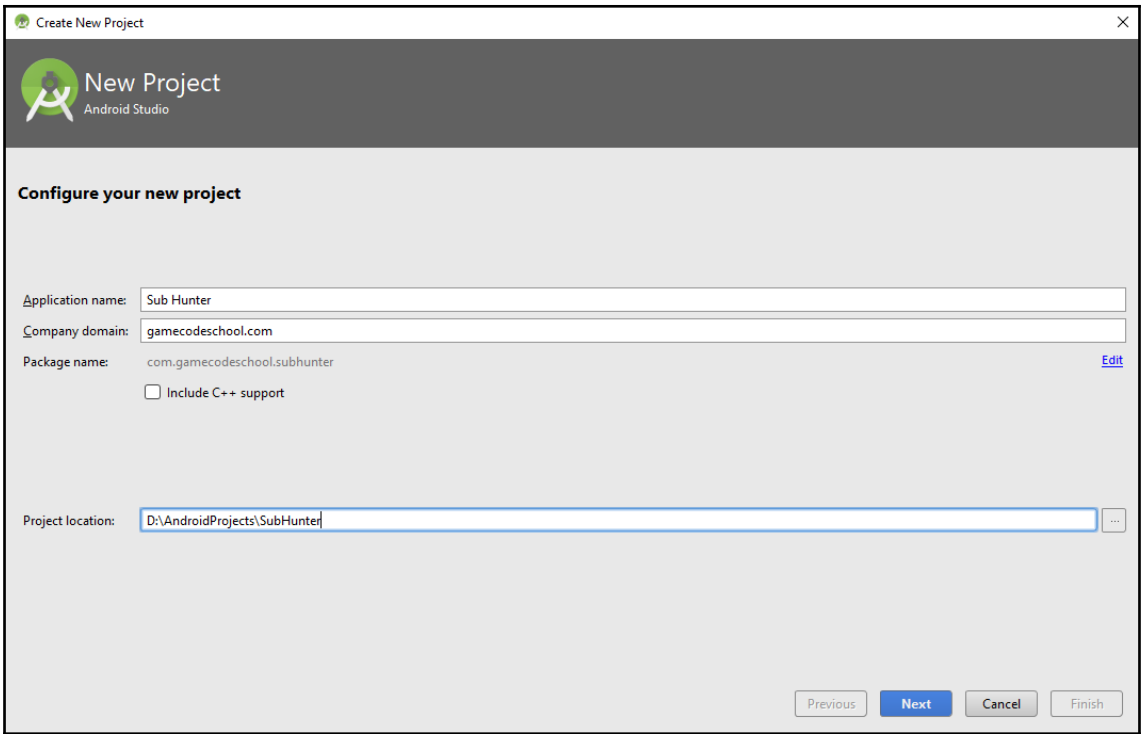












Create New Project

## Target Android Devices

**Select the form factors your app will run on**

Different platforms may require separate SDKs

Phone and Tablet

Minimum SDK: API 15: Android 4.0.3 (IceCreamSandwich)

Lower API levels target more devices, but have fewer features available.  
By targeting API 15 and later, your app will run on approximately **100.0%** of the devices that are active on the Google Play Store.  
[Help me choose](#)

Wear

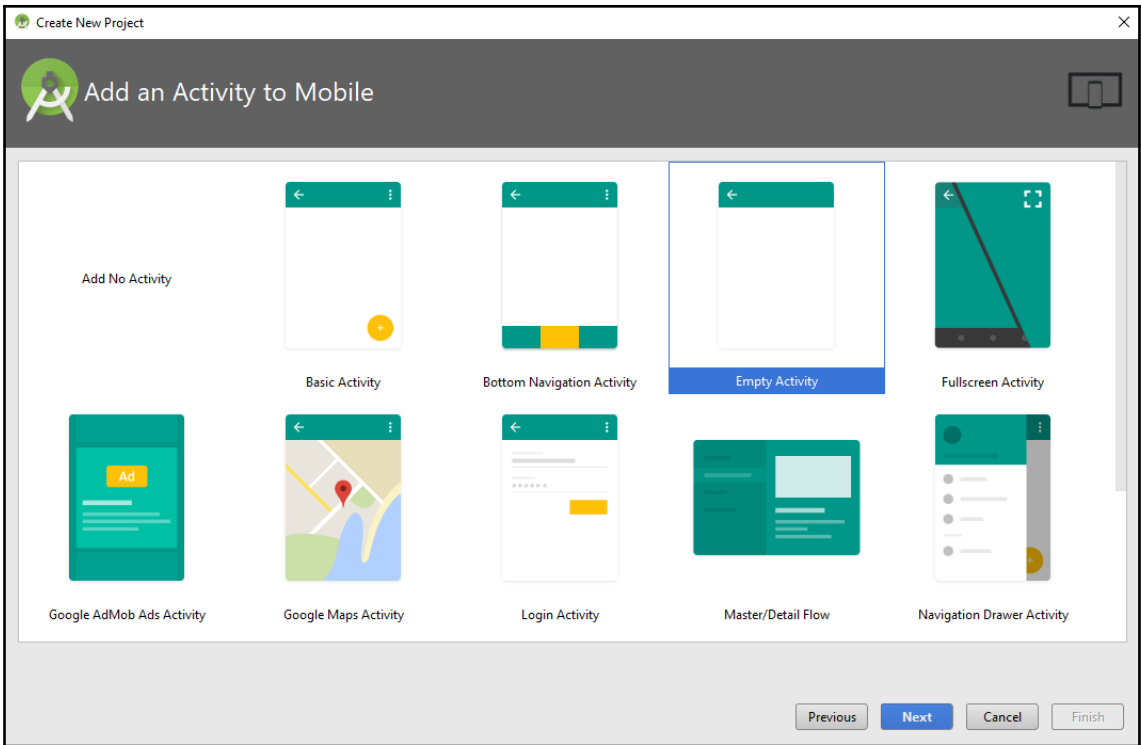
Minimum SDK: API 21: Android 5.0 (Lollipop)

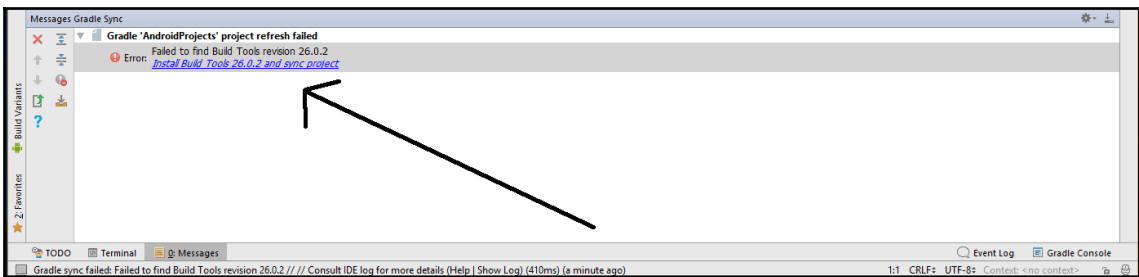
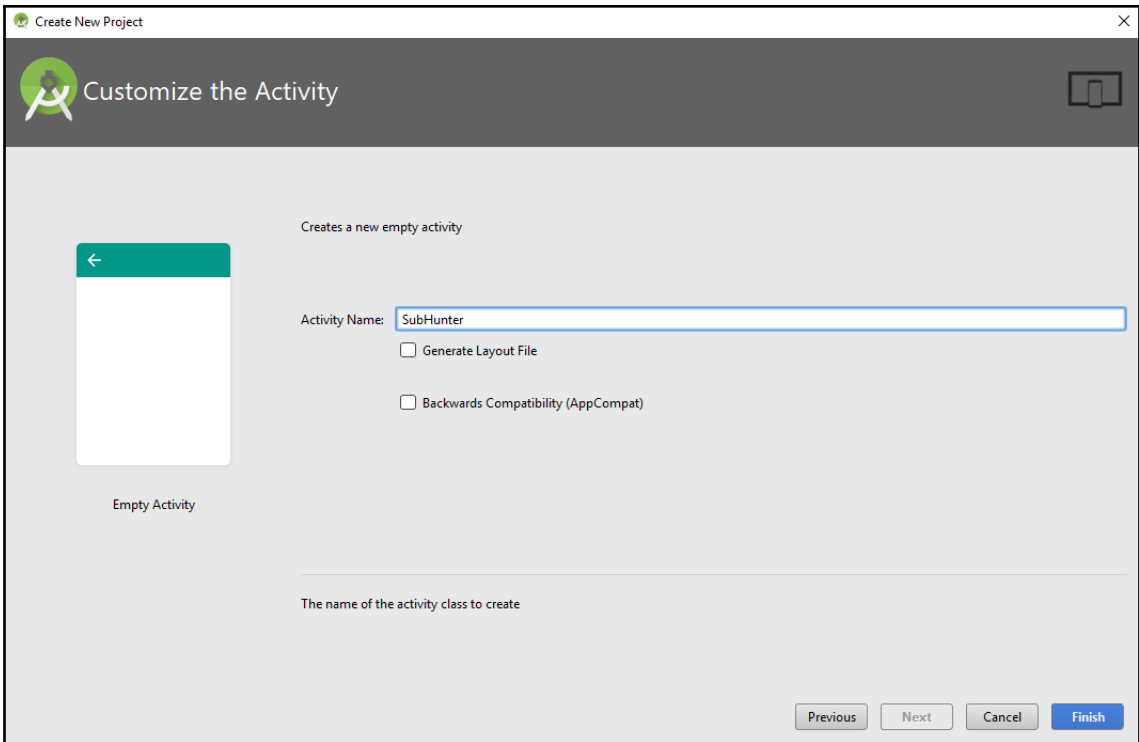
TV

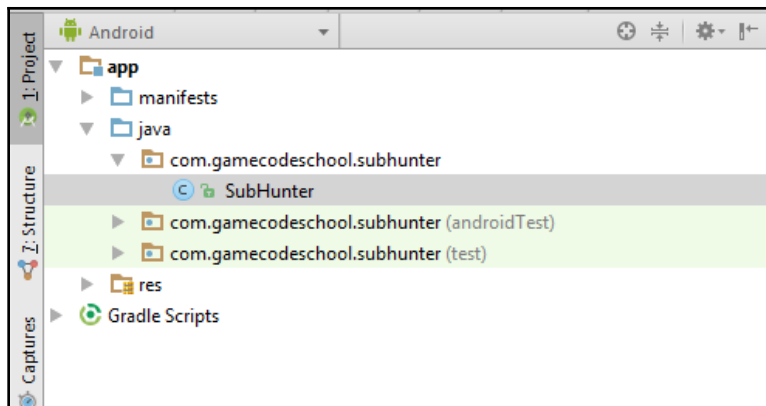
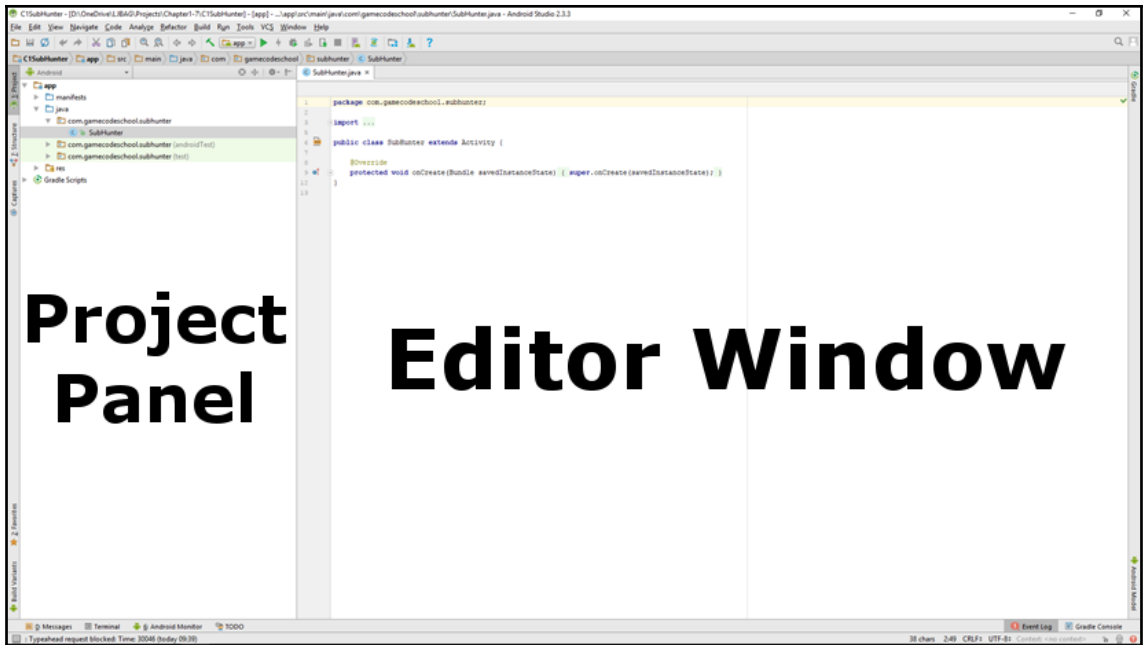
Minimum SDK: API 21: Android 5.0 (Lollipop)

Android Auto

Previous Next Cancel Finish

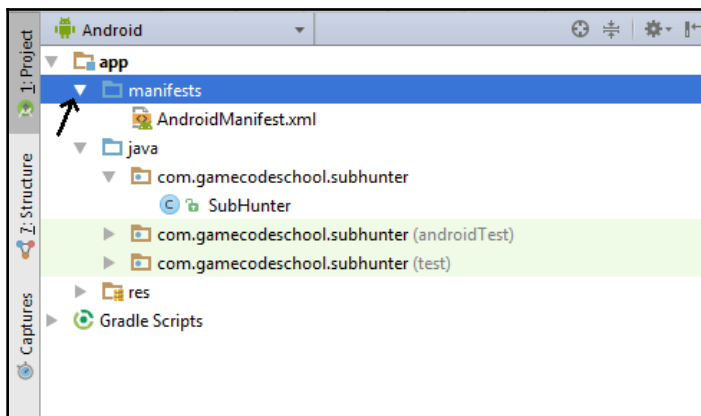




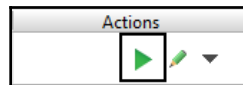
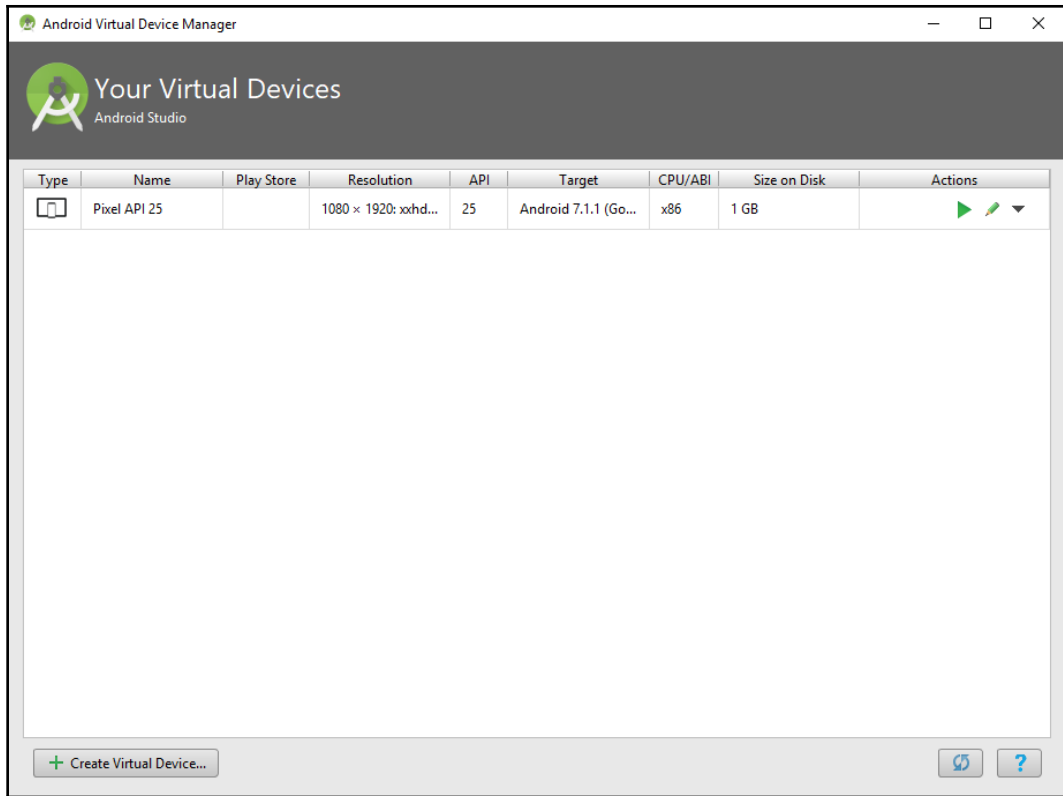


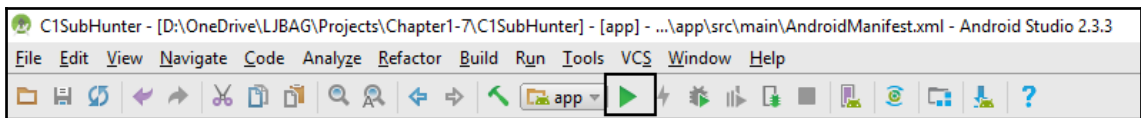
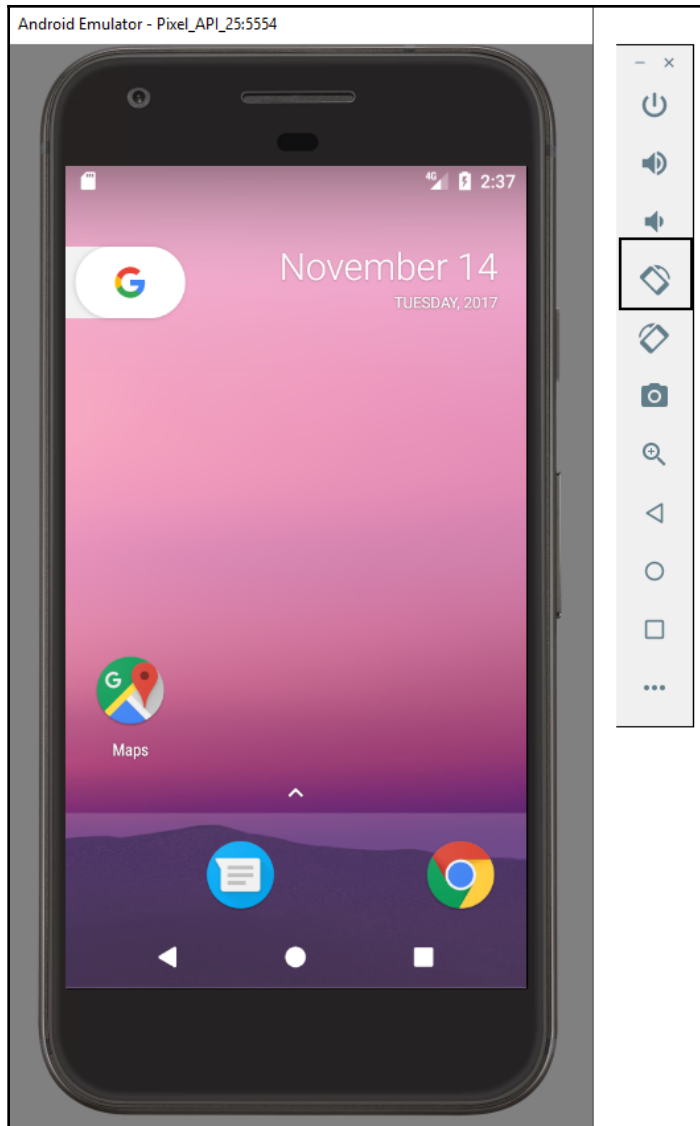


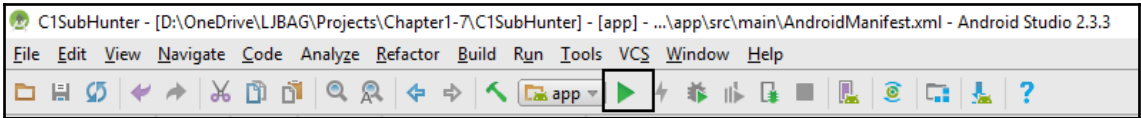
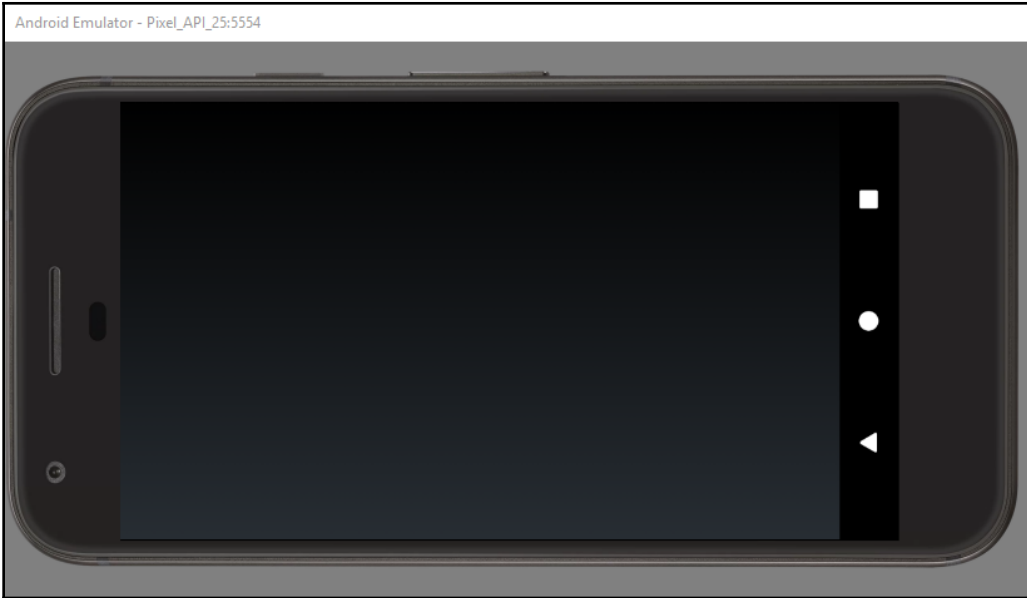
```
SubHunter.java x
1 package com.gamecodeschool.subhunter;
2
3 import ...
4
5
6 public class SubHunter extends Activity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); }
10
11
12
13
```



```
1  <?xml version="1.0" encoding="utf-8"?>
2  <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3         package="com.gamecodeschool.subhunter">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="Sub Hunter"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12        <activity android:name=".SubHunter">
13            <intent-filter>
14                <action android:name="android.intent.action.MAIN" />
15
16                <category android:name="android.intent.category.LAUNCHER" />
17            </intent-filter>
18        </activity>
19    </application>
20
21 </manifest>
```

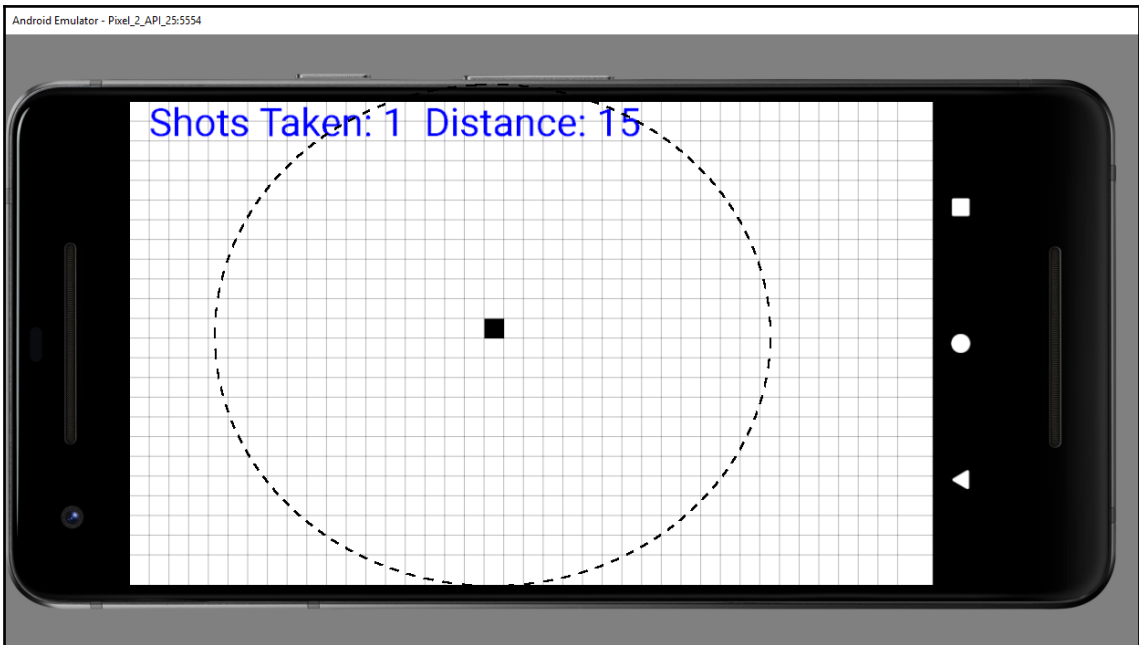
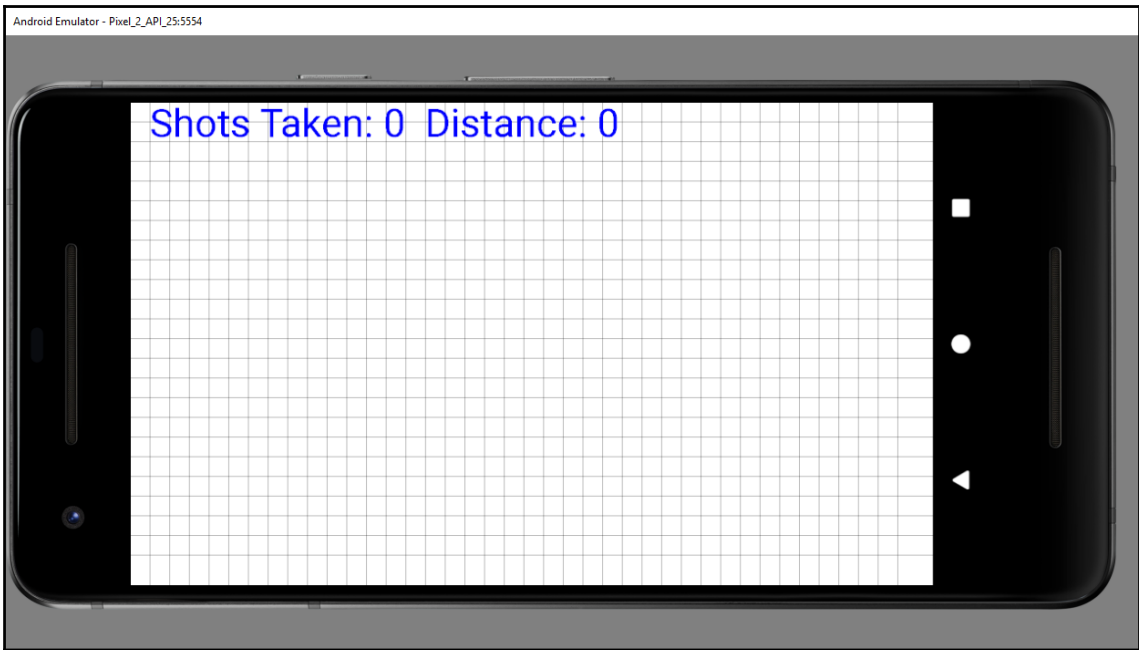


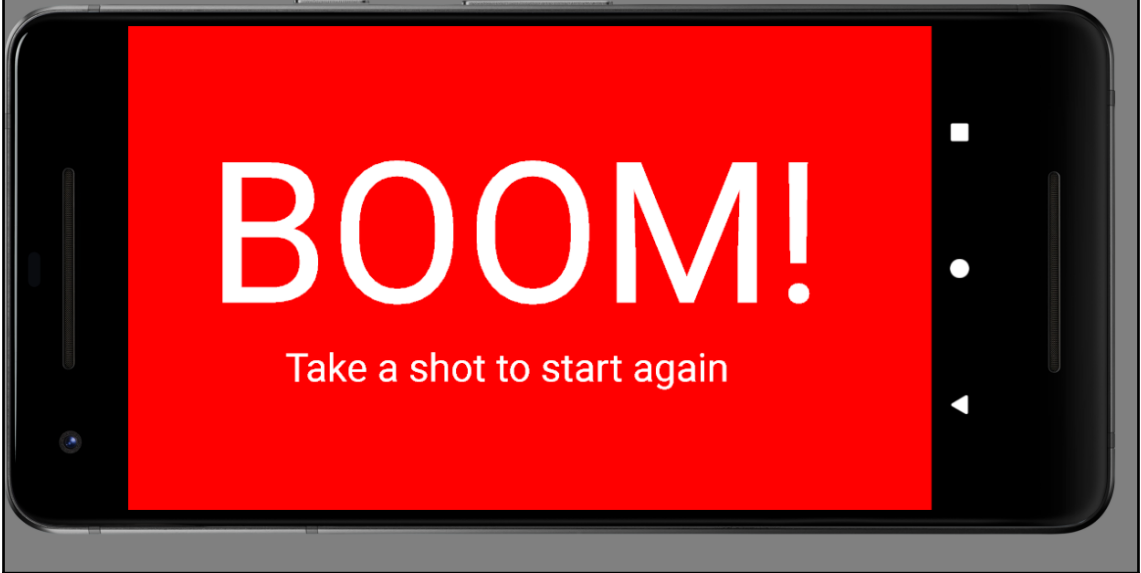




---

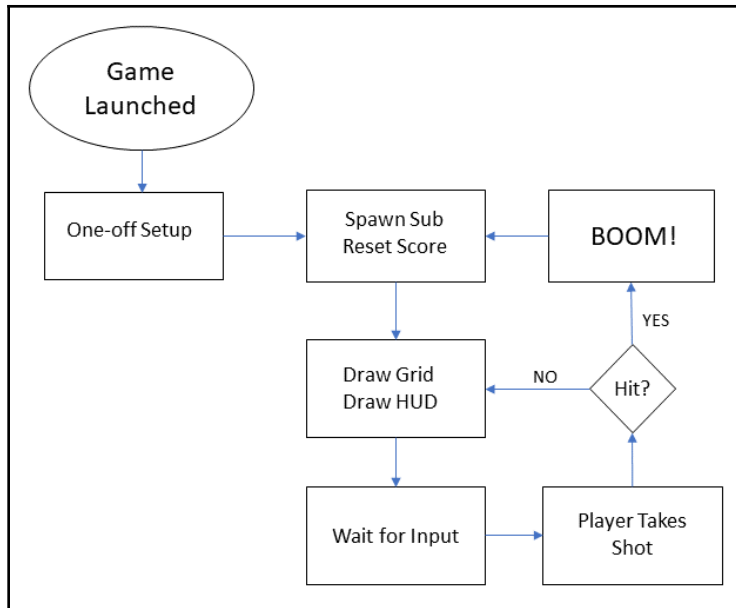
## Chapter 2: Java – First Contact





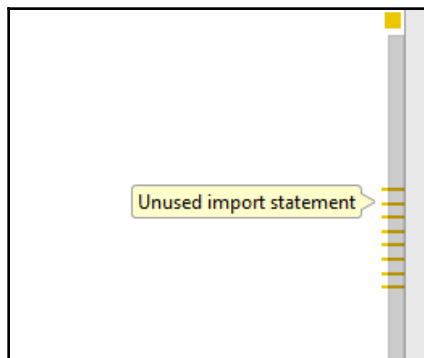
Shots Taken: 1 Distance: 9

```
numberHorizontalPixels = 1794  
numberVerticalPixels = 1080  
blockSize = 44  
gridWidth = 40  
gridHeight = 24  
horizontalTouched = 19.0  
verticalTouched = 12.0  
subHorizontalPosition = 26  
subVerticalPosition = 6  
hit = false  
shotsTaken = 1  
debugging = true
```



```

SubHunter.java x AndroidManifest.xml x
1 package com.gamecodeschool.subhunter;
2
3 import ...
4
5
6 public class SubHunter extends Activity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); }
10
11
12 }
  
```





```

90
91 // This code prints the debugging text
92 void printDebuggingText() {
93
94 }
95 }
96

```

Build Variants | 2 Favorites | Run | TODO | Android Monitor | Terminal | Messages | Gradle build finished in 45 106ms (a minute ago)

```

logcat Monitors -*
11-16 08:54:35.429 3170-3170/com.gamecodeschool.c2subhunter I/art: Not late-enabling -Xcheck:jni (already on)
11-16 08:54:35.429 3170-3170/com.gamecodeschool.c2subhunter W/art: Unexpected CPU variant for X86 using defaults: x86
11-16 08:54:35.521 3170-3170/com.gamecodeschool.c2subhunter W/System: ClassLoader referenced unknown path: /data/app/com.gamecodeschool.c2subhunter-1/lib/x86
11-16 08:54:35.540 3170-3170/com.gamecodeschool.c2subhunter I/InstantRun: starting instant run server: is main process
11-16 08:54:35.551 3170-3170/com.gamecodeschool.c2subhunter D/Debugging: In onCreate
11-16 08:54:35.552 3170-3170/com.gamecodeschool.c2subhunter D/Debugging: In newGame
11-16 08:54:35.552 3170-3170/com.gamecodeschool.c2subhunter D/Debugging: In draw
11-16 08:54:35.620 3170-3186/com.gamecodeschool.c2subhunter I/OpenGLRenderer: Initialized EGL, version 1.4
11-16 08:54:35.620 3170-3186/com.gamecodeschool.c2subhunter D/OpenGLRenderer: Swap behavior 1
11-16 08:54:35.621 3170-3186/com.gamecodeschool.c2subhunter W/OpenGLRenderer: Failed to choose config with EGL_SWAP_BEHAVIOR_PRESERVED, retrying without...
11-16 08:54:35.621 3170-3186/com.gamecodeschool.c2subhunter D/OpenGLRenderer: Swap behavior 0

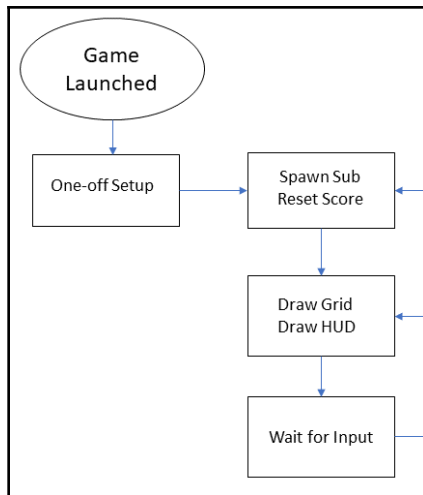
```

Run | TODO | Android Monitor | Terminal | Messages

```

11-16 08:54:35.551 3170-3170/com.gamecodeschool.c2subhunter D/Debugging: In onCreate
11-16 08:54:35.552 3170-3170/com.gamecodeschool.c2subhunter D/Debugging: In newGame
11-16 08:54:35.552 3170-3170/com.gamecodeschool.c2subhunter D/Debugging: In draw

```



---

# Chapter 3: Variables, Operators, and Expressions

```
int score = "Jeff Minter";
```

Incompatible types.  
Required: **int**  
Found: **java.lang.String**

```
int a;  
// That's me declared and ready to go?  
// The line below attempts to output a to the console  
Log.i("debugging", "a = " + a);
```

Variable 'a' might not have been initialized

```
// These are all the classes of other people's  
// (Android) code that we use in Sub Hunt  
import android.app.Activity;  
import android.os.Bundle;  
import android.view.MotionEvent;  
import android.util.Log;  
import android.graphics.Bitmap;  
import android.graphics.Canvas;  
import android.graphics.Color;  
import android.graphics.Paint;  
import android.graphics.Point;  
import android.view.Display;  
import android.widget.ImageView;  
import java.util.Random;
```


---

```
int a = 4
```

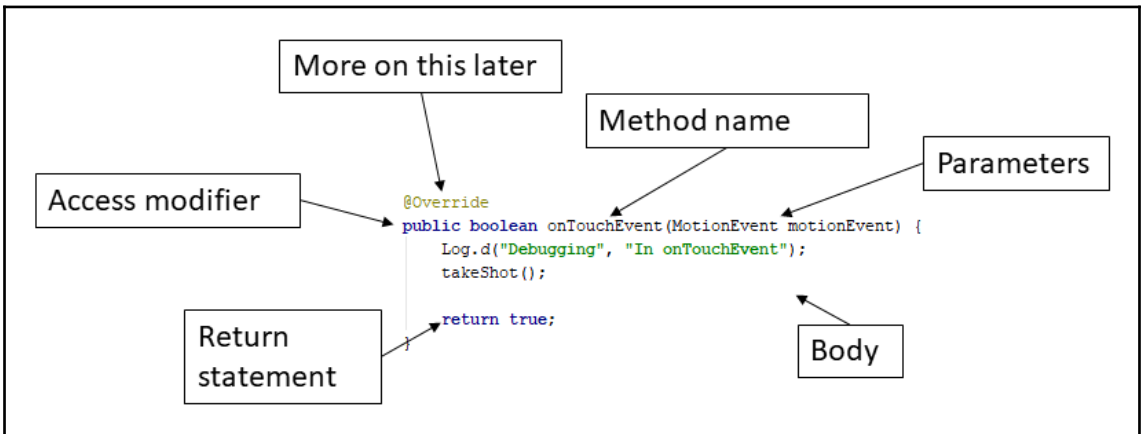
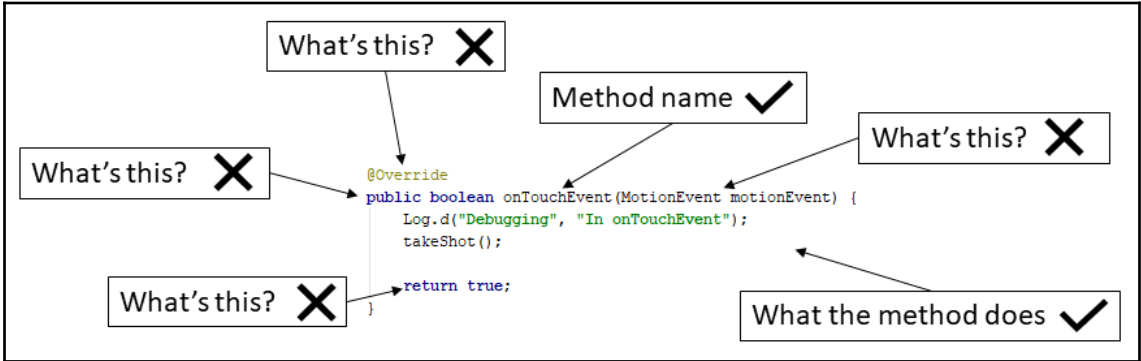
}; expected

```
inta = 4;
```

Cannot resolve symbol 'inta'

Method 'boom()' is never used

# Chapter 4: Structuring Code with Java Methods



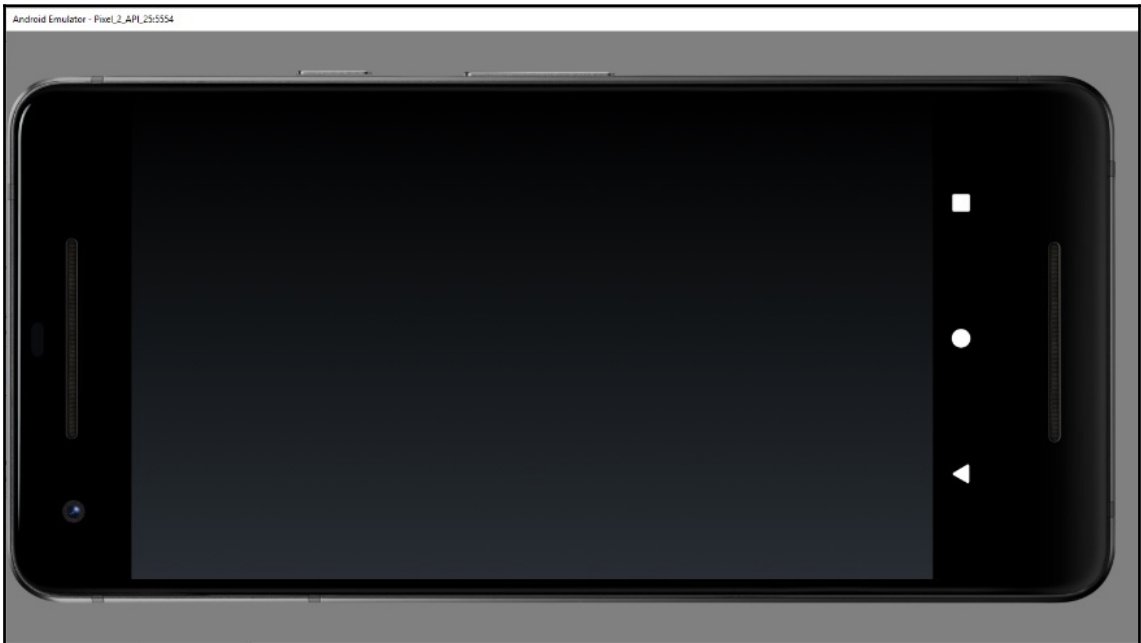
```
void someMethod() {  
    // Don't do this  
    return 1;  
}
```

Cannot return a value from a method with void result type

```
12
13
14 ? android.util.Log? Alt+Enter int myInt){
15 Log.i("info", "This is the int only version");
16 Log.i("info", "myInt = "+ myInt);
17 }
18
19
```

```
29
30 void printStuff(int myInt, String myString){
31 Log.i("info", "myInt = "+ myInt + " and myString = " + myString);
32 }
33 Log.i("info", "myString = "+ myString);
34 }
35
```

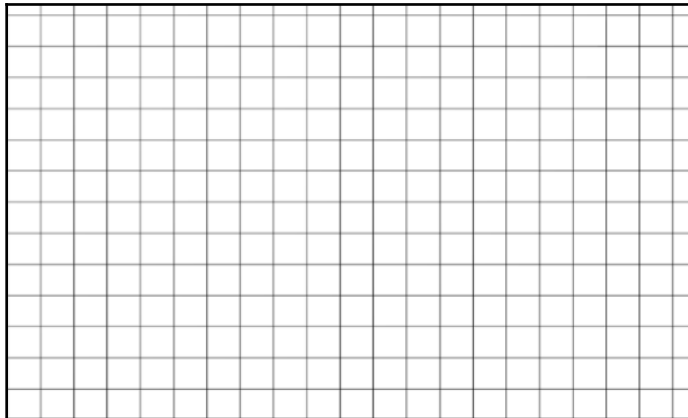
'printStuff(int, String)' is already defined in 'com.gamecodeschool.exploringmethodoverloading.MainActivity'

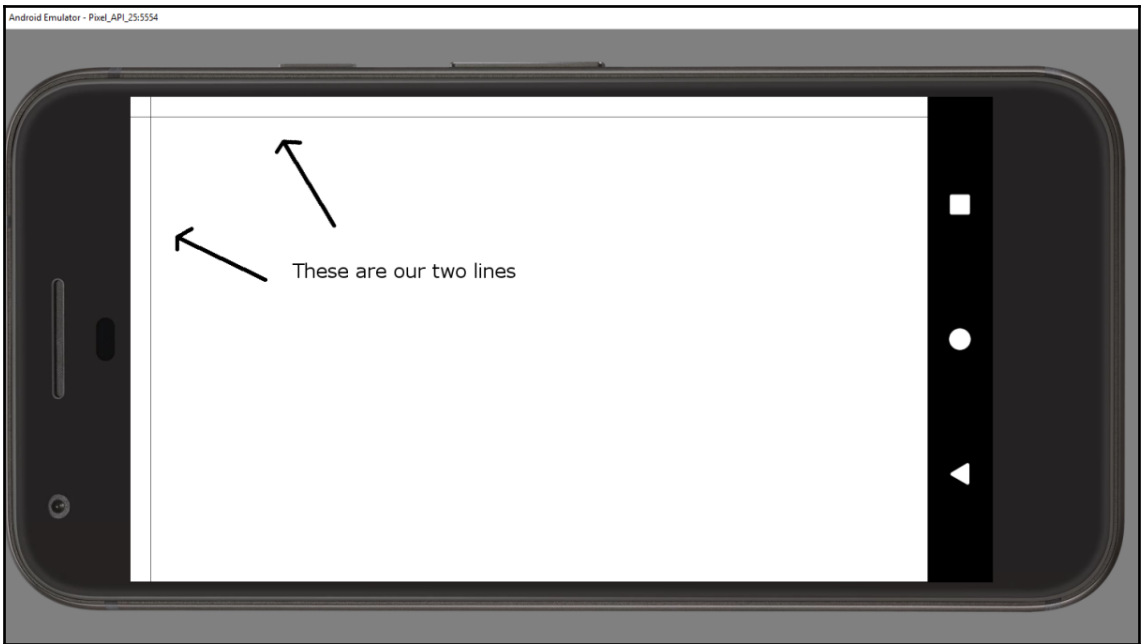
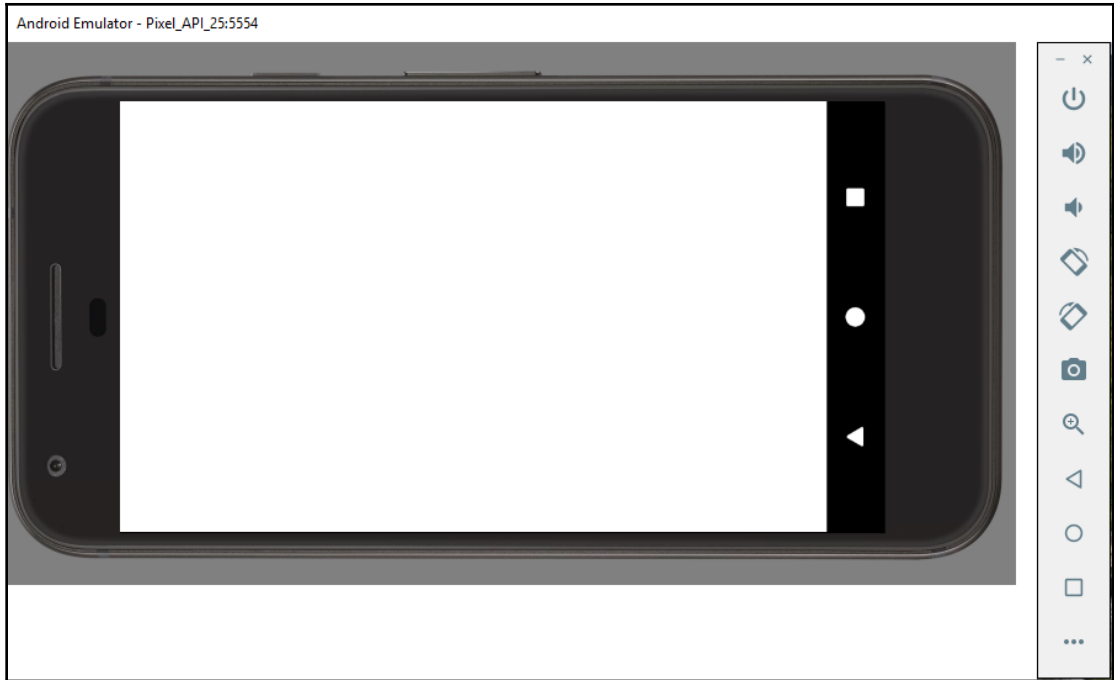


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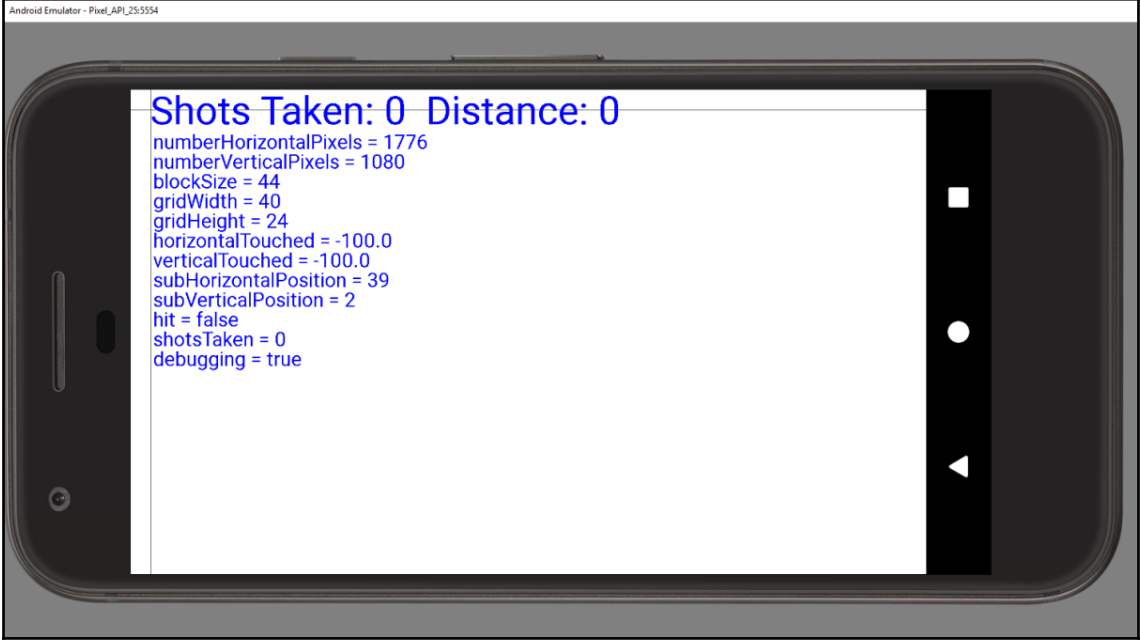
## Chapter 5: The Android Canvas Class – Drawing to the Screen







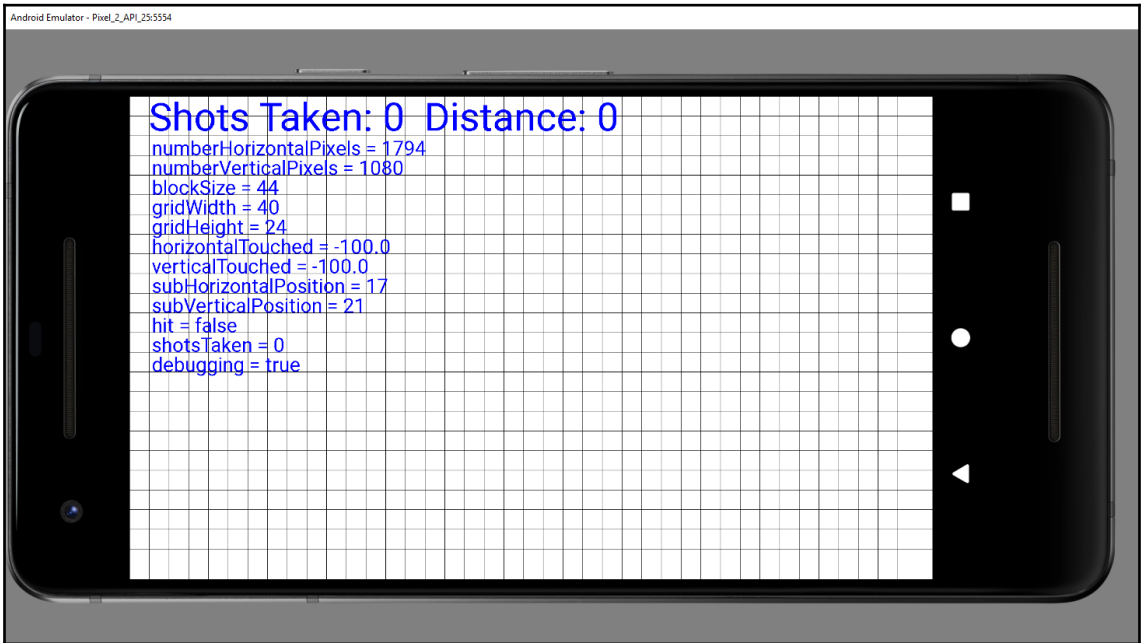




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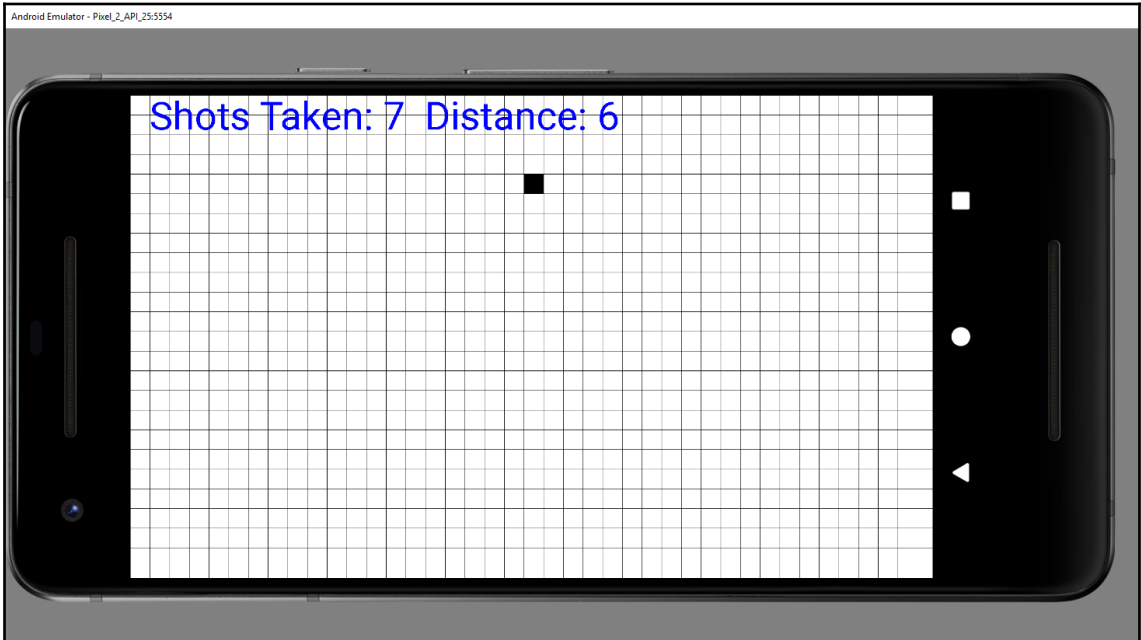
## Chapter 6: Repeating Blocks of Code with Loops

```
void draw() {  
    →Log.d( tag: "Debugging", msg: "In draw");  
    →printDebuggingText();  
}
```



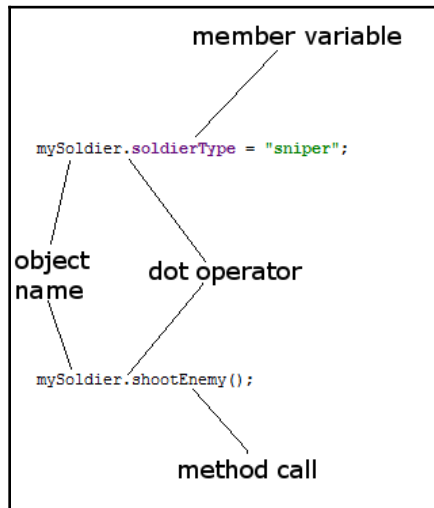
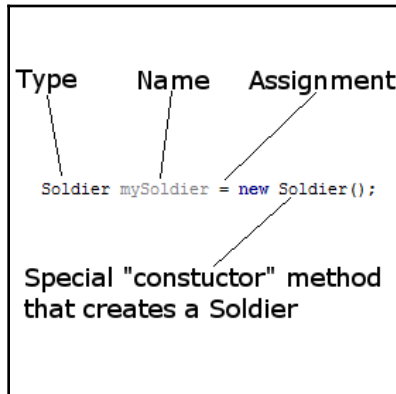
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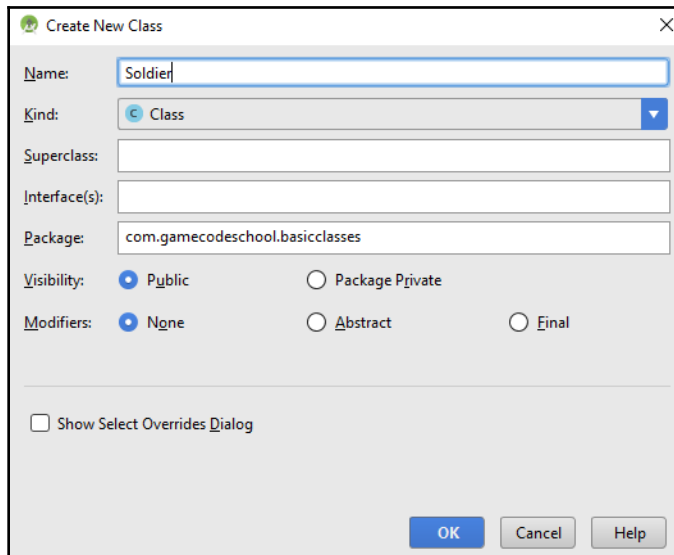
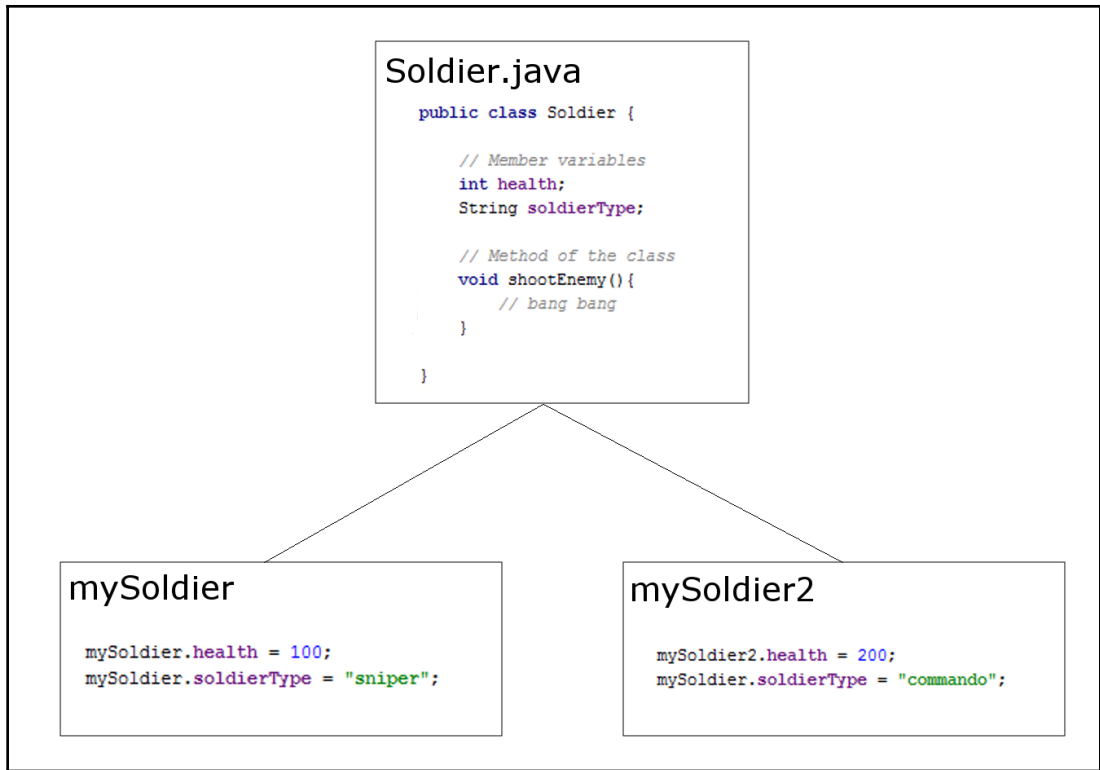
# Chapter 7: Making Decisions with Java if, else, and switch



---

# Chapter 8: Object-Oriented Programming



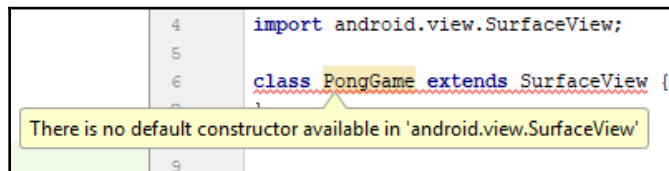
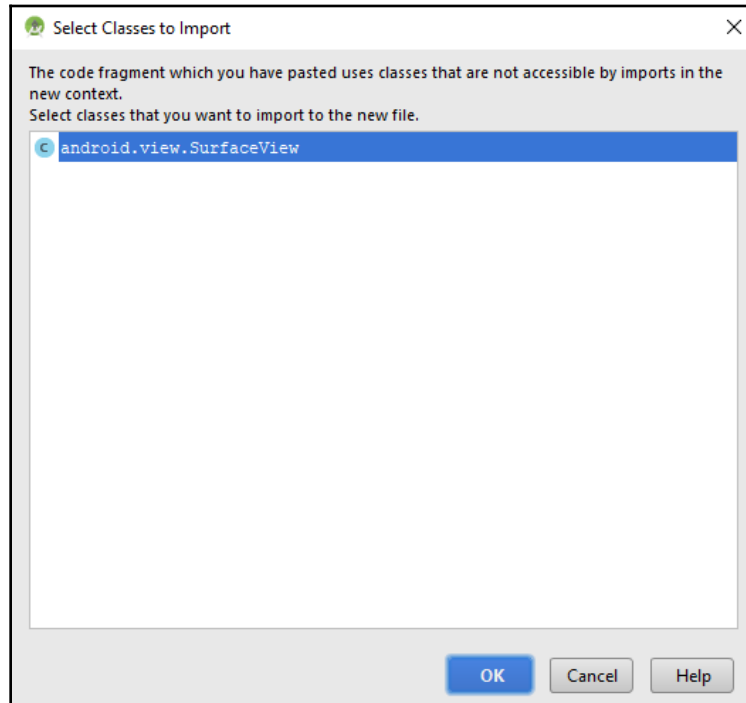


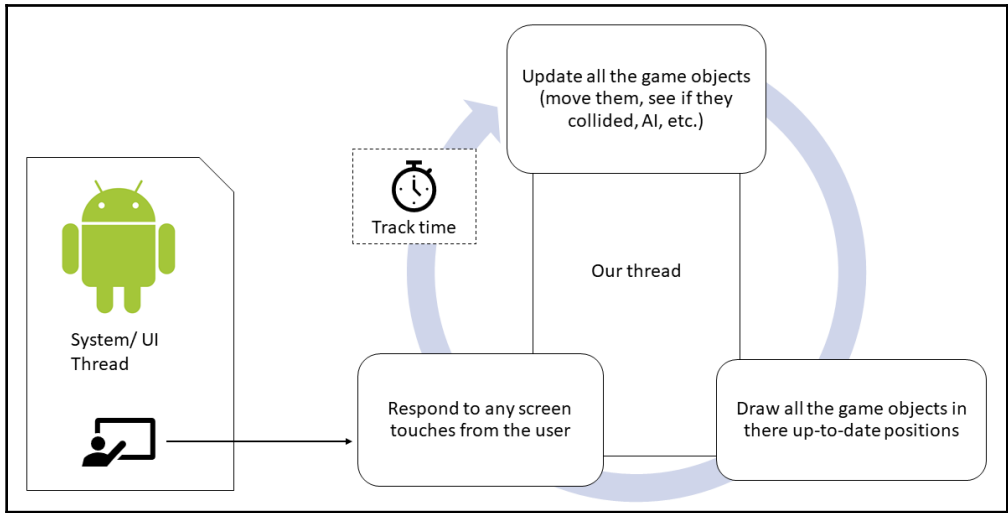
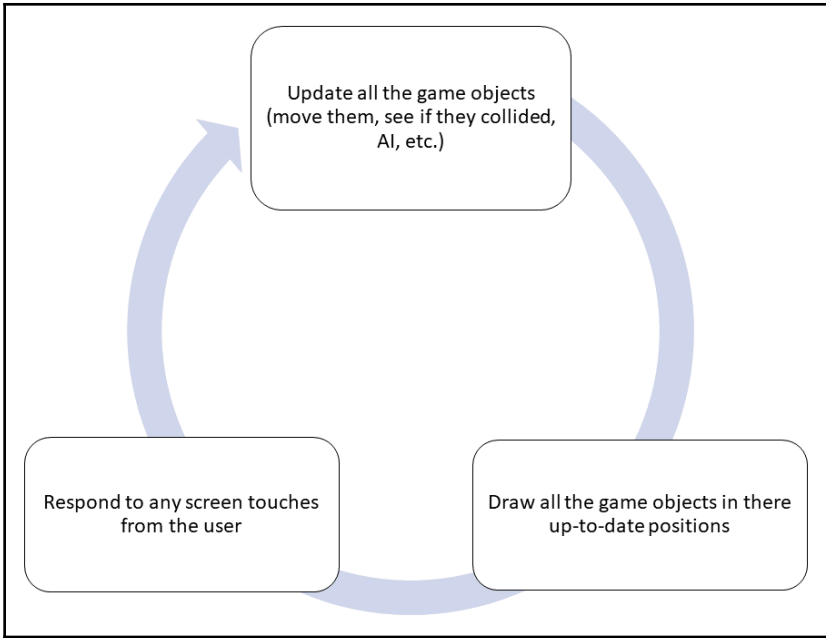
```
RTSActivity.java x Soldier.java x
Soldier
1 package com.gamecodeschool.basicclasses;
2
3 /**
4  * Created by johnh on 08/12/2017.
5  */
6
7 public class Soldier {
8
9 }
```

```
we
 Wellington Soldier
 getDrawerToggleDelegate () Delegate
Press Ctrl+Space to see non-imported classes >>
```

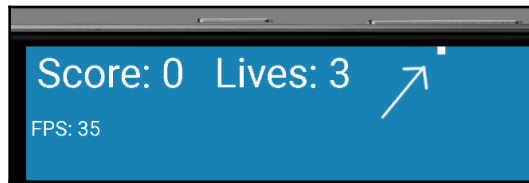
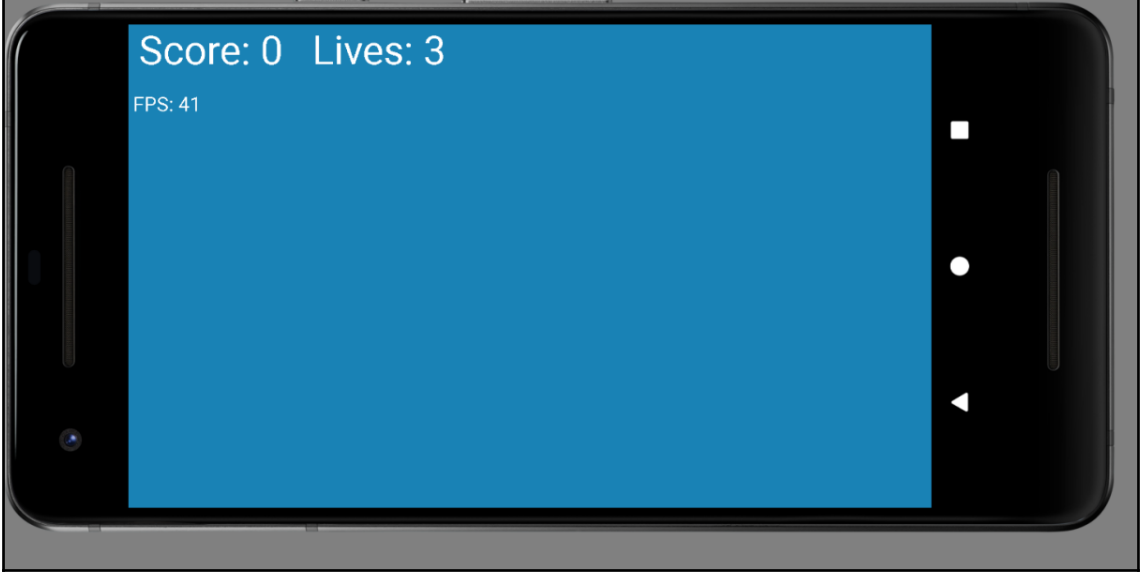
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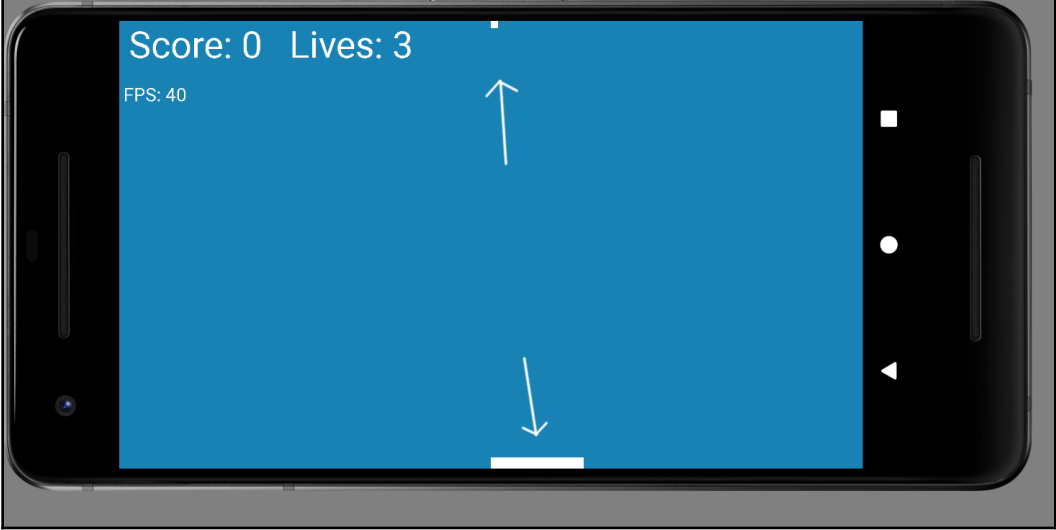
# Chapter 9: The Game Engine, Threads, and the Game Loop





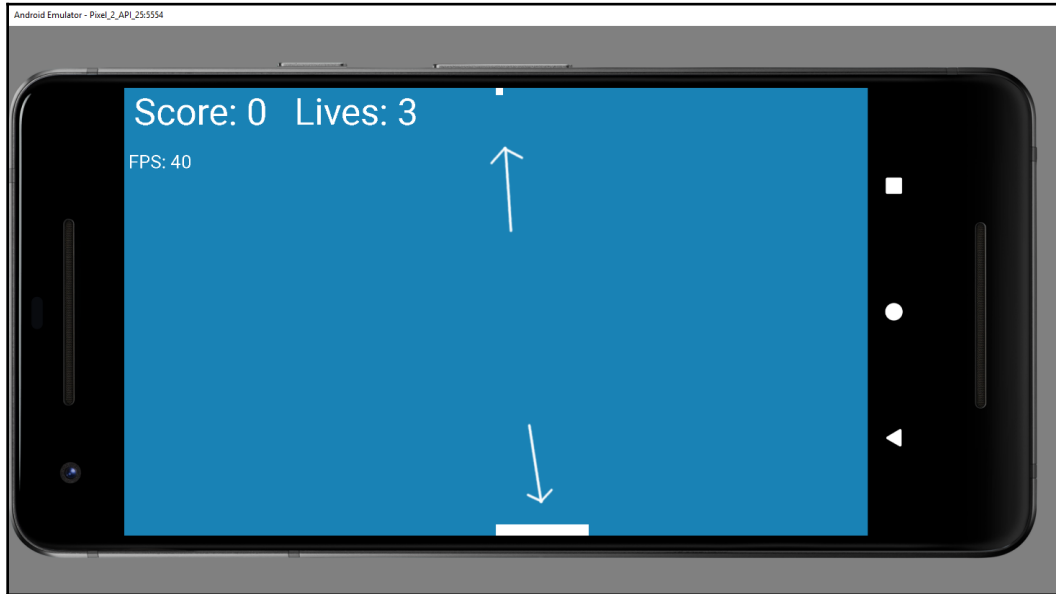
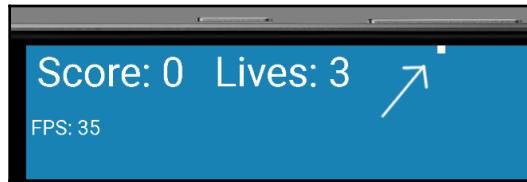






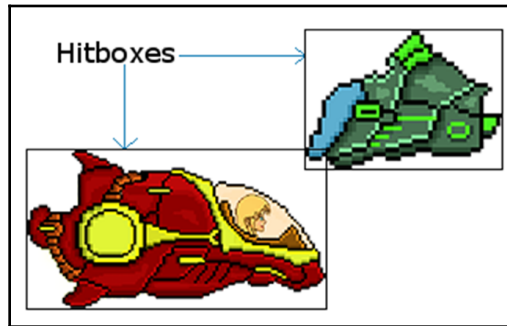
---

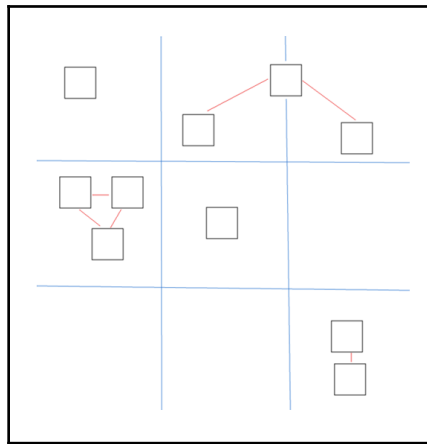
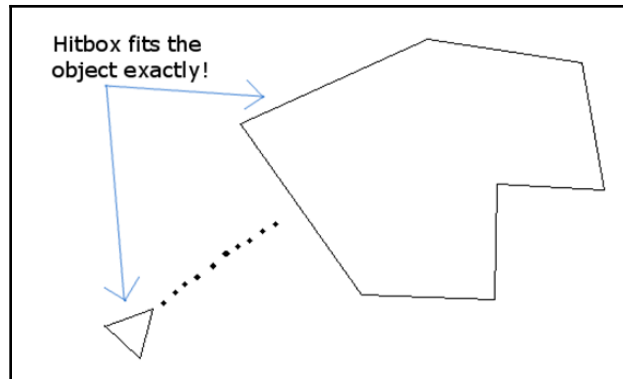
## Chapter 10: Coding the Bat and Ball



---

# Chapter 11: Collisions, Sound Effects, and Supporting Different Versions of Android



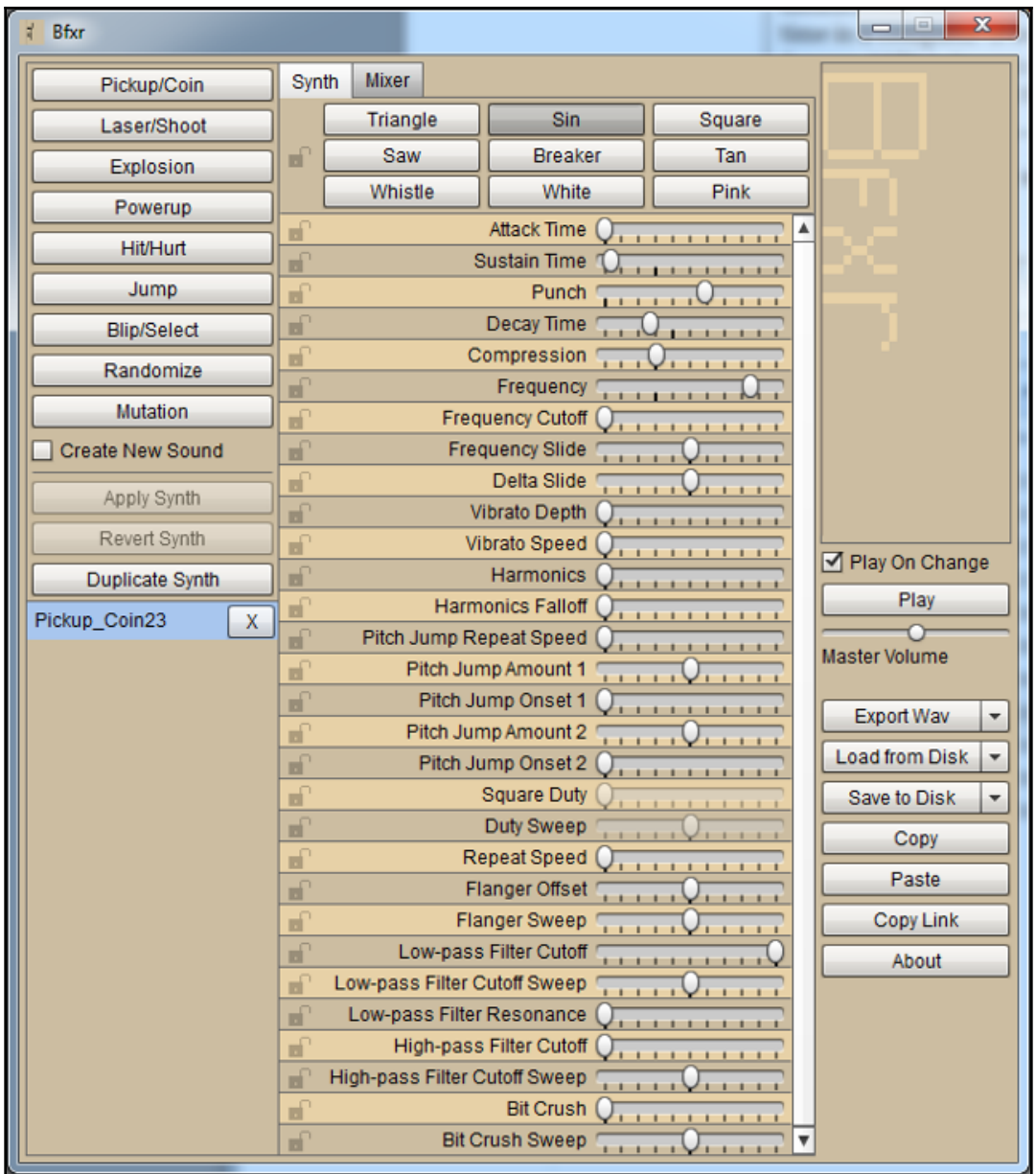


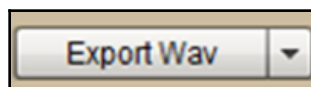
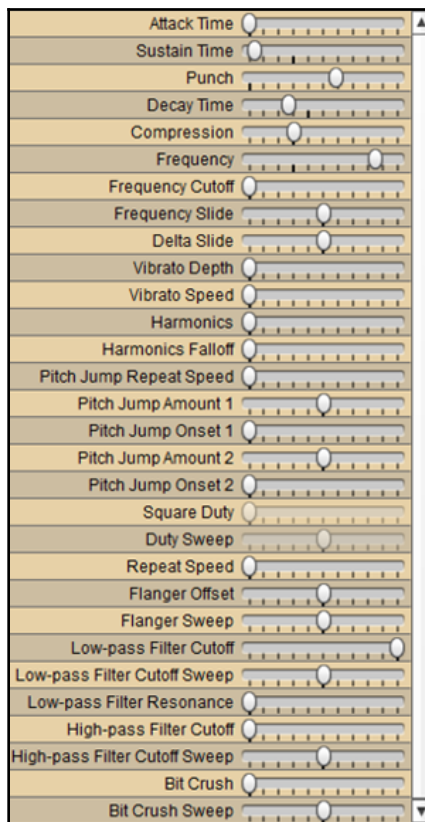
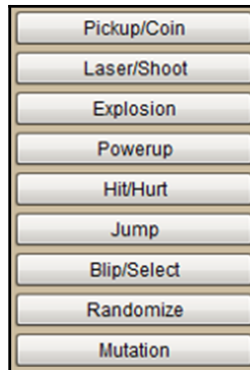
## SoundPool

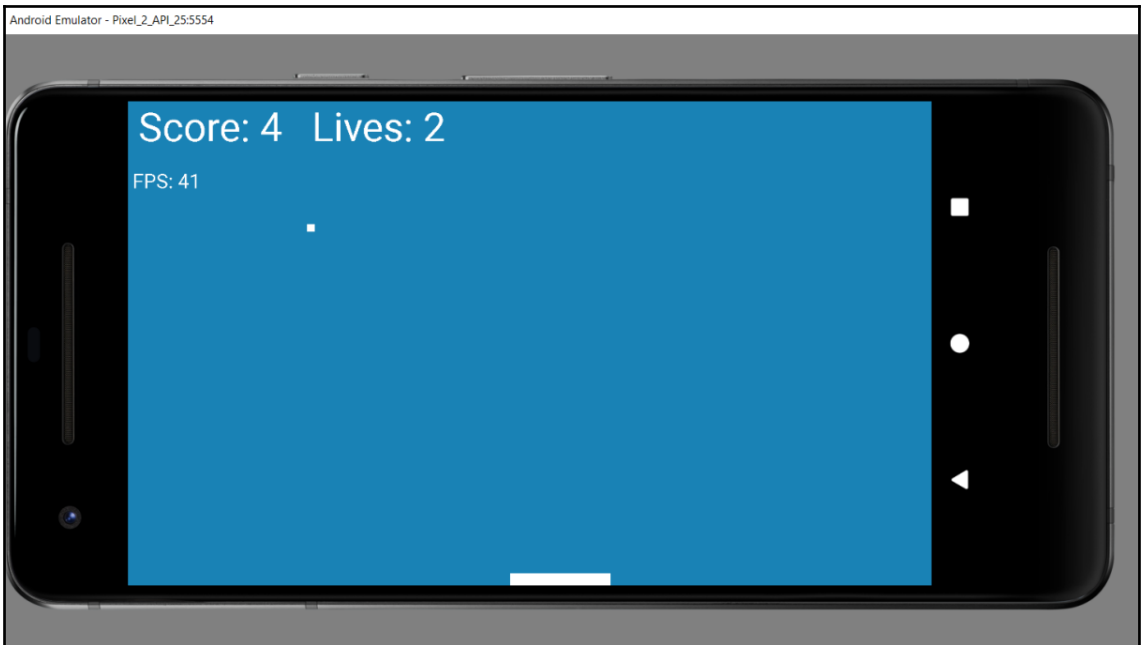
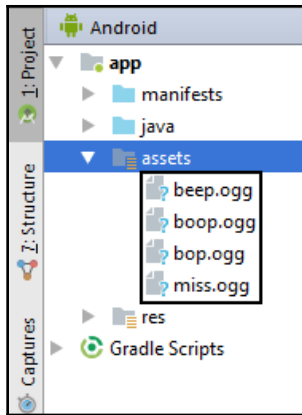
```
SoundPool (int maxStreams,  
           int streamType,  
           int srcQuality)
```

**This constructor was deprecated in API level 21.**

use [SoundPool.Builder](#) instead to create and configure a SoundPool instance





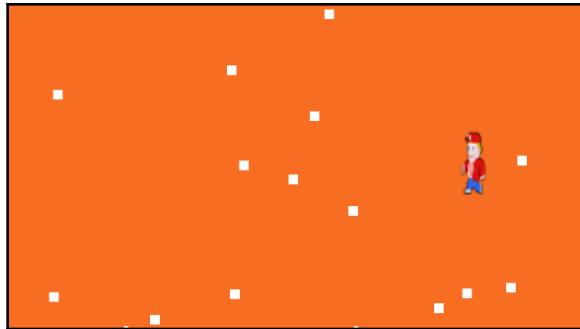


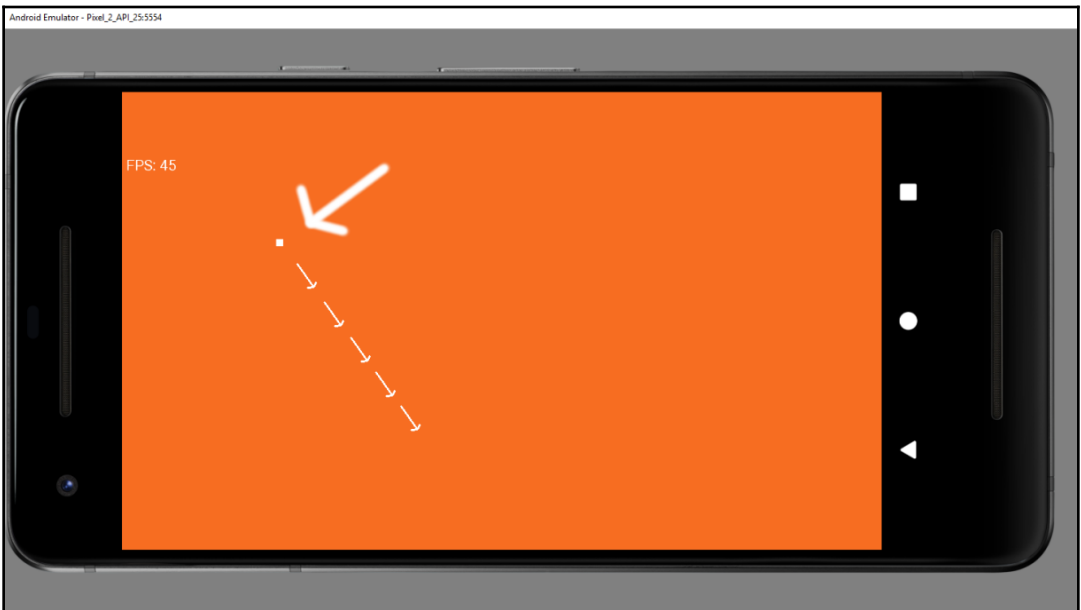
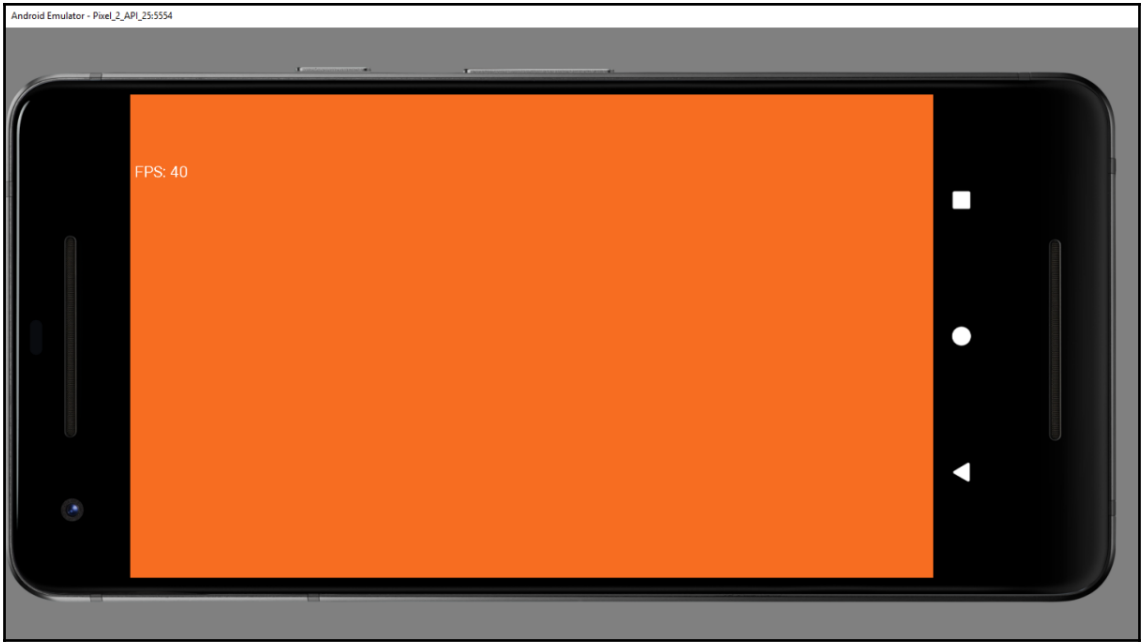


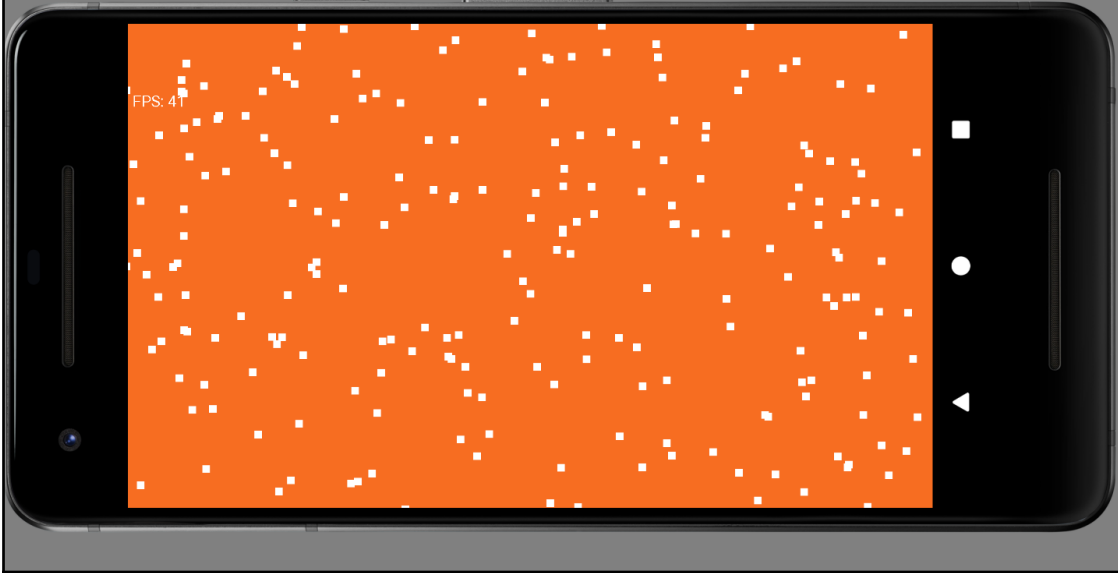
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## Chapter 12: Handling Lots of Data with Arrays



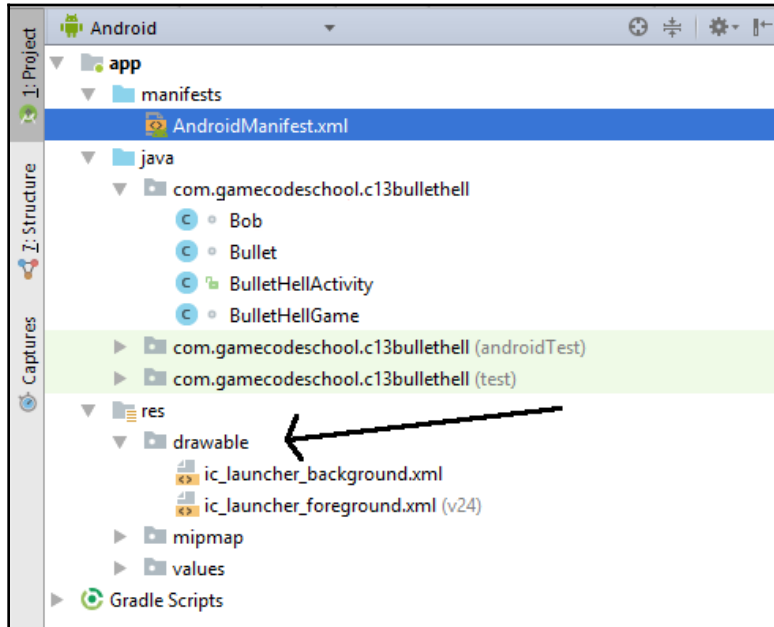






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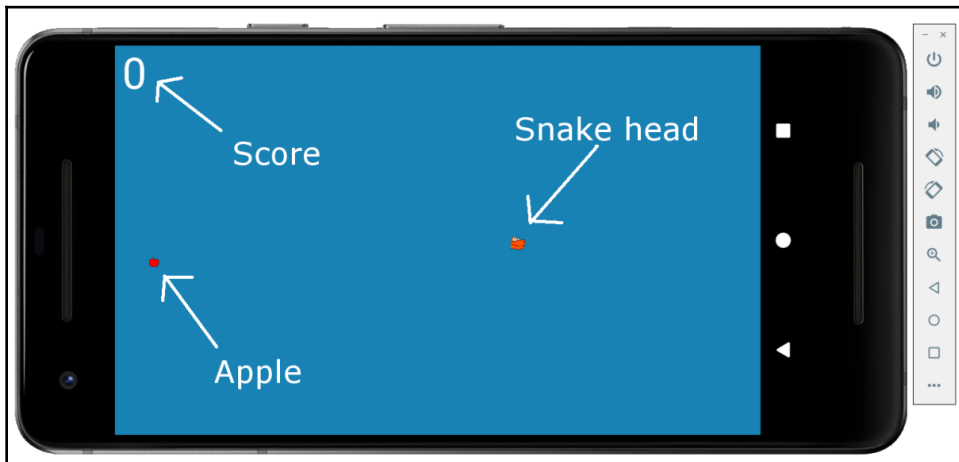
# Chapter 13: Bitmap Graphics and Measuring Time

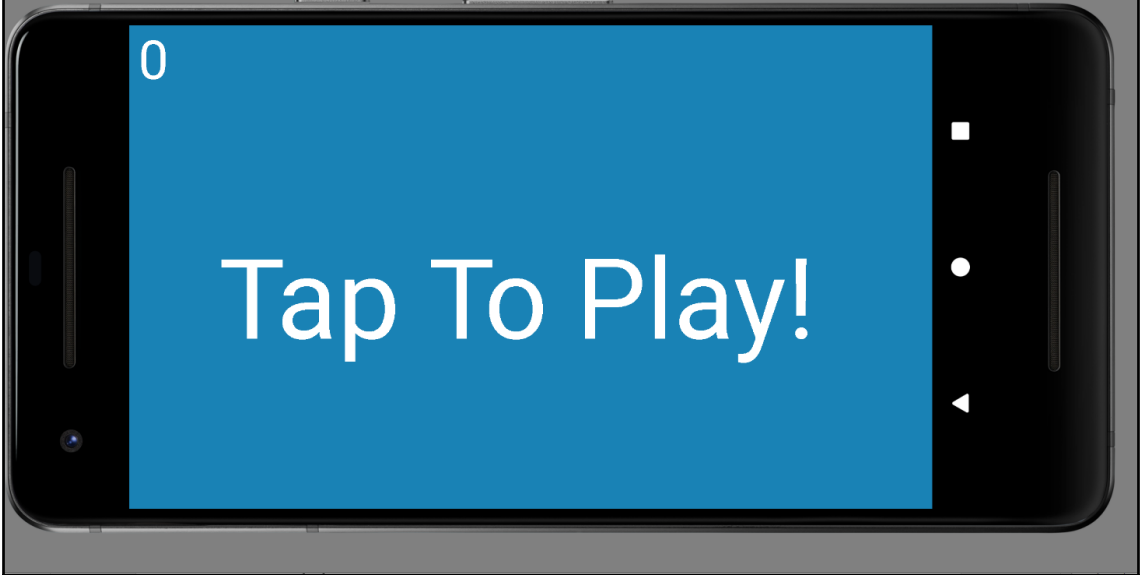




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## Chapter 14: Java Collections, the Stack, the Heap, and the Garbage Collector

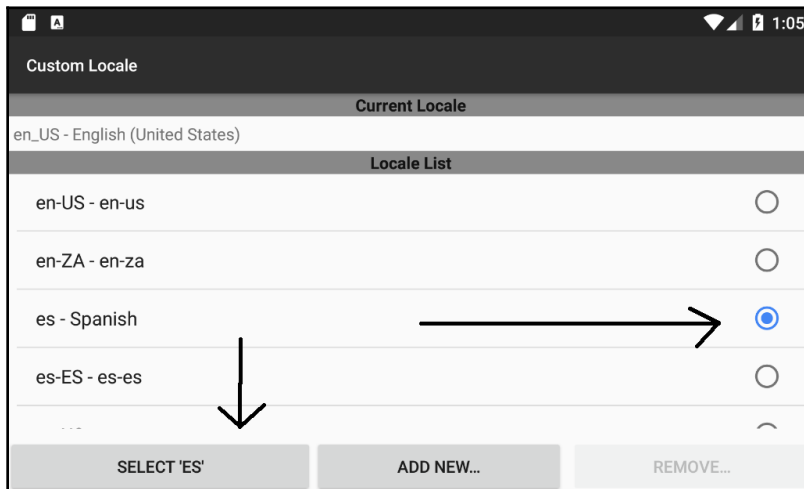
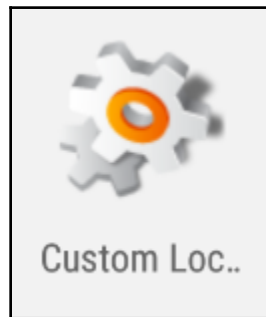
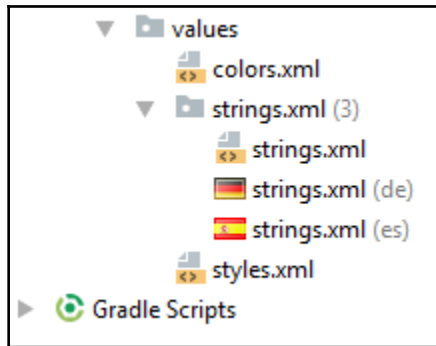


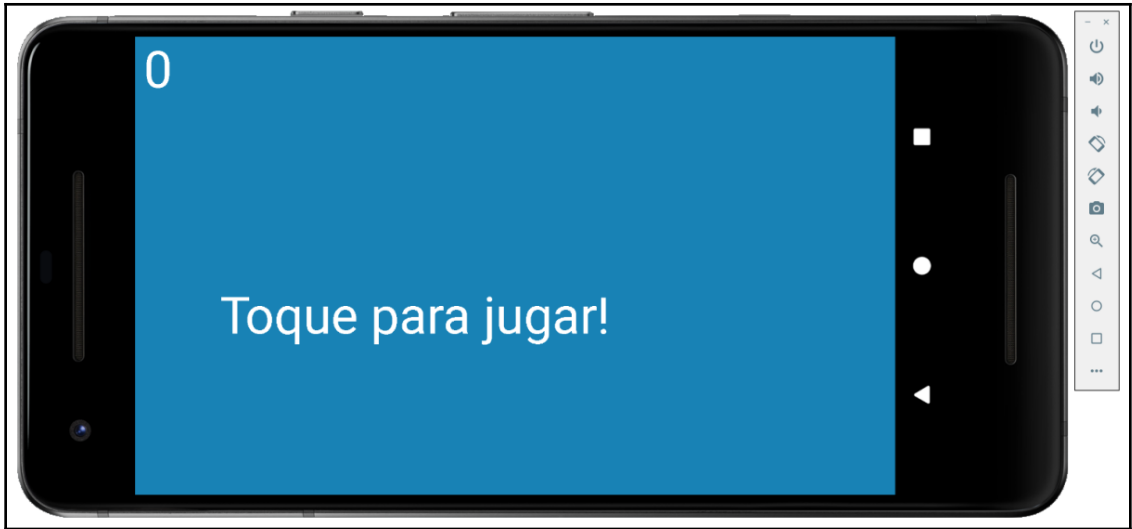




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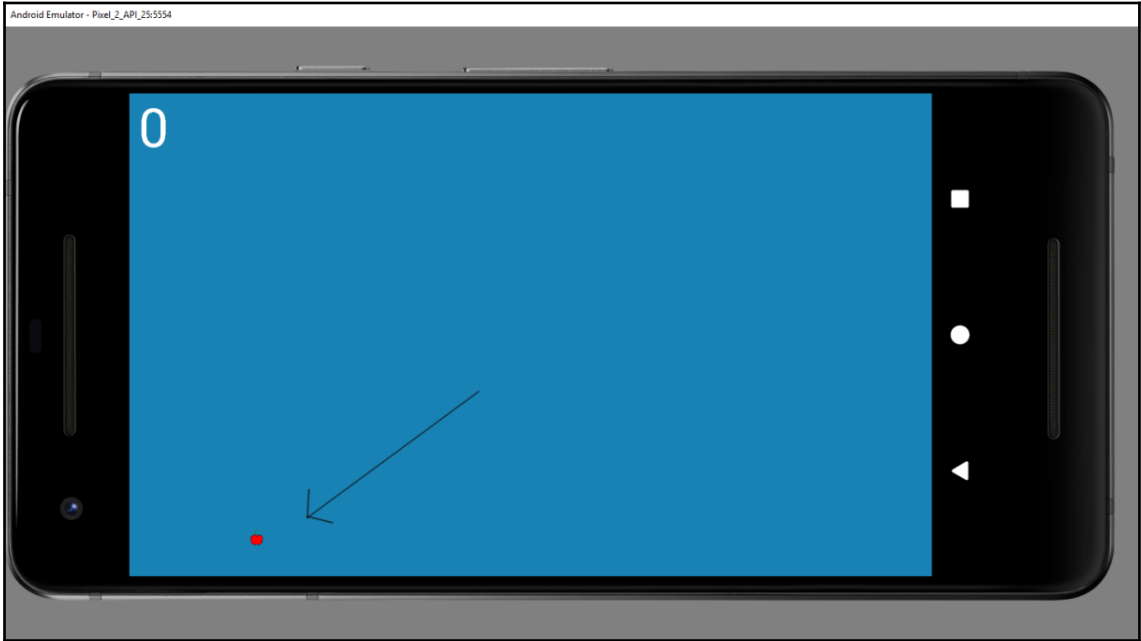
# Chapter 15: Android Localization – Hola!





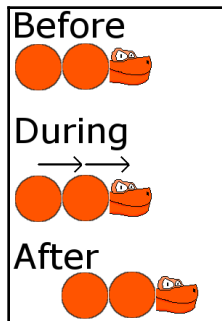
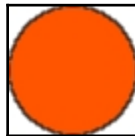
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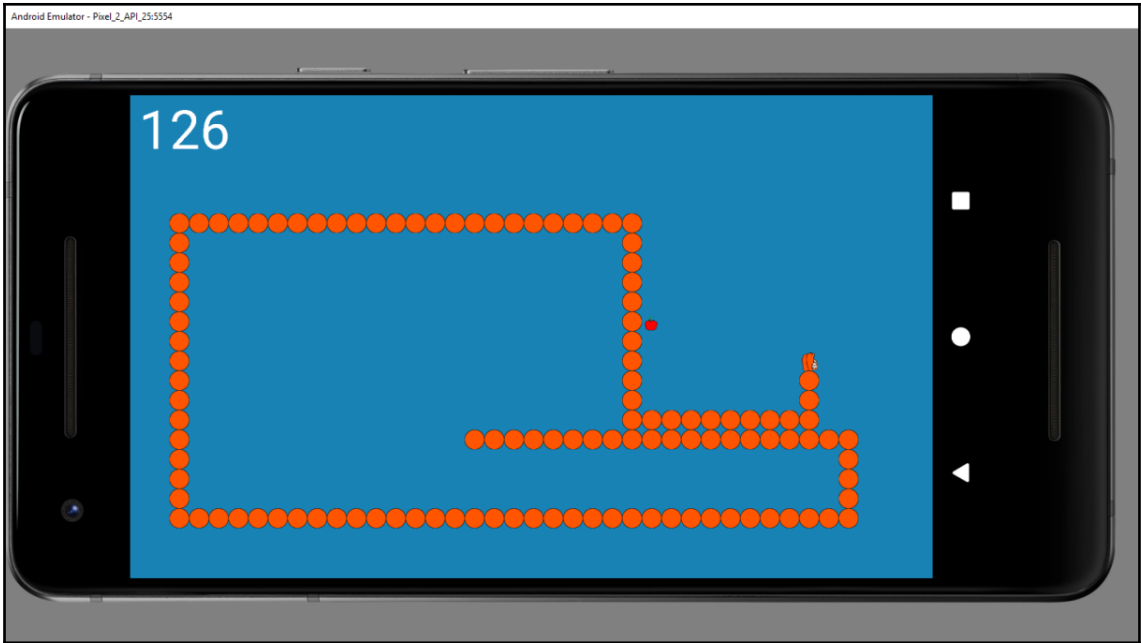
# Chapter 16: Collections, Generics, and Enumerations



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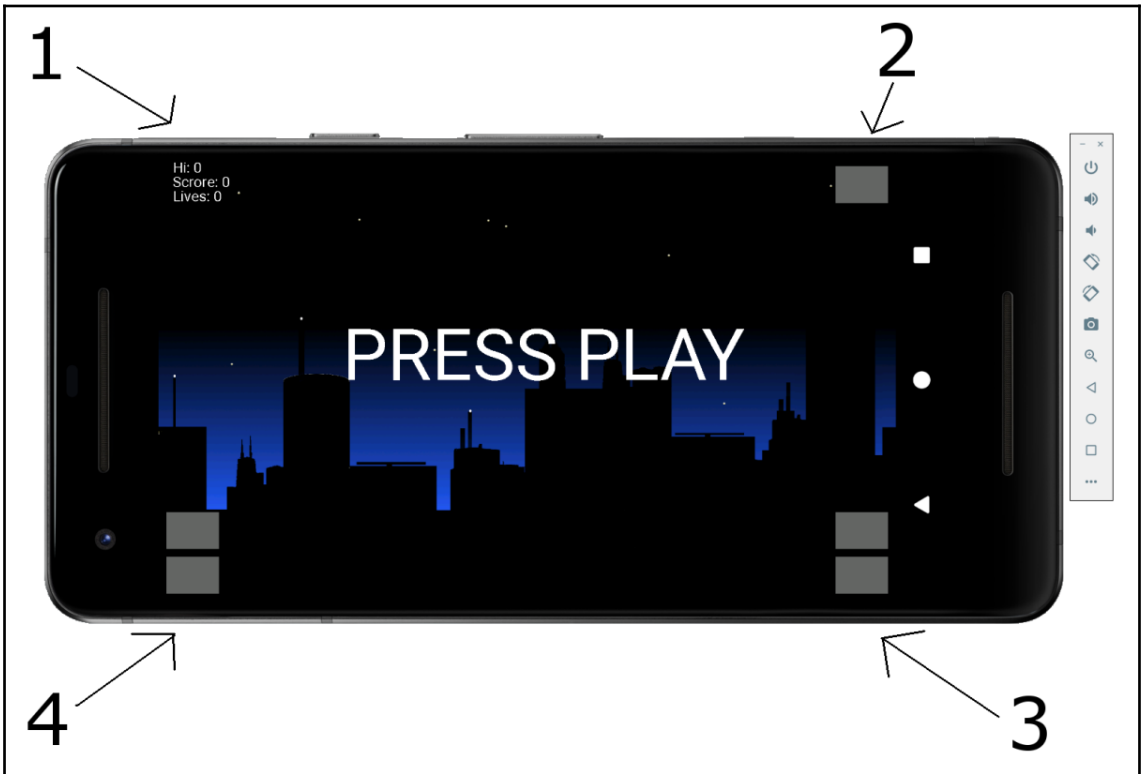
# Chapter 17: Manipulating Bitmaps and Coding the Snake Class

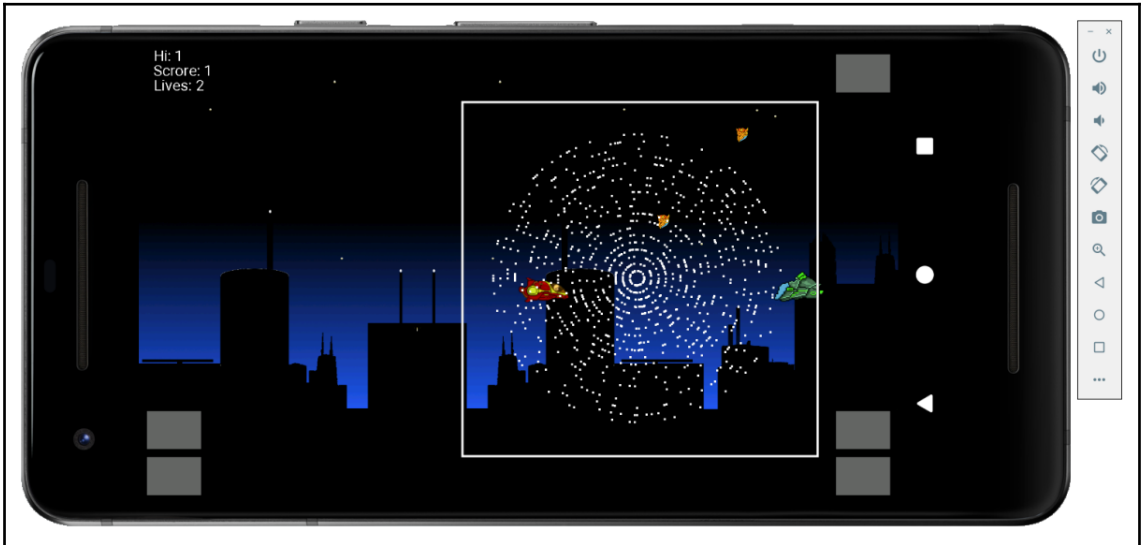




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# Chapter 18: Introduction to Design Patterns and Much More!



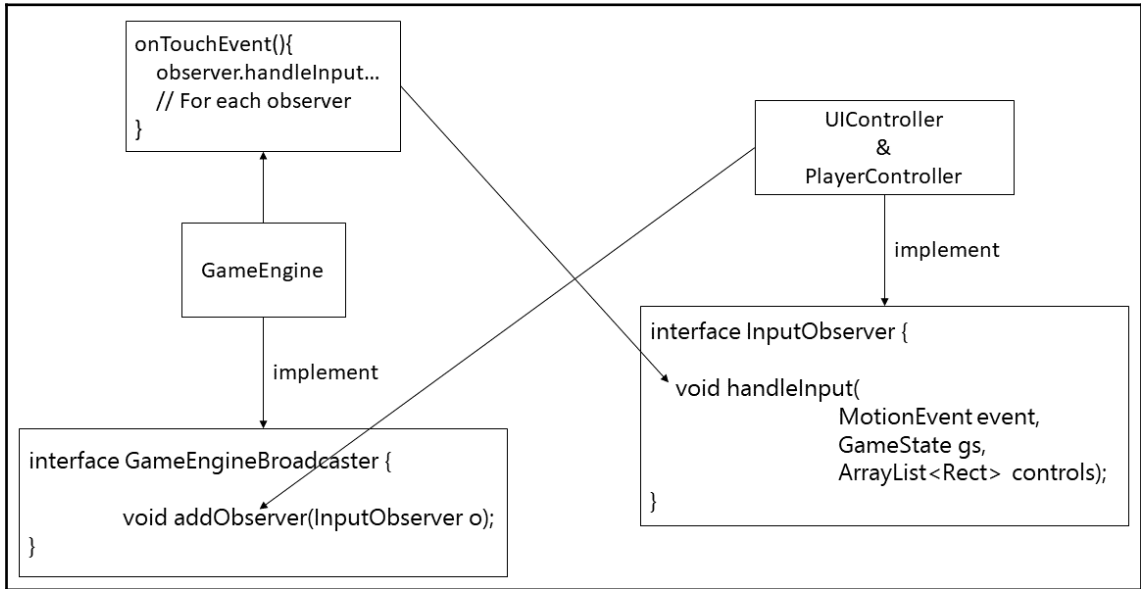




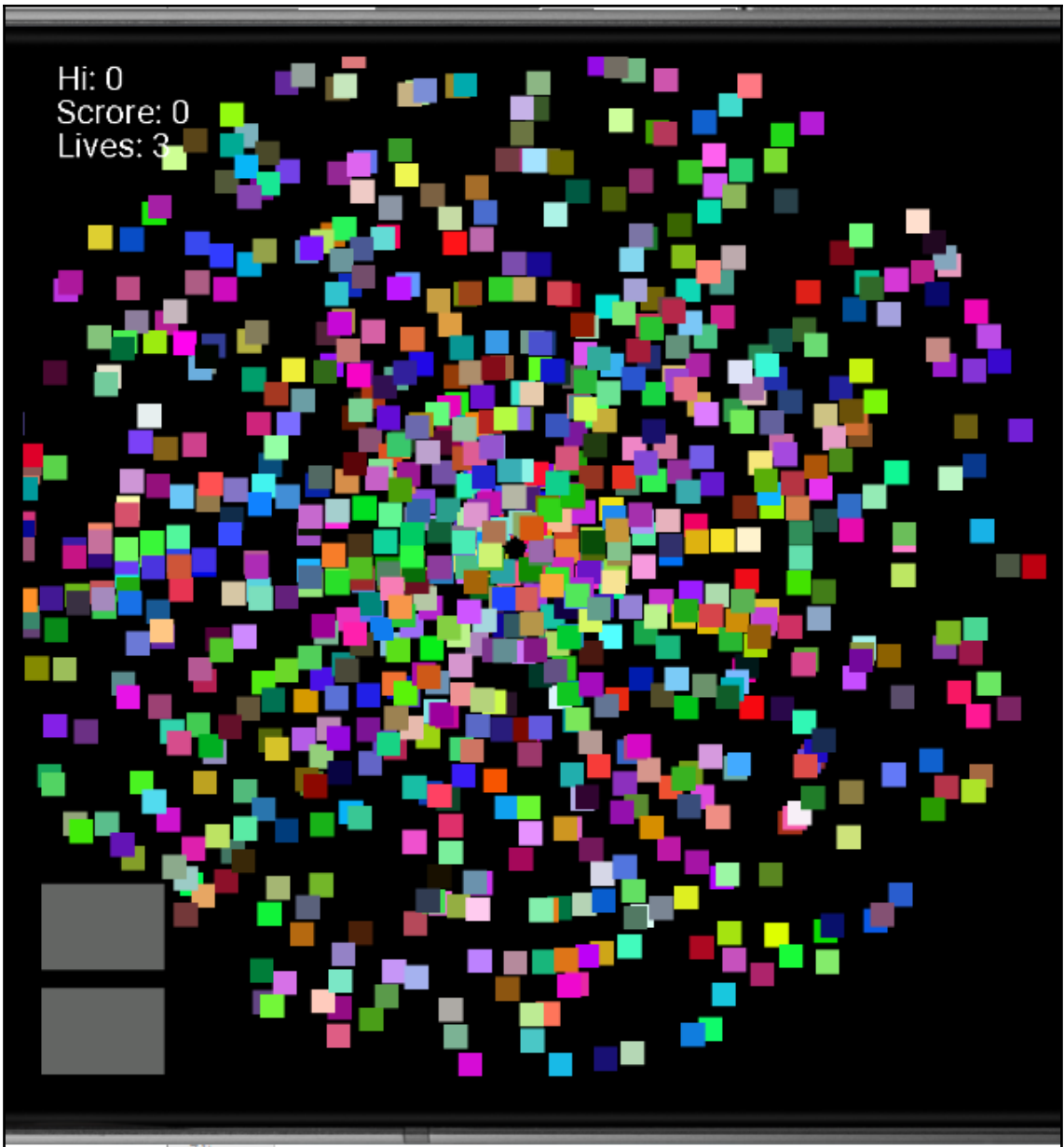


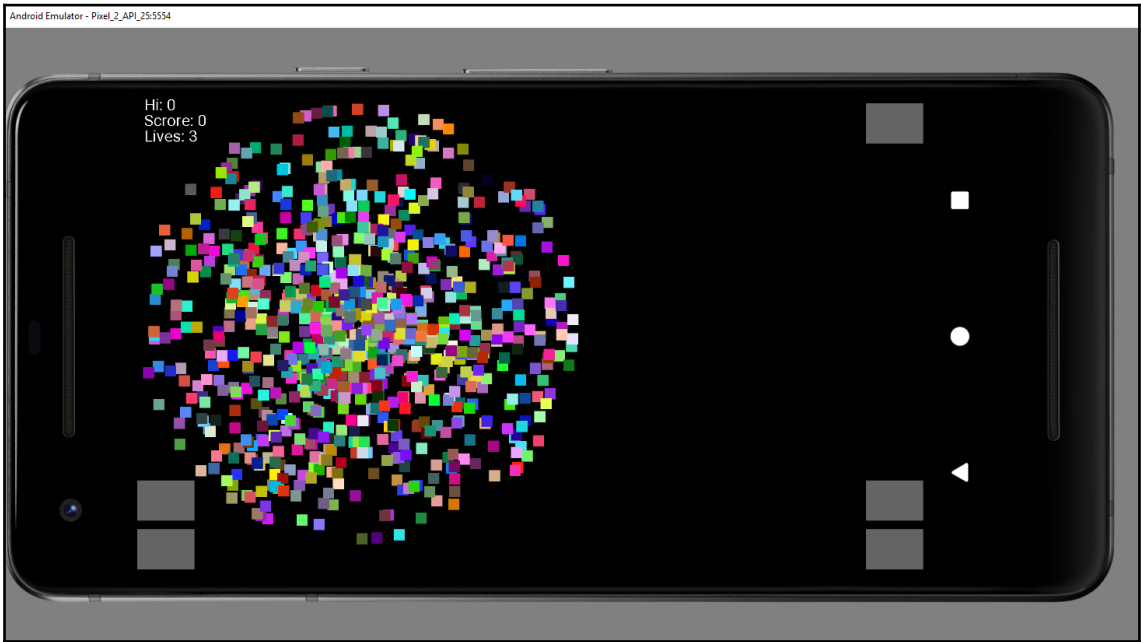
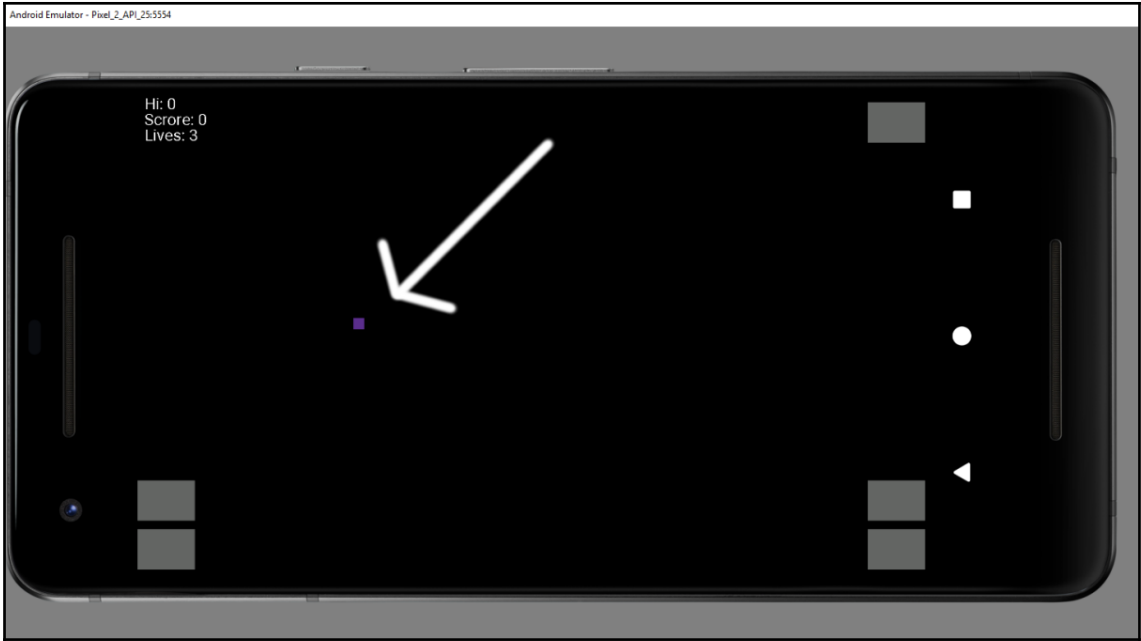
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# Chapter 19: Listening with the Observer Pattern, Multitouch, and Building a Particle System



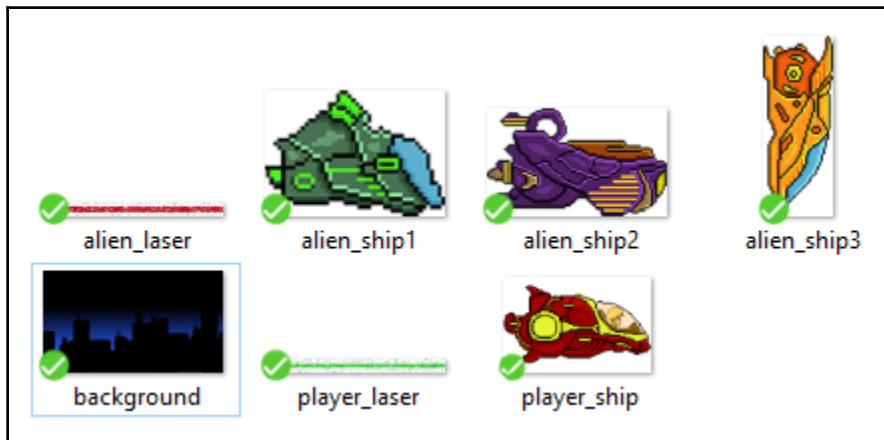


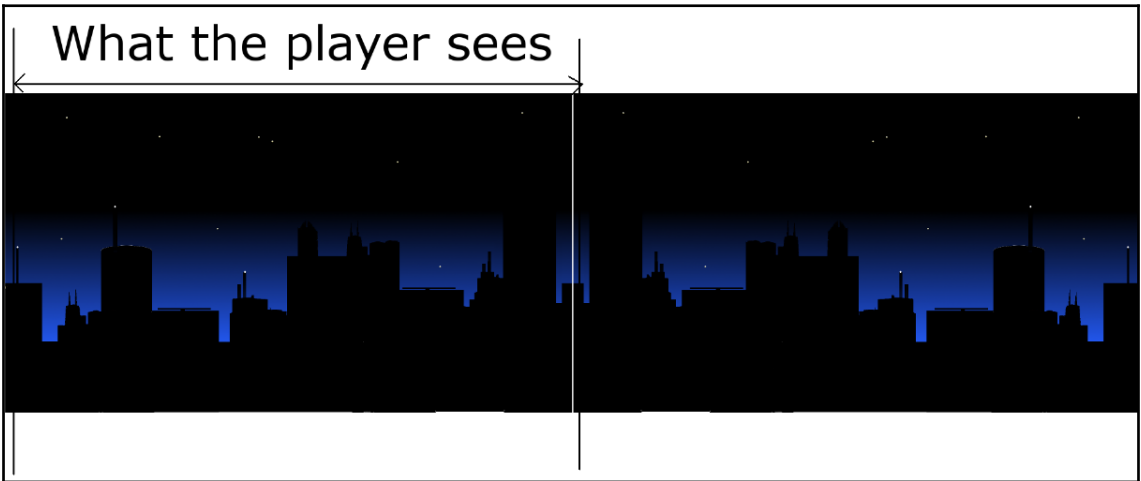
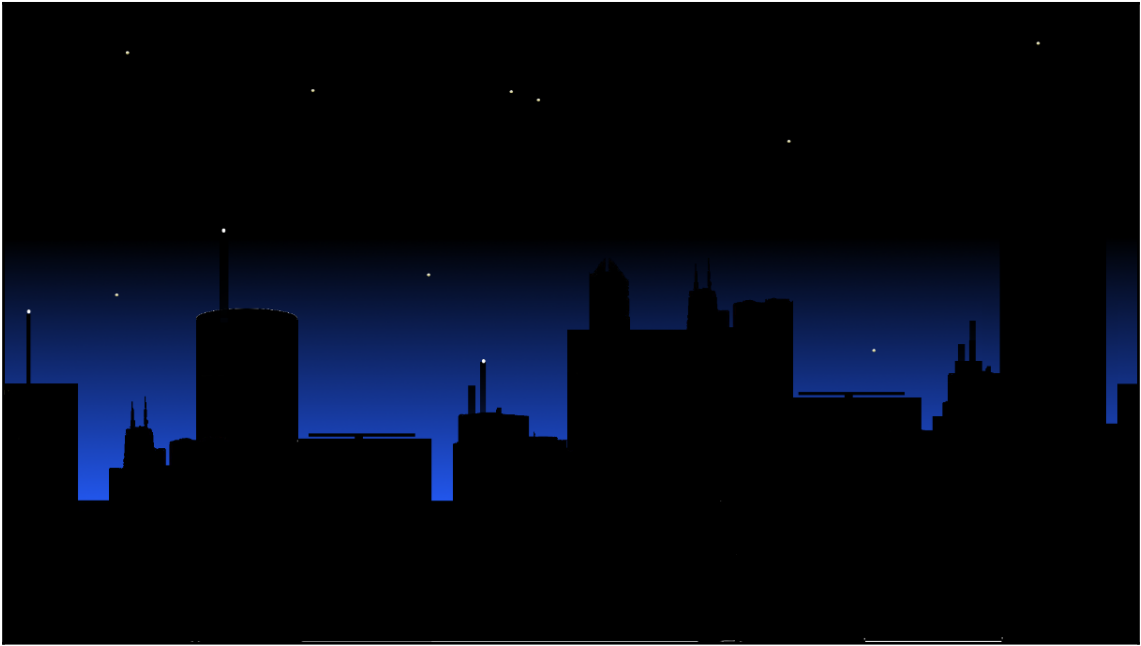


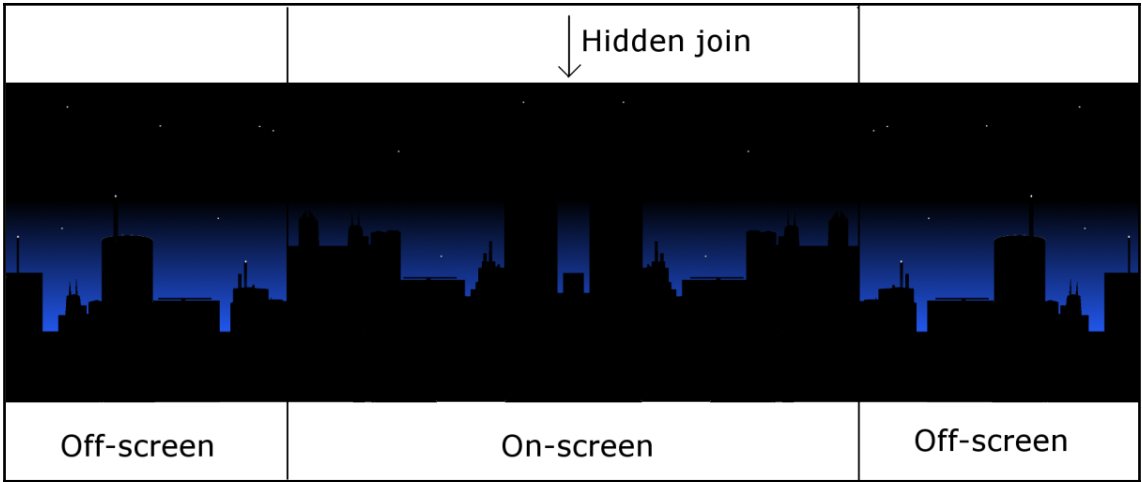


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## Chapter 20: More Patterns, a Scrolling Background, and Building the Player's Ship

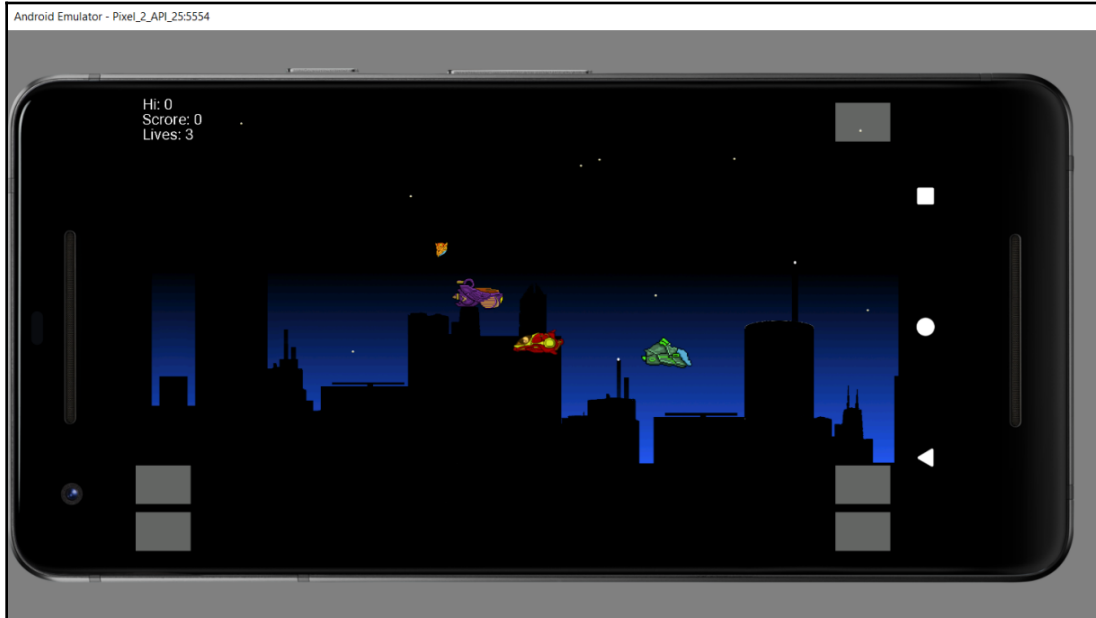




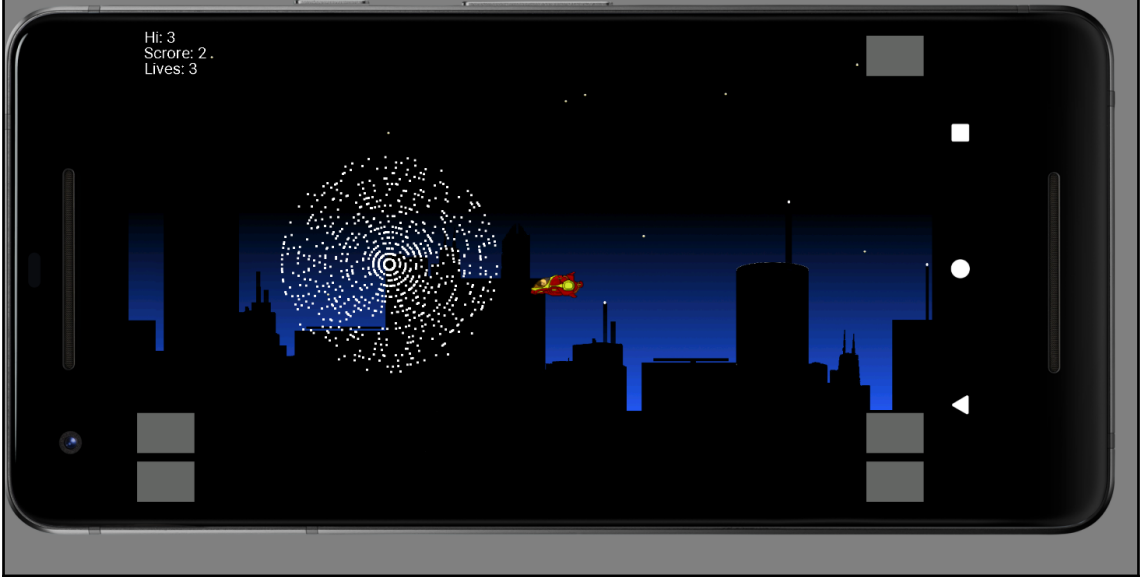


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# Chapter 21: Completing the Scrolling Shooter Game

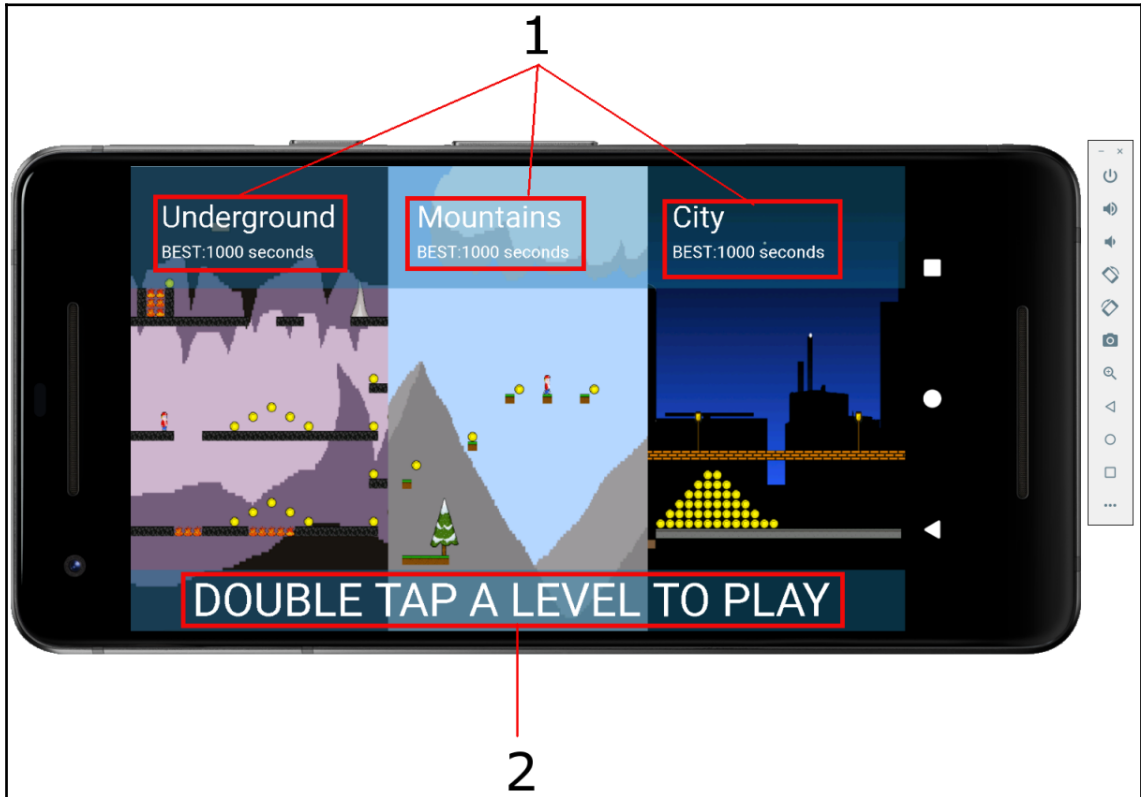


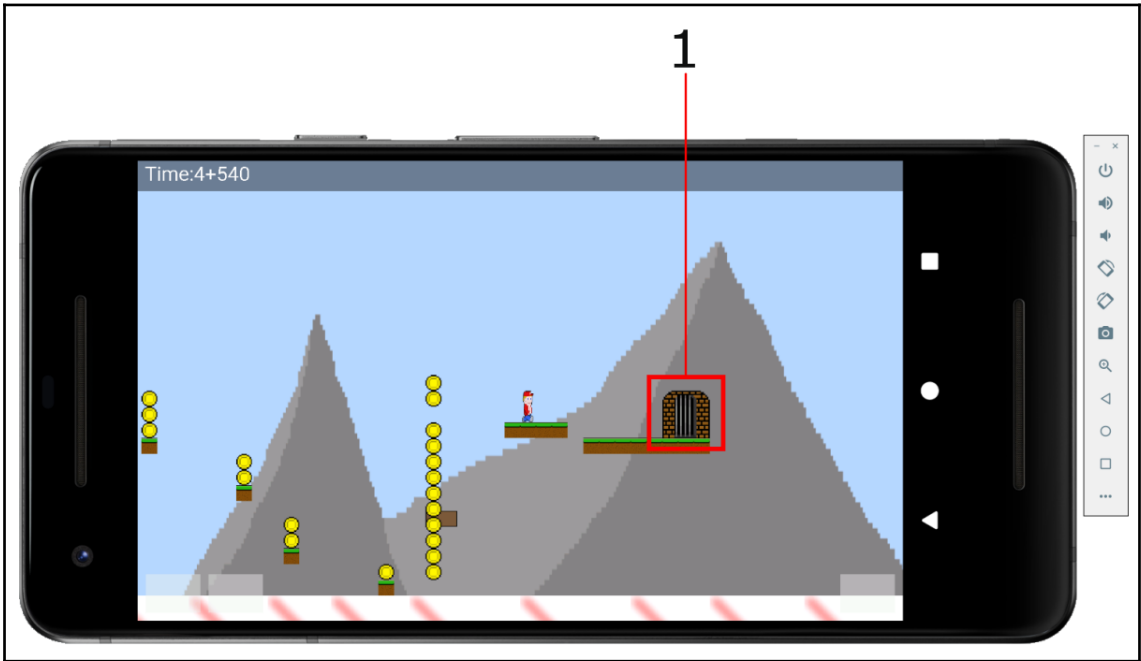
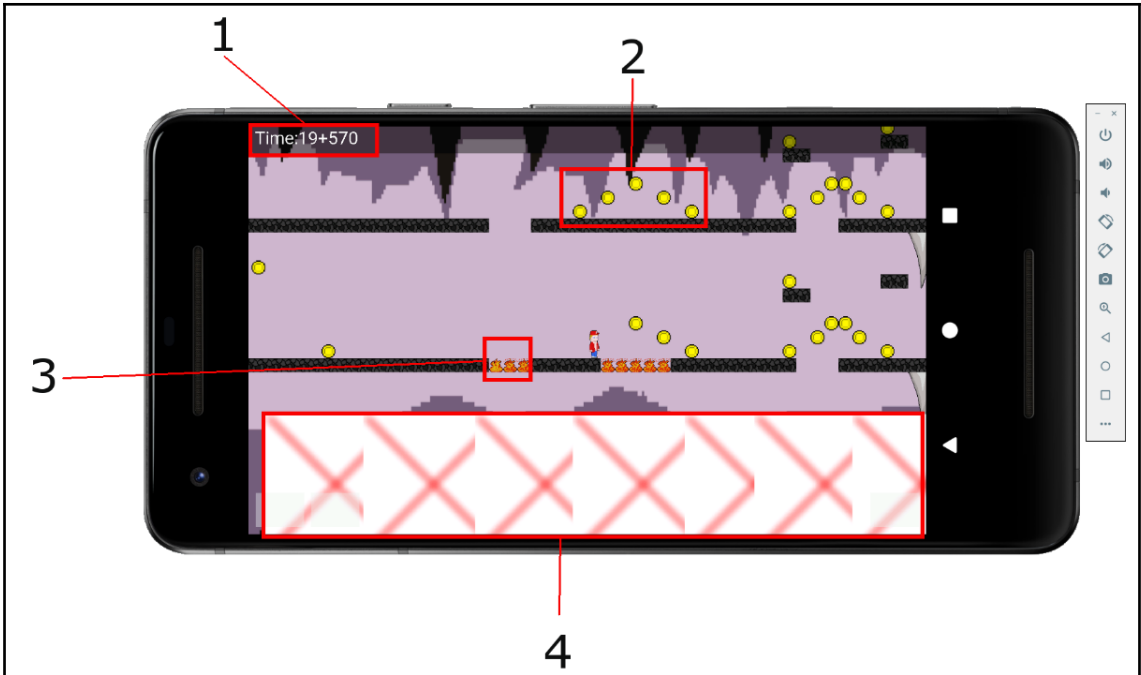




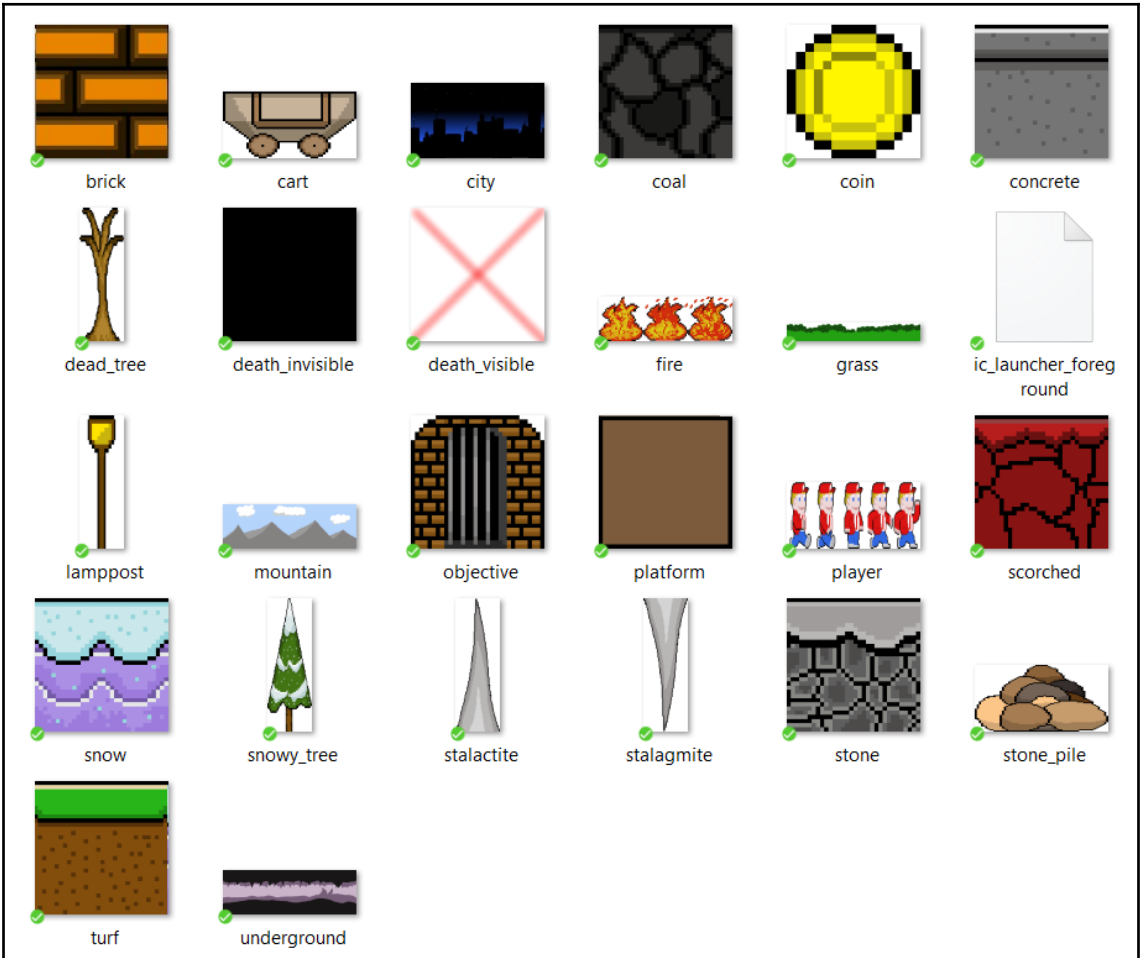
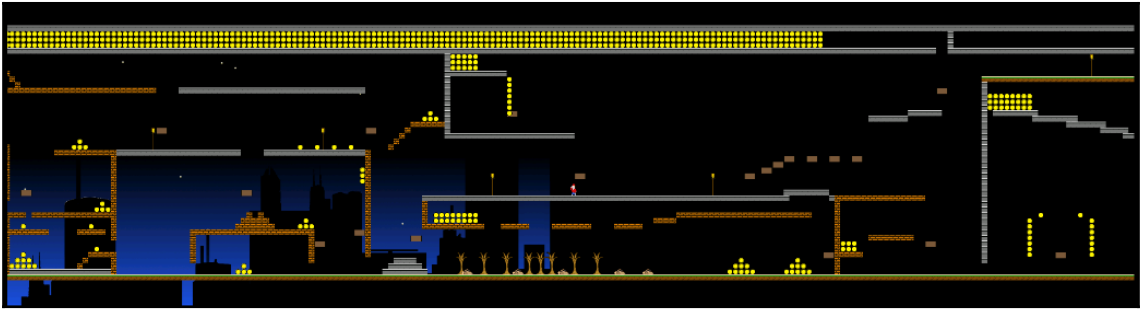
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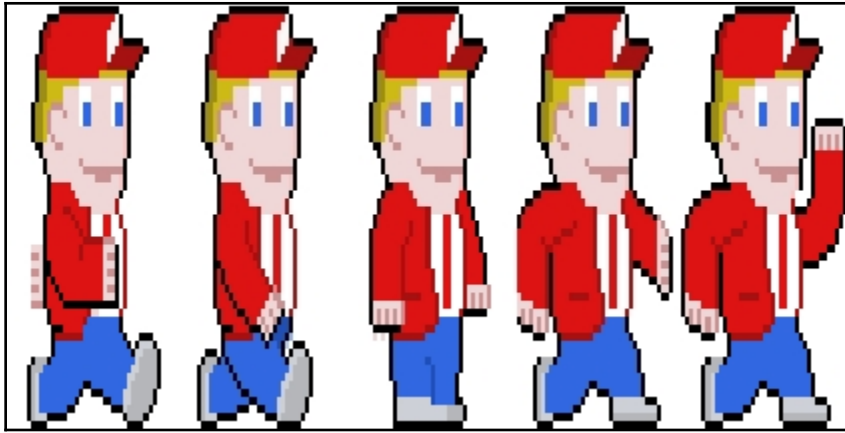
## Chapter 22: Exploring More Patterns and Planning the PI atformer Project









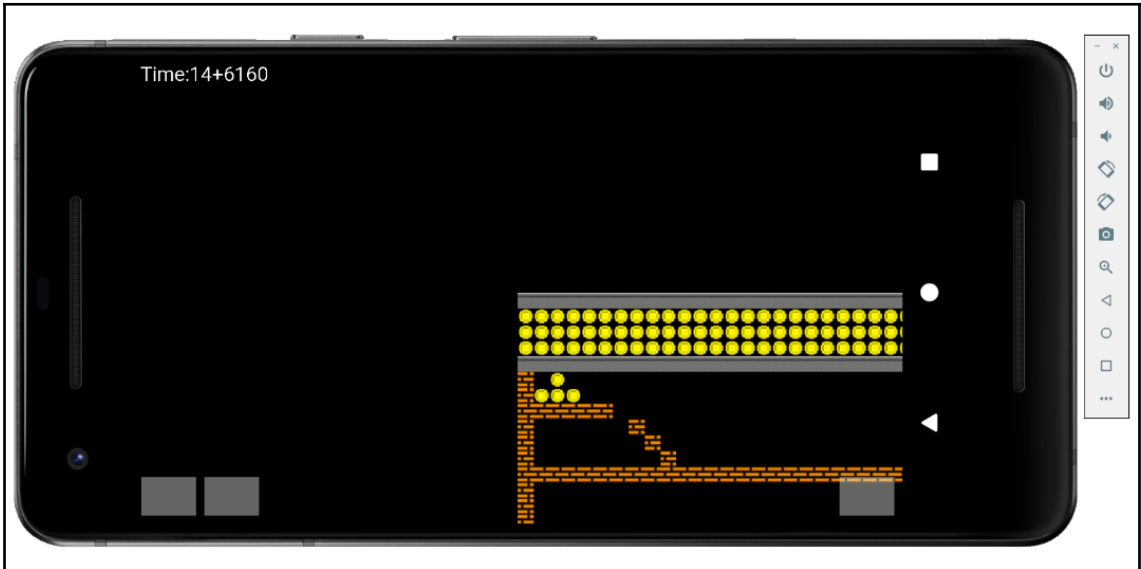
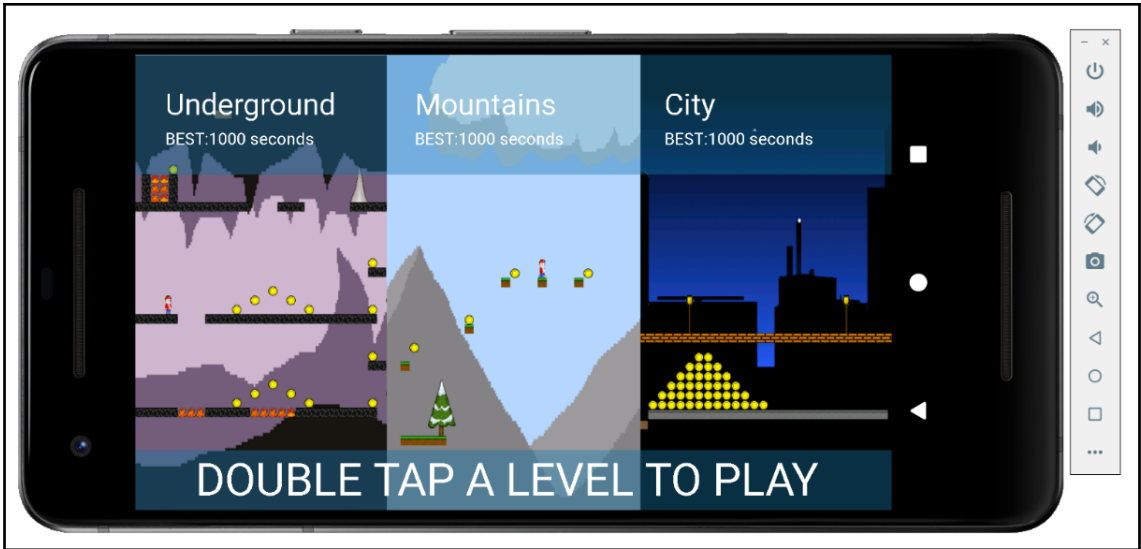


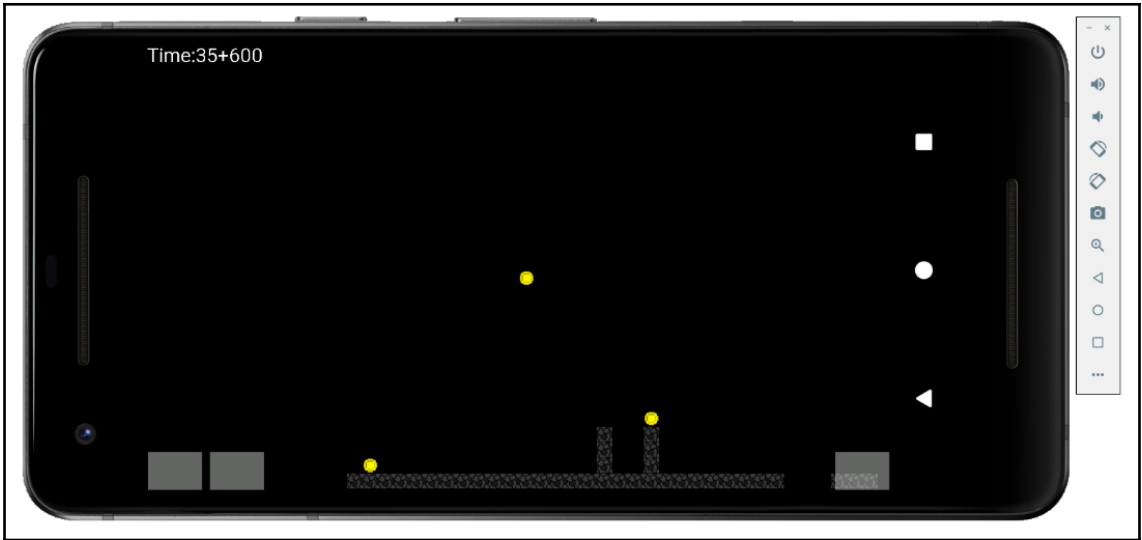






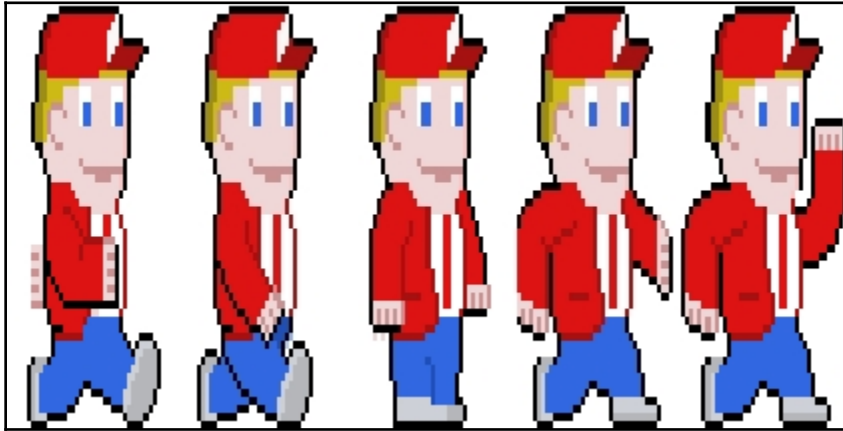


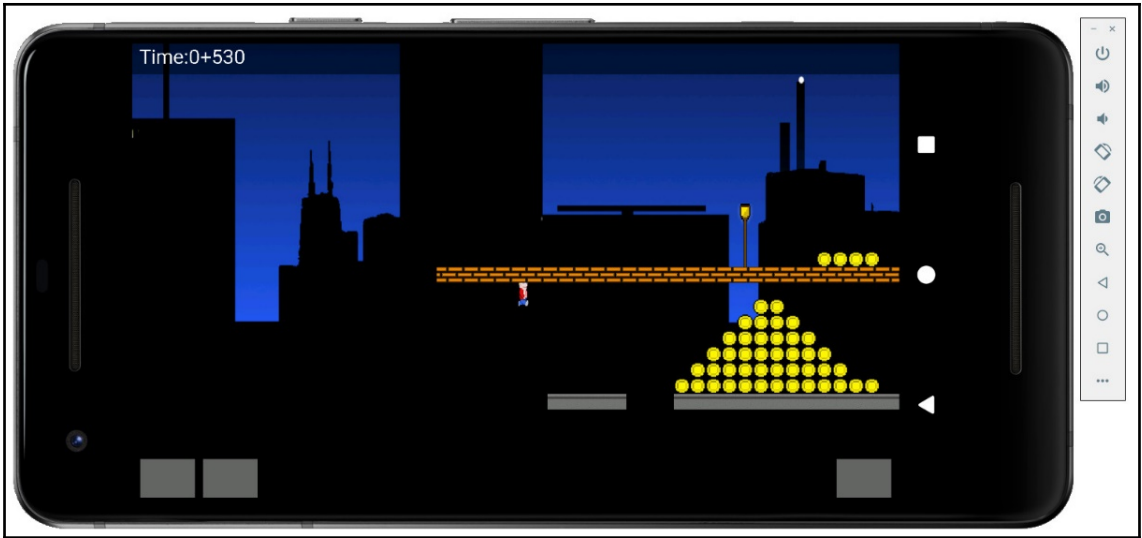




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## Chapter 24: Sprite Sheet Animations, the Controllable Player, and Parallax Scrolling Backgrounds





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## Chapter 25: Intelligent Platforms and Advanced Collision Detection

