Chapter 1

Why Java, Android, and Games?

System

Manufacturer: TOSHIBA
Model: Personal Computer
Rating: 6.8 Windows Experience Index
Processor: Intel(R) Core(TM) i7 CPU Q 740 @ 1.73GHz
Installed memory (RAM): 8.00 GB
System type: 64-bit Operating System
Pen and Touch: No Pen or Touch Input is available for this Display
You must accept the Oracle Binary

Accept License Agreement

Java SE Development Kit 8 Update 5 (64-bit) - Custom Setup

Select optional features to install from the list below. You can change your choice of features after installation by using the Add/Remove Programs utility in the Control Panel.

Feature Description
Java SE Development Kit 8 Update 5 (64-bit), including the JavaFX SDK, a private JRE, and the Java Mission Control tools suite. This will require 180MB on your hard drive.

Install to:
C:\Program Files\Java\jdk1.8.0_05\
New System Variable

Variable name: JAVA_HOME
Variable value: C:\Program Files\Java\jdk1.8.0_05

OK  Cancel

I have read and agree with the above terms and conditions

Download Android Studio v0.5.2 for Windows

Android Studio Setup

Choose Users
Choose for which users you want to install Android Studio.

Select whether you want to install Android Studio for yourself or for all users of this computer (SDK Manager will need to run as administrator later.) Click Next to continue.

- Install for anyone using this computer
- Install just for me
Chapter 2

Getting Started with Android
My Math Game
nexus4
nexuss
small
Nexus 5 (5.0", 1080 x 1920: xhdpi)
Nexus 7 (7.0", 1200 x 1920: xhdpi)
Nexus 4 (4.7", 768 x 1280: xhdpi)
Nexus 10 (10.1", 2560 x 1600: xhdpi)
Nexus 7 (2012) (7.0", 800 x 1280: tvdpi)
Galaxy Nexus (4.7", 720 x 1280: xhdpi)
Nexus S (4.0", 480 x 800: hdpi)
Nexus One (3.7", 480 x 800: hdpi)
10.1" WXGA (Tablet) (1280 x 800: mdpi)
7.0" WSVGA (Tablet) (1024 x 600: mdpi)
5.4" FWVGA (480 x 854: mdpi)
5.1" WVGA (480 x 800: mdpi)
4.7" WXGA (1280 x 720: xhdpi)
4.65" 720p (720 x 1280: xhdpi)
4.0" WVGA (480 x 800: hdpi)
3.7" FWVGA slider (480 x 854: hdpi)
3.7" WVGA (480 x 800: hdpi)
3.4in WQVGA (240 x 432: ldpi)
3.3" WQVGA (240 x 400: ldpi)
3.2" QVGA (ADP2) (320 x 480: mdpi)
3.2" HVGA slider (ADP1) (320 x 480: mdpi)
2.7" QVGA slider (240 x 320: ldpi)
2.7" QVGA (240 x 320: ldpi)
Add Device Definition...
Preview All Screen Sizes
package com.packtpub.mathg

import ...

public class MainActivity
Select the form factors your app will run on

Different platforms require separate SDKs

- **Phone and Tablet**
  - **Minimum SDK**: API 18: Android 2.2 (Froyo)
  - Lower API levels target more devices, but have fewer features available. By targeting API 8 and later, your app will run on approximately 100.0% of the devices that are active on the Google Play Store. Help me choose.

- **TV (Not Installed)**
  - **Minimum SDK**

- **Wear**
  - **Minimum SDK**: API 20: Android 4.4 (KitKat Wear)

- **Glass (Not Installed)**
  - **Minimum SDK**
Chapter 3

Speaking Java – Your First Game
package com.packtpub.mathgamechapter2a.mathgamechapter2a;

import ... 

public class MainActivity extends Activity { 

@Override
protected void onCreate(Bundle savedInstanceState) { 
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
}

}
score = "Ada Lovelace"

Incompatible types.
Required: int
Found: java.lang.String
';' expected
GameActivity

9 × 9 = 81

Well done!
a = a + b;

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Code Completion</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish lookup even when non-focused</td>
<td>Code Completion</td>
<td>1,281 times</td>
</tr>
<tr>
<td>Basic code completion</td>
<td>Code Completion</td>
<td>1,847 times</td>
</tr>
<tr>
<td>Variable name completion</td>
<td>Code Completion</td>
<td>2,131 times</td>
</tr>
</tbody>
</table>

```java
//to show our variables
setTextObjectPartA.setText
setTextObjectPartB.setText

//which button rest
buttonObjectChoice
buttonObjectChoice
buttonObjectChoice

} //onCreate ends here
```
9 \times 9 = 81
Chapter 4

Discovering Loops and Methods
I/info: I am in the onCreate method
I/info: Hi there, I am in the method body
I/info: try1 = 1
I/info: try2 = 2
I/info: try3 = 3
I/info: Our random number = 0
I/info: hmmm
I/info: Can't find it
I/info: Back in onCreate
I am in the onCreate method
Hi there, I am in the method body
try1 = 1
try2 = 2
try3 = 3
Our random number = 3
aha!
Found It!
Back in onCreate
android.view.View.OnClickListener

onClick(View):void

- Copy JavaDoc
- Insert @Override

OK | Cancel
Memory Game

Hi Score: 999

PLAY!
Score: 999
Difficulty: 4
Watch/Go

1
2
3
4

Replay
Memory Game

Hi: 48

PLAY!
Score: 44
Level: 3
WATCH!

1
2
3
4

Replay
Chapter 6

OOP – Using Other People's Hard Work

```java
package com.packtpub.basicclasses.app;

/**
 * Created by John on 30/07/2014.
 */

public class Soldier {
}
```

Chapter 7

Retro Squash Game
Blip/Select
Chapter 8
The Snake Game
Why was I so greedy
Snake

Hi Score: 0
Chapter 9

Making Your Game the Next Big Thing
SET UP GOOGLE PLAY GAME SERVICES FOR AN APP

Do you already use Google APIs in your app?

I don't use any Google APIs in my game yet
I already use Google APIs in my game

What is the name of your game?

Snake
5 of 30 characters
This is the name that will be displayed to users in Google Play game services.

What kind of game is it?

Arcade
The category helps users browse interesting games.

Google Play game services use the following APIs: Google Play App State, Google+ API, Google Play Game Services and Google Play Game Management. We will automatically create a project for your game on the Google Developers Console and enable the necessary APIs for you.

Continue Cancel
Branding Information

The following information will be shown to users whenever you request access to their private data using your new client ID.

Product name: Snake

Google account: [redacted] com - you

Link your project to this account's profile and reputation.

Product logo: https://lh6.google.com/G1KFriQHwD9g2ZTptd2AABga7BL

Update

Max size: 120x60 pixels

Home Page URL:

Continue  Cancel

Client ID Settings

Application type

- Installed application

Runs on a desktop computer or handheld device (like Android or iPhone).

Installed application type

- Android [Learn more]

API requests are sent directly to Google from your clients' Android devices. Google verifies that each request originates from an Android application that matches the package name and SHA1 signing certificate fingerprint name listed below.

Package name:

(Example: com.example)

com.packtpub.enhancementsnakegame.enhance

Signing certificate fingerprint (SHA1):


Create client  Cancel
### NEW LEADERBOARD

**Score Formatting**
- **Numeric**
- **Number of decimal places:**
  - 0 (default)¹

**Icon**
- 512 x 512
- PNG or JPEG

**Ordering**
- **Larger is better**
- **Smaller is better**

**Limits**
- **Do not allow scores below this value:**
- **Do not allow scores above this value:**
- Leave fields blank for no limit.

**List order**
- 1 of 1

### NEW ACHIEVEMENT

**Name**
- English (United States) – en-US

**Description**
- English (United States) – en-US (optional for testing)

**Icon**
- 512 x 512
- PNG or JPEG (optional for testing)

**Incremental achievements**
- Are there several steps the user needs to achieve before this achievement is unlocked? **Yes**

**Points**
- 5 (default)¹
- 5 of 1,000 achievement points distributed
- The point value needs to be between 5 and 200 and needs to be a multiple of 5.

**List order**
- 1 of 1

¹ The default values and units are used for demonstration purposes. Actual settings should be determined based on specific requirements and user experience.
Incremental achievements

Are there several steps the user needs to achieve before this achievement is unlocked?

☐

How many steps are needed?

5 Enter a value between 2 and 10,000

---

5 🌟 Apple Muncher 5

Get resources

Learn all about implementing achievements in the developer documentation.
Snake

Choose an account

Add account

Hi Score: 0
Snake

Hi Score: 0

My circles
1 player

1 • ME  39

No one in your circles has played Snake.

Tell others about this game and compare scores when they play.

Public
0 players

Unbelievable! There are no public high scores for this game.

Play now and be the very first in the universe on the leaderboard!
Appendix

Self-test Questions and Answers