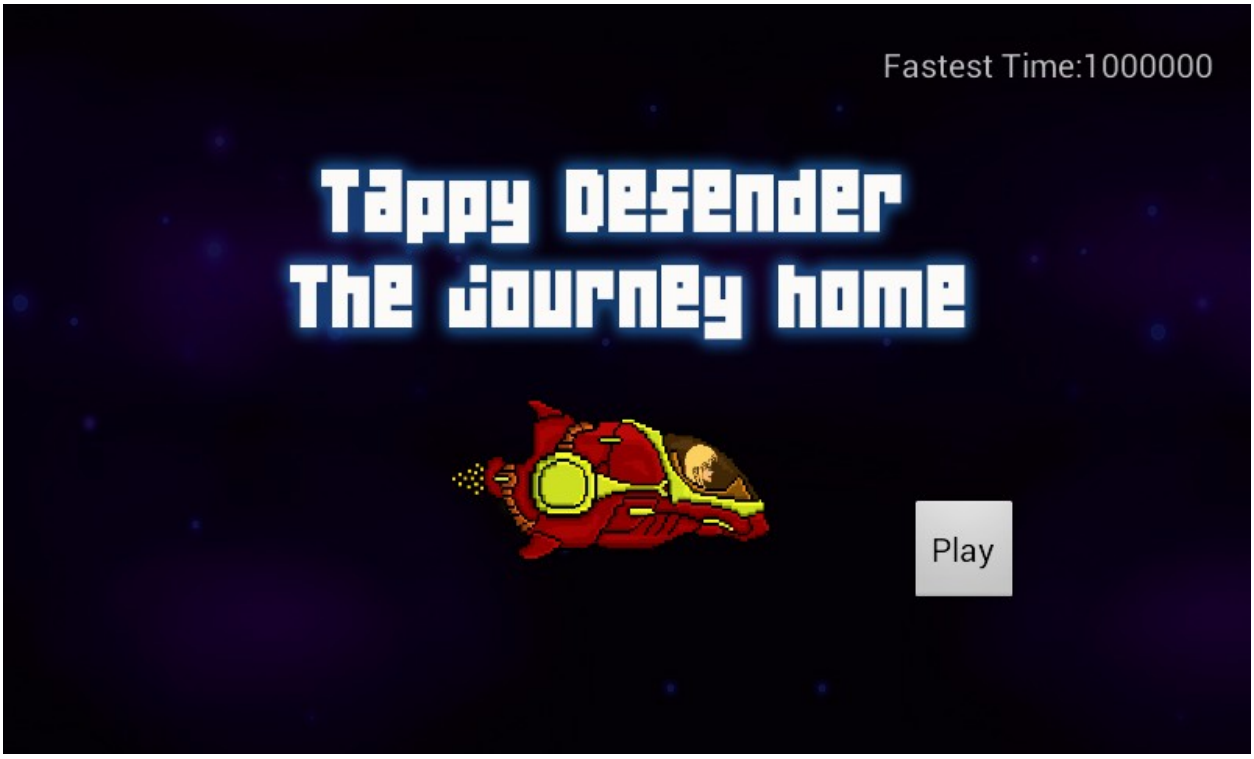
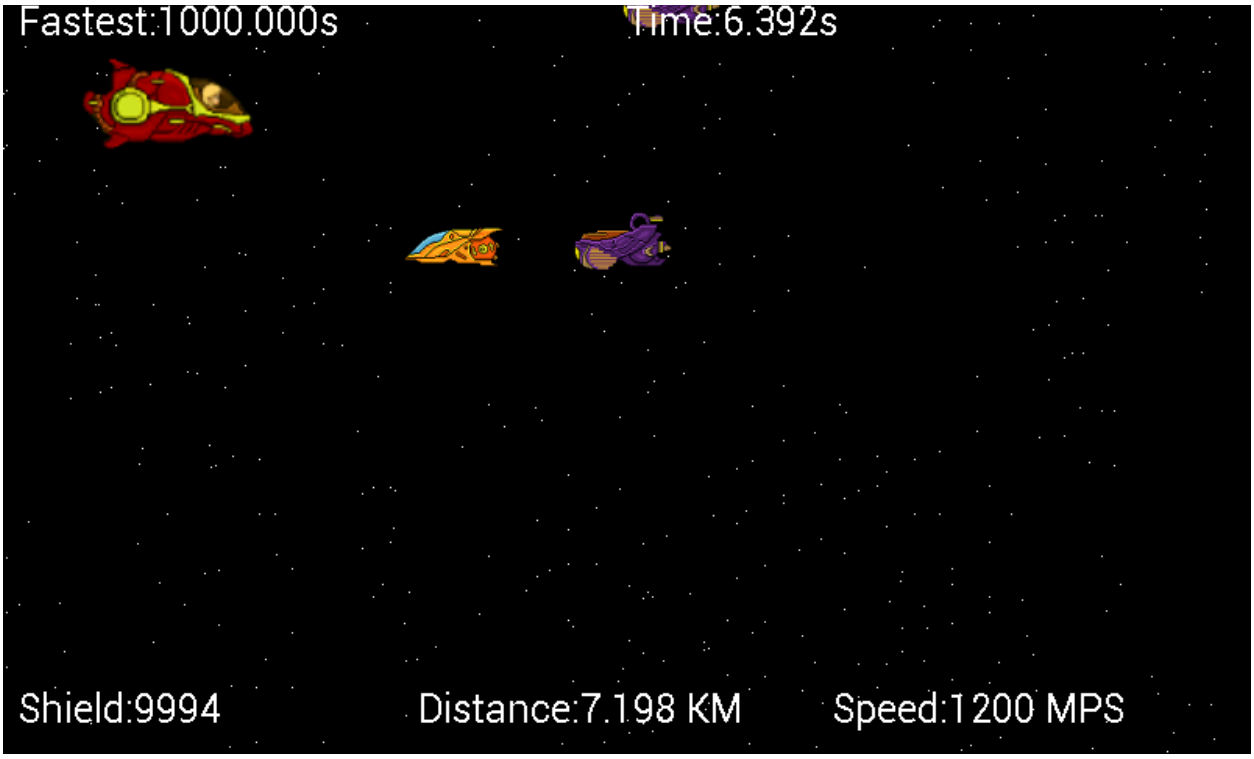
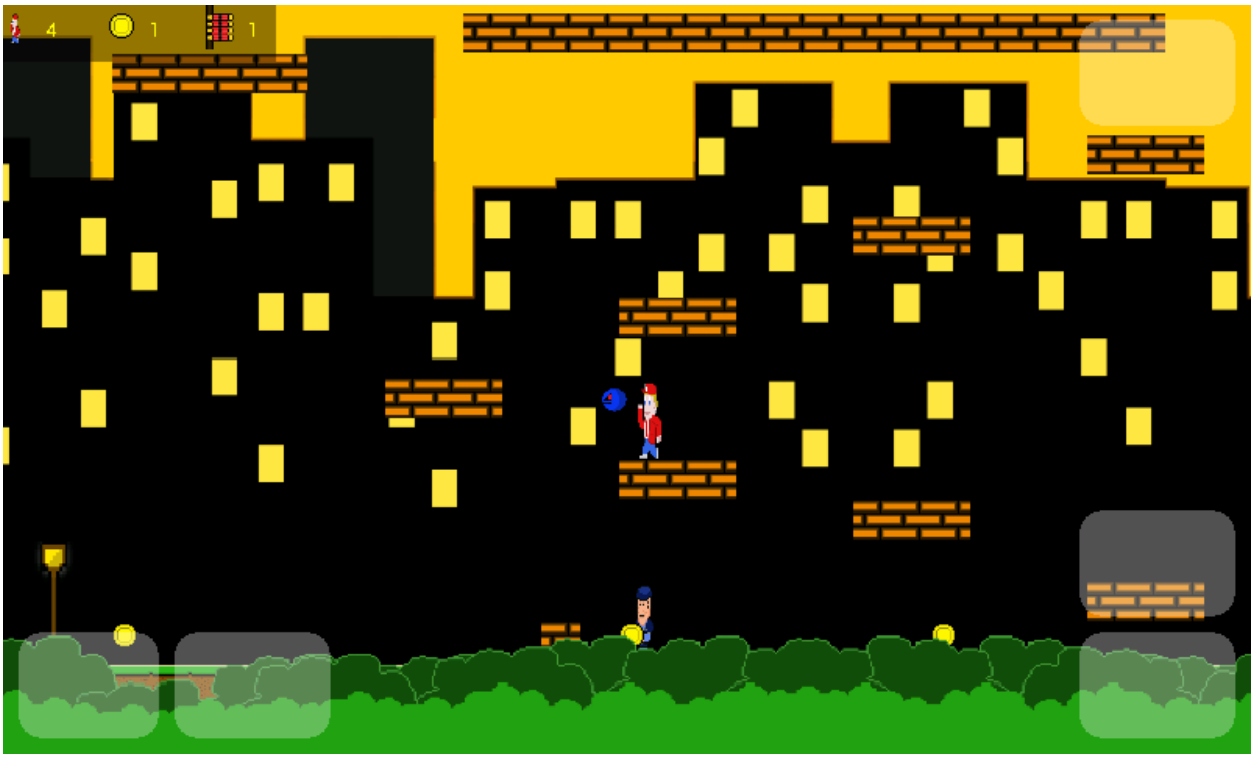
# Android Game Programming by Example

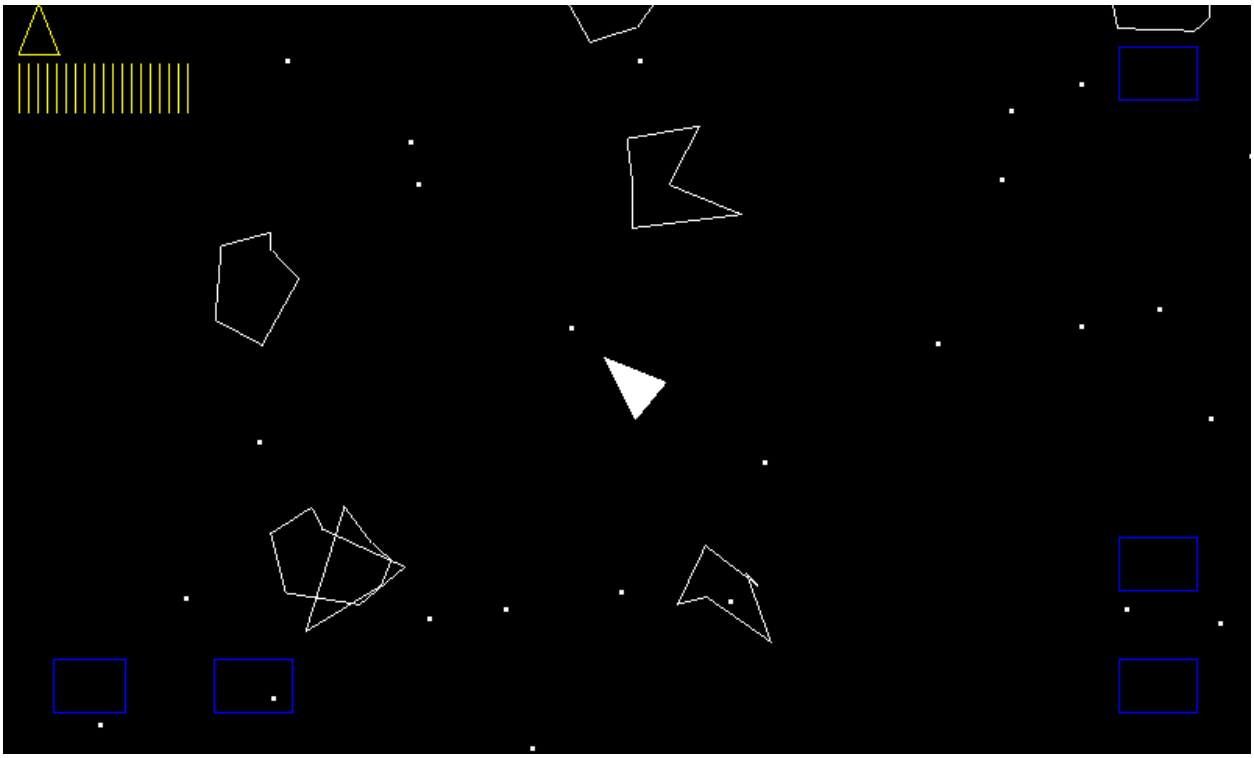
**Chapter 1: Player 1 UP**




Fastest:1000.000s
Time:6.392s
Shield:9994
Distance:7.198 KM
Speed:1200 MPS

3
0
1

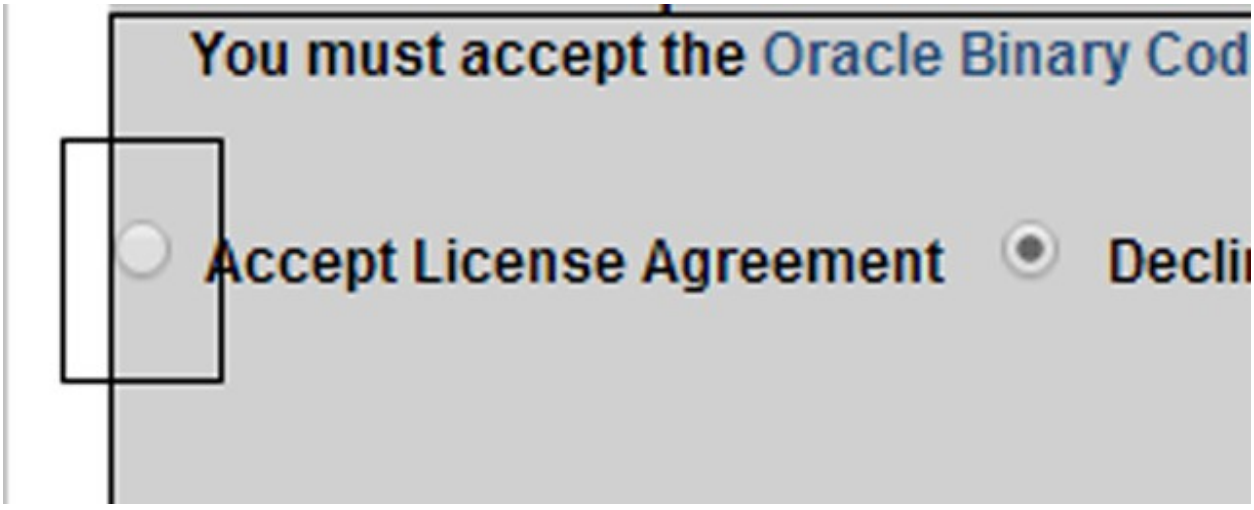

4
1
1

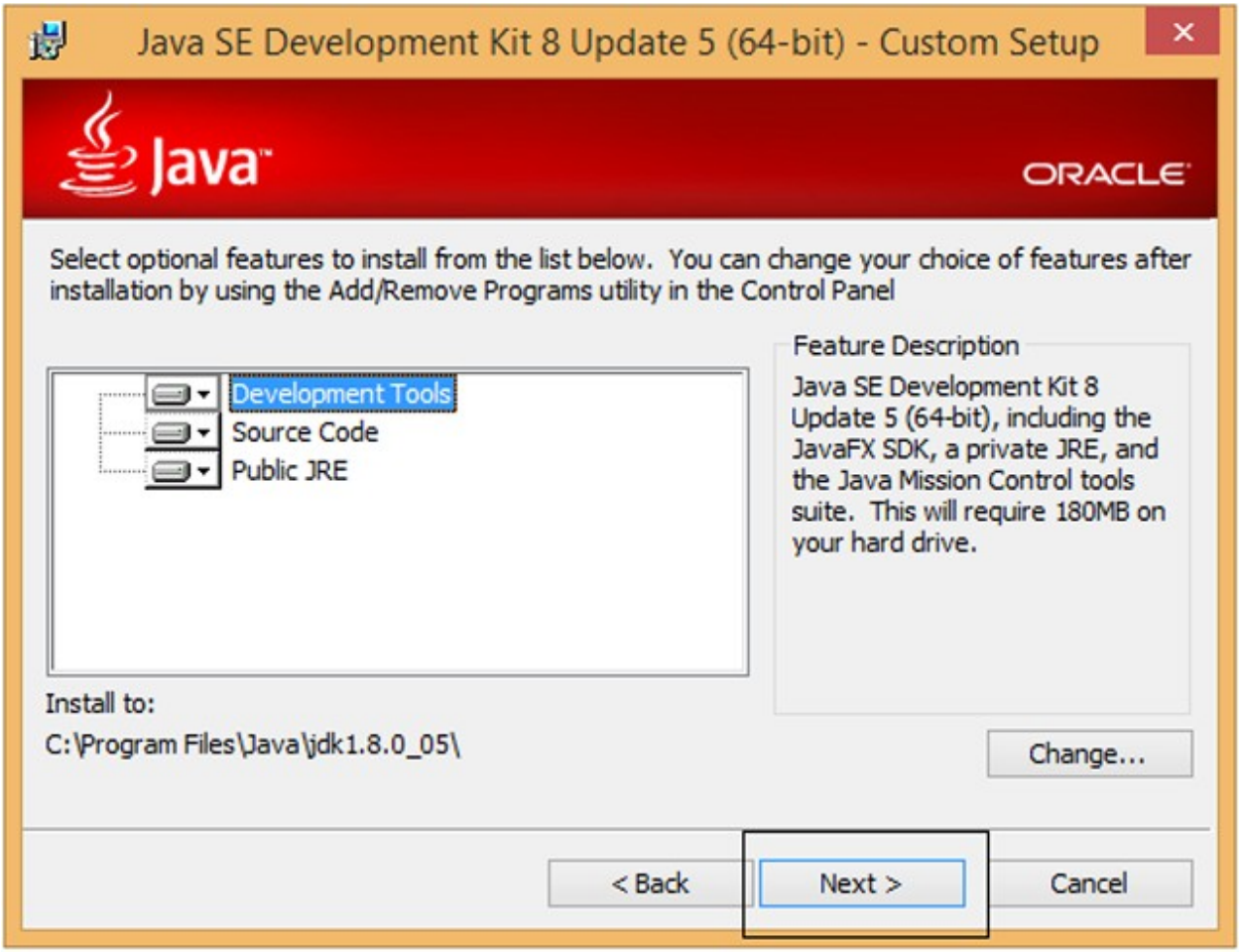


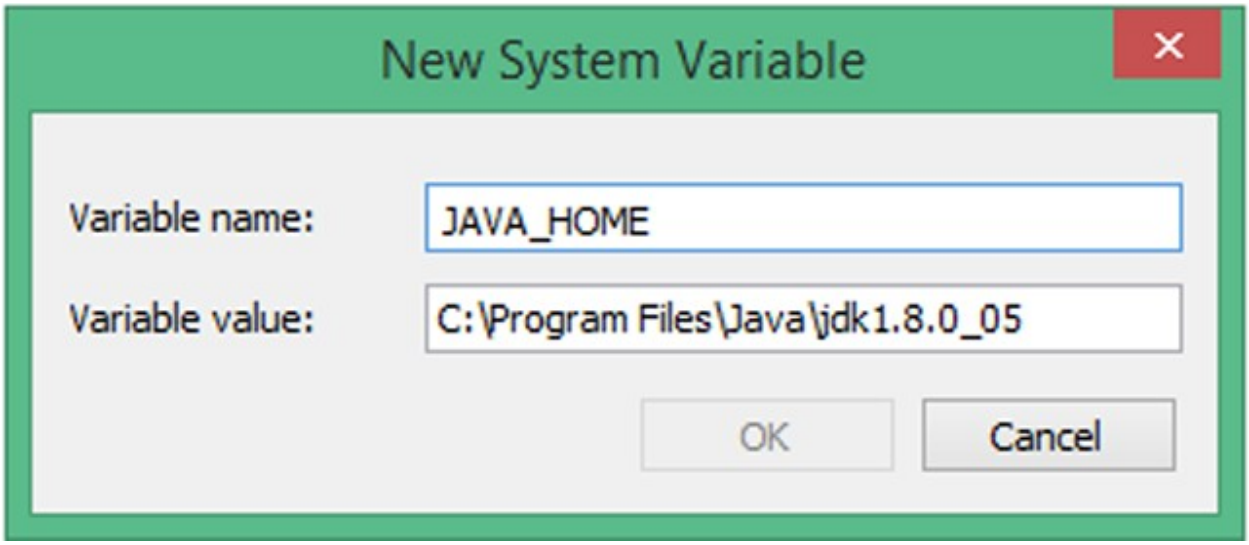
JDK
DOWNLOAD
Server JRE
DOWNLOAD
JRE
DOWNLOAD

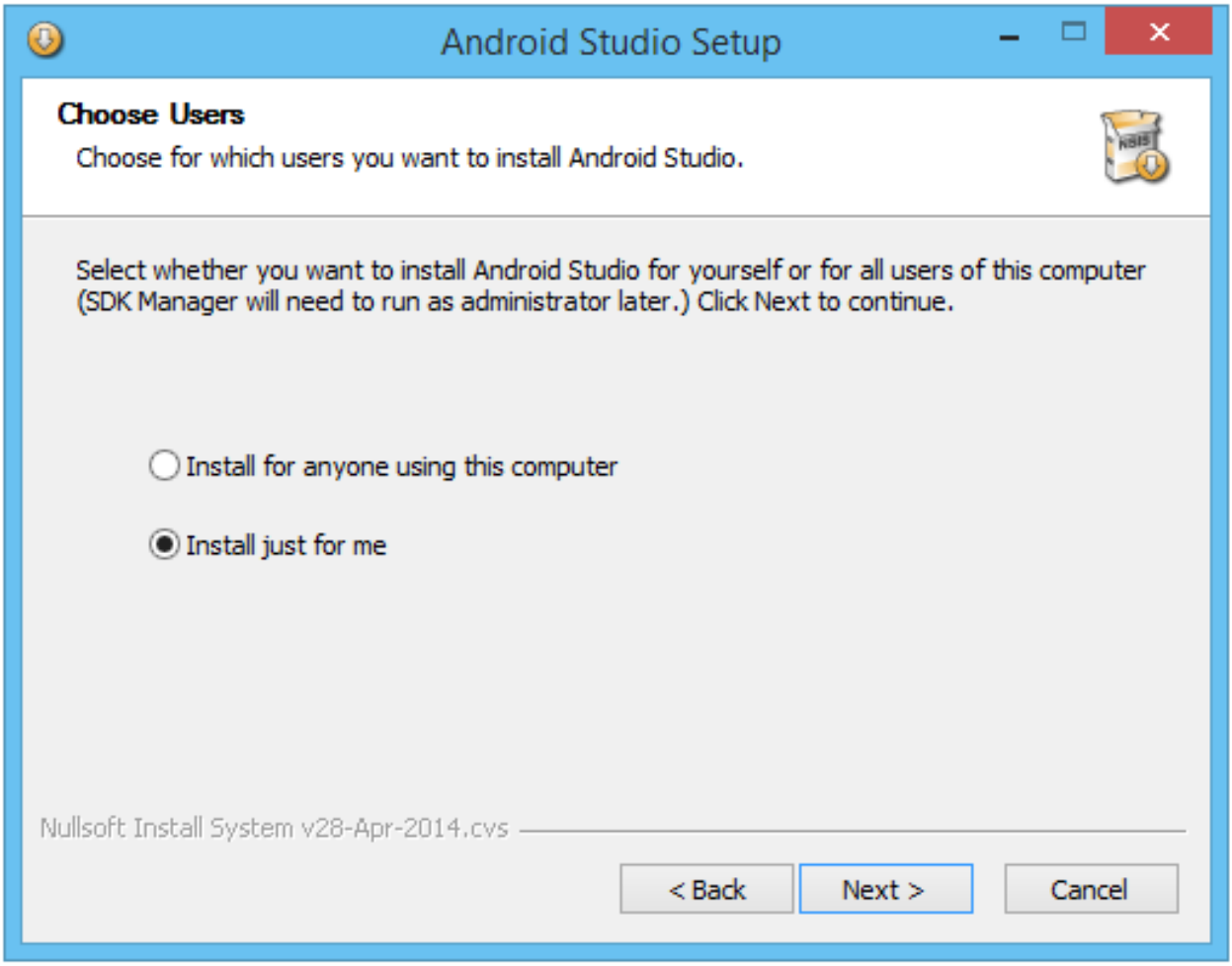
System

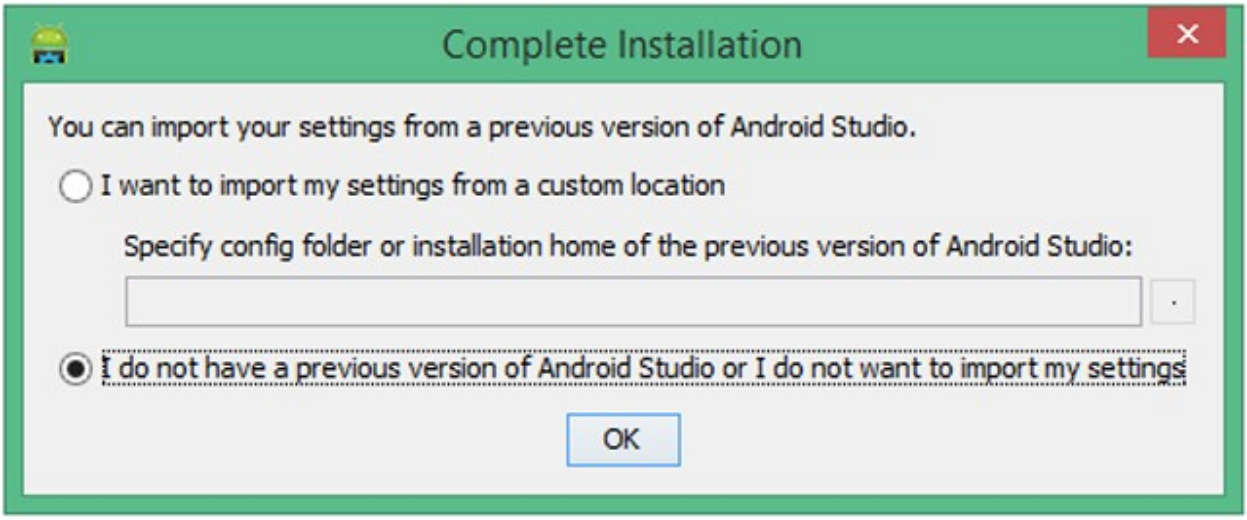
| | |
|---|---|
| Manufacturer: | TOSHIBA |
| Model: | Personal Computer |
| Rating: | 6.8 Windows Experience Index |
| Processor: | Intel(R) Core(TM) i7 CPU Q 740 @ 1.73GHz 1.73 GHz |
| Installed memory (RAM): | 8.00 GB |
| System type: | 64-bit Operating System |
| Pen and Touch: | No Pen or Touch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



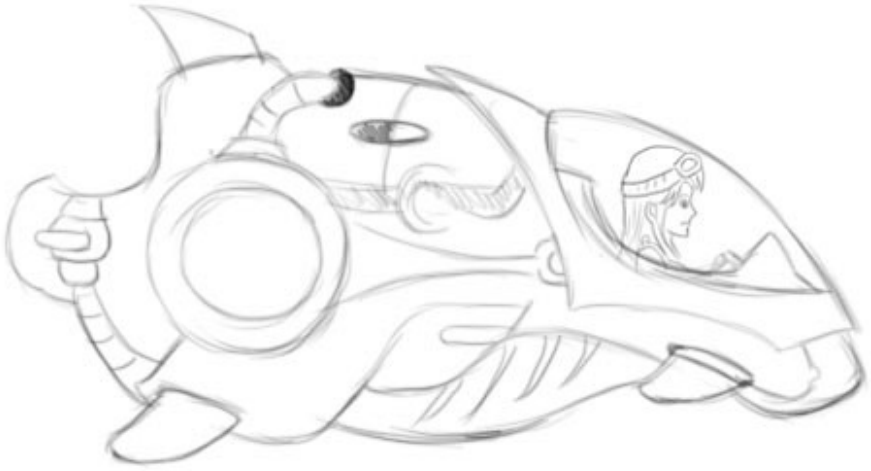

Java SE Development Kit 8 Update 5 (64-bit) - Custom Setup
Java
ORACLE
Select optional features to install from the list below. You can change your choice of features after installation by using the Add/Remove Programs utility in the Control Panel
Development Tools
Source Code
Public JRE
Feature Description
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\
Change...
< Back
Next >
Cancel

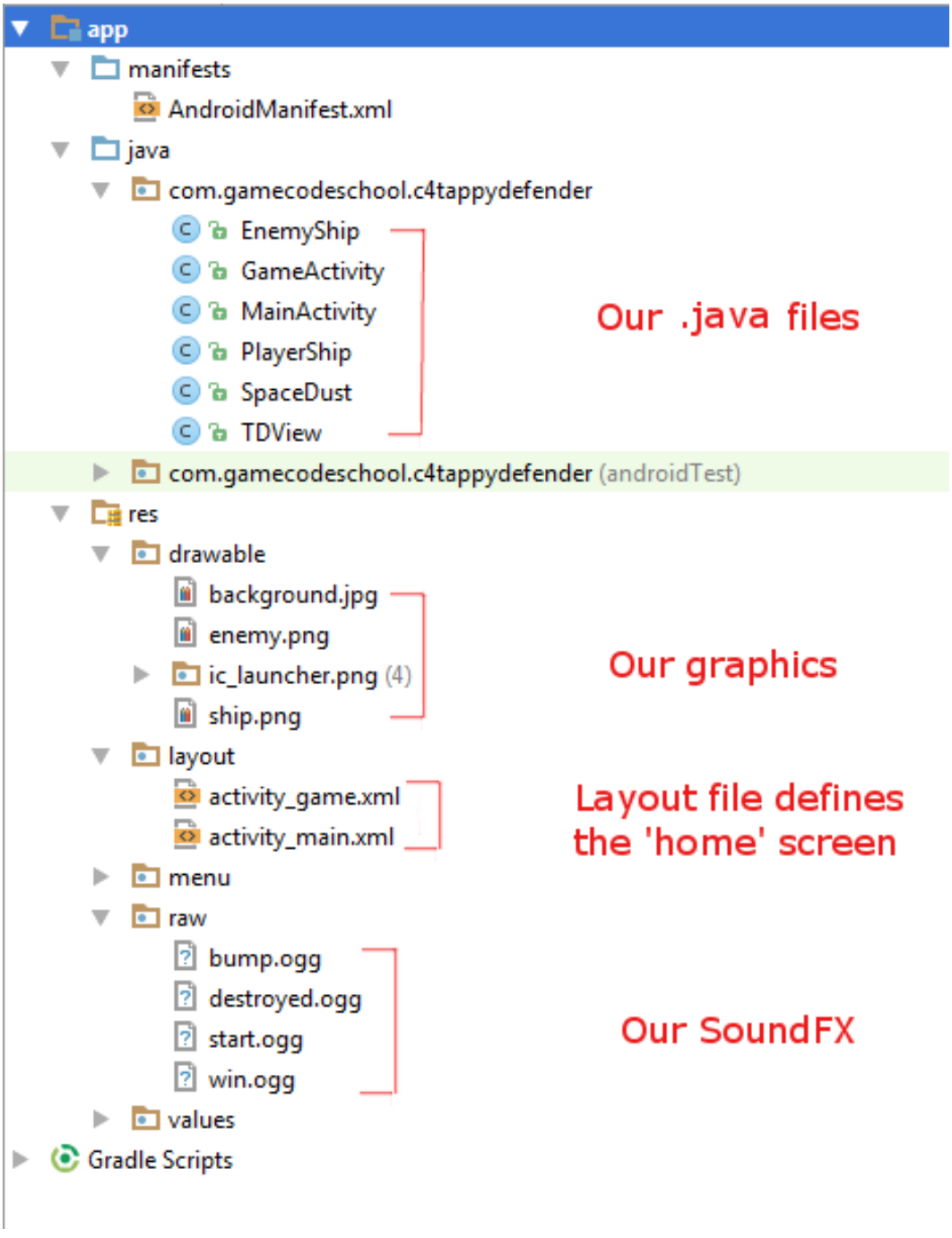

New System Variable
Variable name:
JAVA_HOME
Variable value:
C:\Program Files\Java\jdk1.8.0_05
OK
Cancel

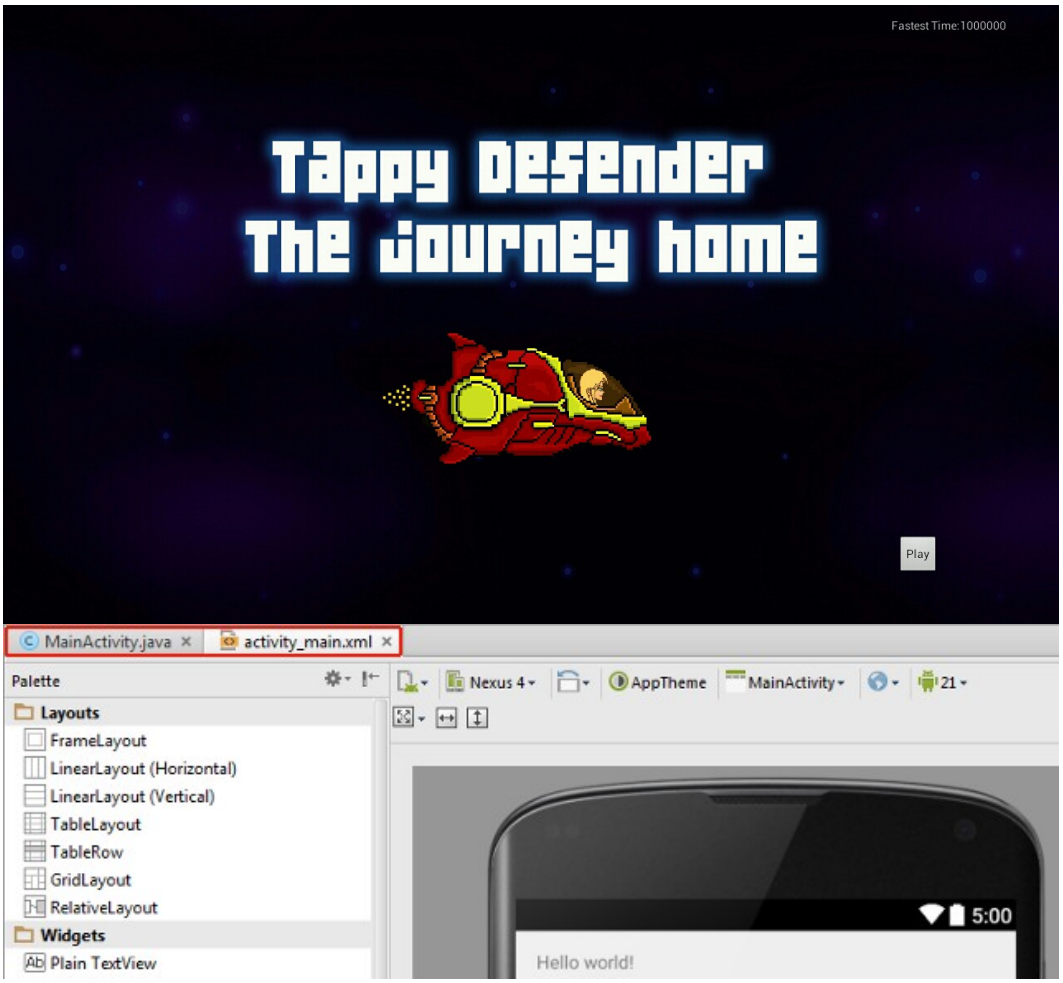

Android Studio Setup
Choose Users
Choose for which users you want to install Android Studio.
Select whether you want to install Android Studio for yourself or for all users of this computer (SDK Manager will need to run as administrator later.) Click Next to continue.
Install for anyone using this computer
Install just for me
Nullsoft Install System v28-Apr-2014.cvs
< Back
Next >
Cancel

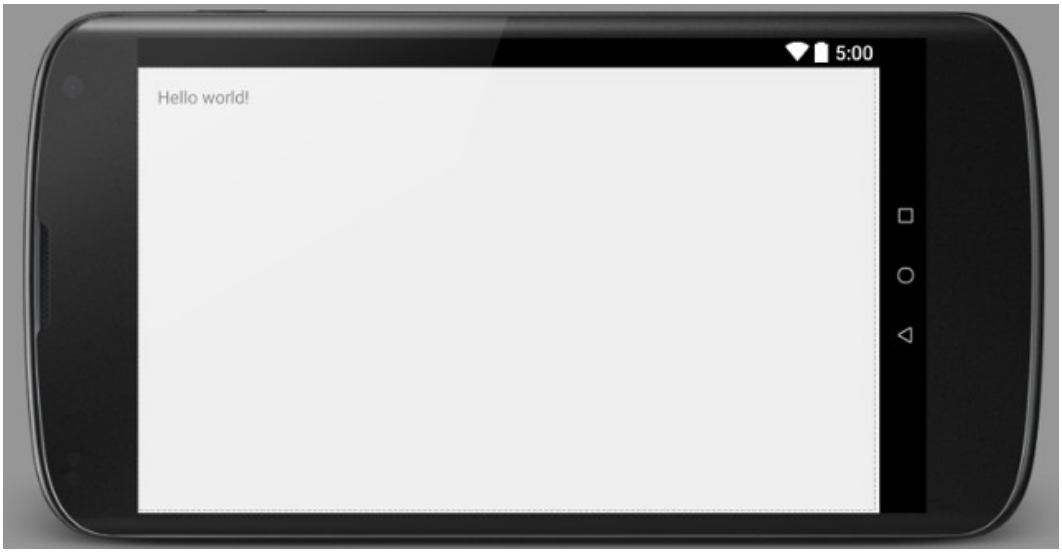


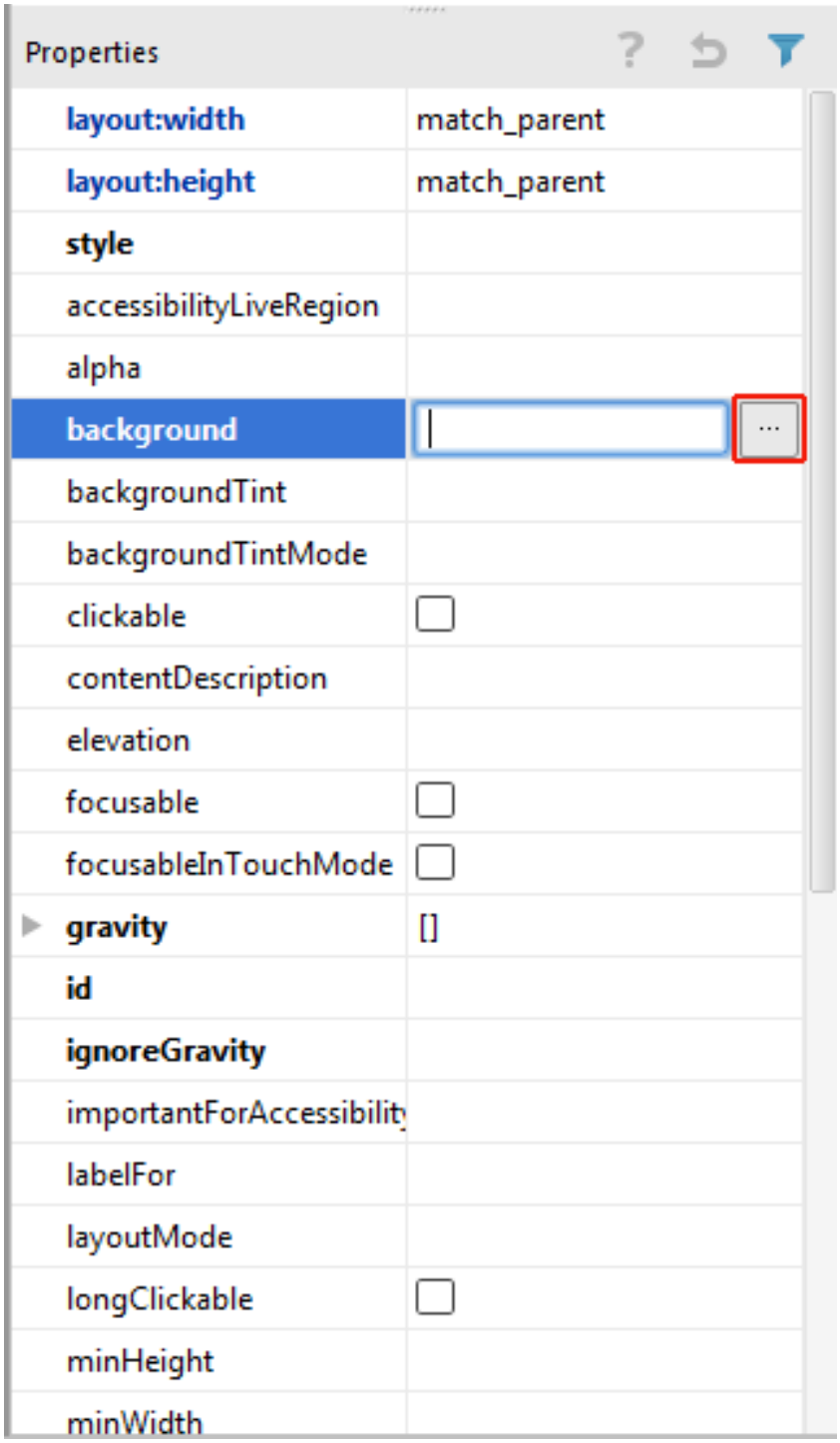

## Chapter 2: Tappy Defender –First Step

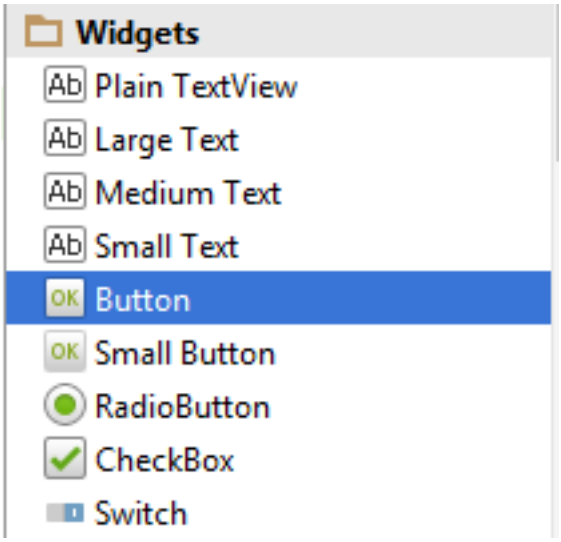



app
manifests
AndroidManifest.xml
java
com.gamecodeschool.c4tappydefender
EnemyShip
GameActivity
MainActivity
PlayerShip
SpaceDust
TDView
com.gamecodeschool.c4tappydefender (androidTest)
res
drawable
background.jpg
enemy.png
ic_launcher.png (4)
ship.png
layout
activity_game.xml
activity_main.xml
menu
raw
bump.ogg
destroyed.ogg
start.ogg
win.ogg
values
Gradle Scripts
Our .java files
Our graphics
Layout file defines the 'home' screen
Our SoundFX

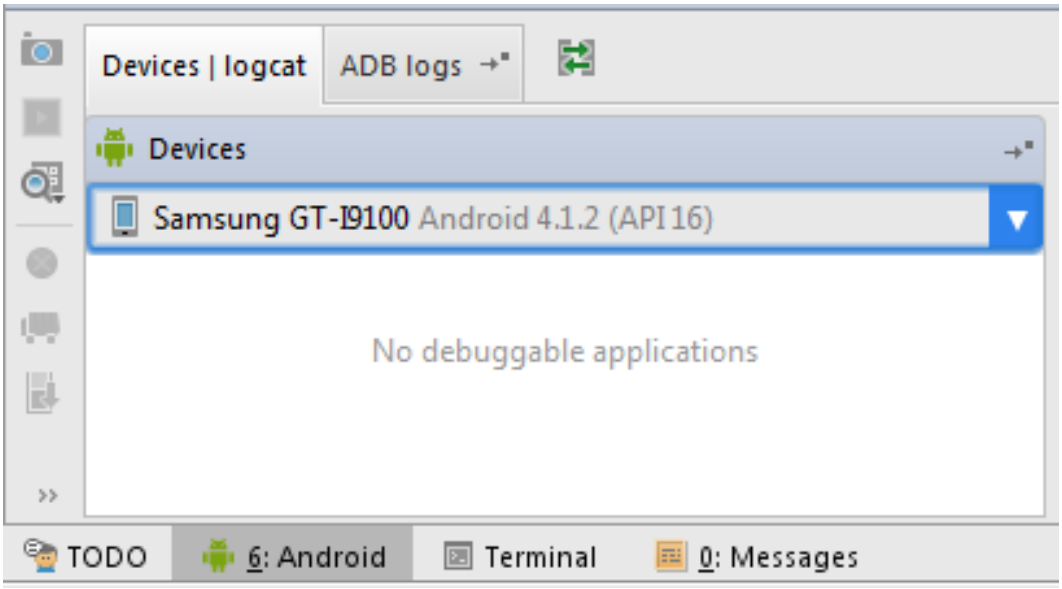

Fastest Time:1000000
Tappy Defender
The Journey Home
Play
MainActivity.java
activity_main.xml
Palette
Layouts
FrameLayout
LinearLayout (Horizontal)
LinearLayout (Vertical)
TableLayout
TableRow
GridLayout
RelativeLayout
Widgets
Plain TextView
Nexus 4
AppTheme
MainActivity
21
5:00
Hello world!

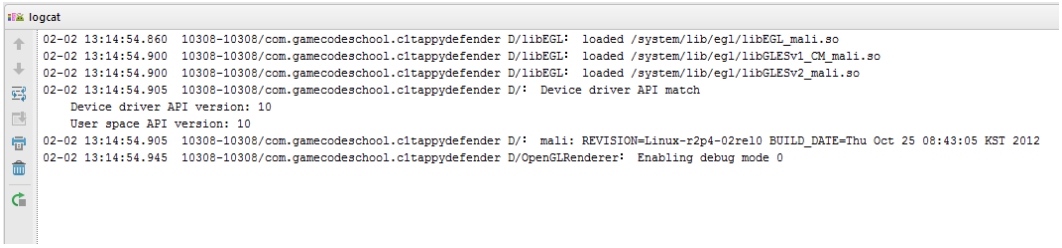

5:00
Hello world!


Properties
layout:width
match_parent
layout:height
match_parent
style
accessibilityLiveRegion
alpha
background
...
backgroundTint
backgroundTintMode
clickable
contentDescription
elevation
focusable
focusableInTouchMode
gravity
[]
id
ignoreGravity
importantForAccessibility
labelFor
layoutMode
longClickable
minHeight
minWidth


Widgets
Plain TextView
Large Text
Medium Text
Small Text
Button
Small Button
RadioButton
CheckBox
Switch

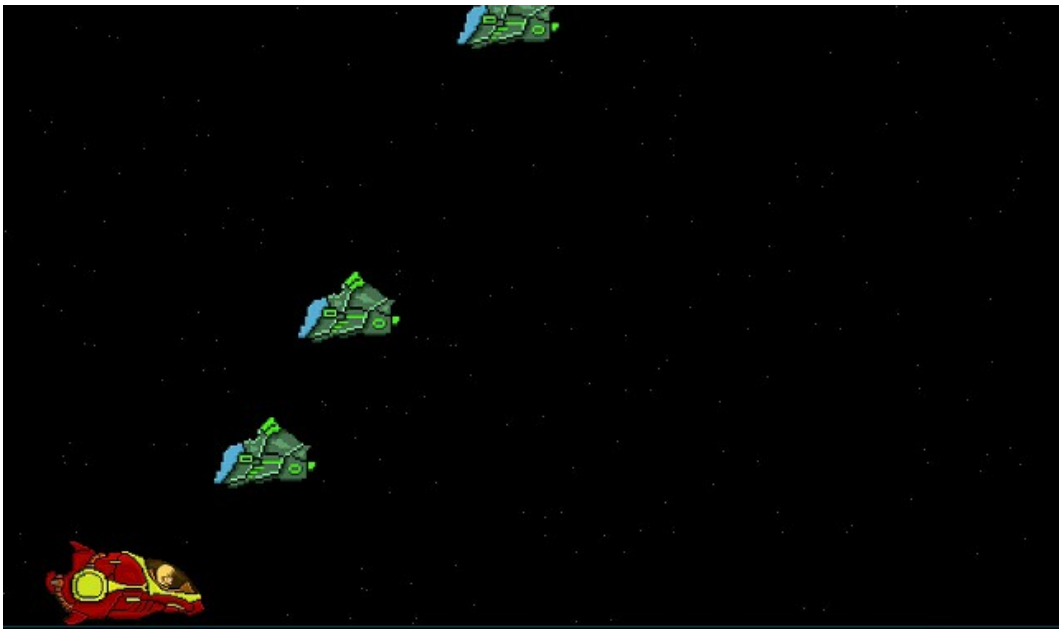
0,0
650,0
1919,0
Image drawn at 650,540
0,
540
0, 1079
1919,1079

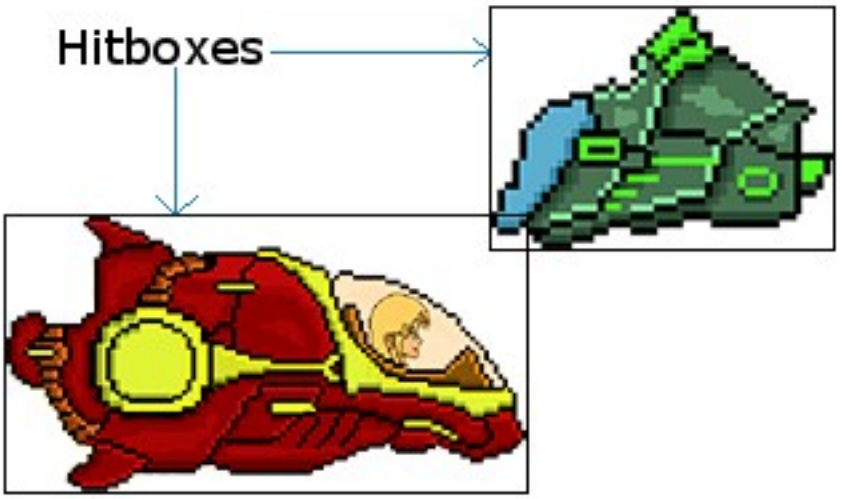


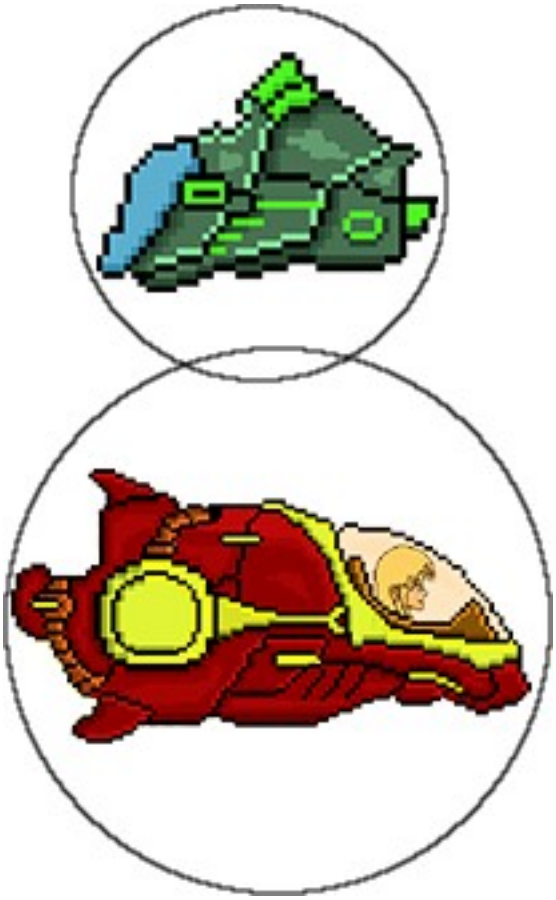



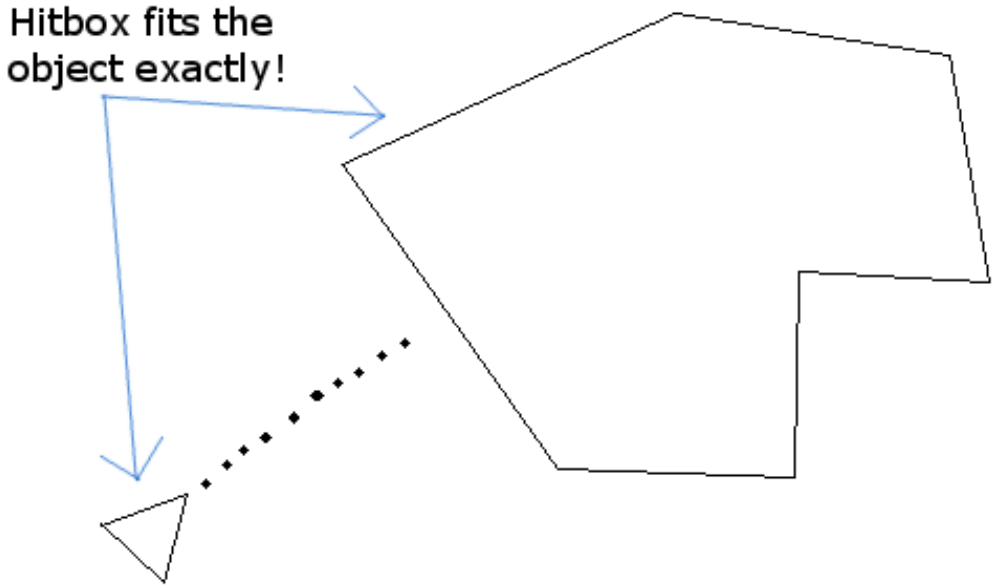

## Chapter 3: Tappy Defender – Taking Flight

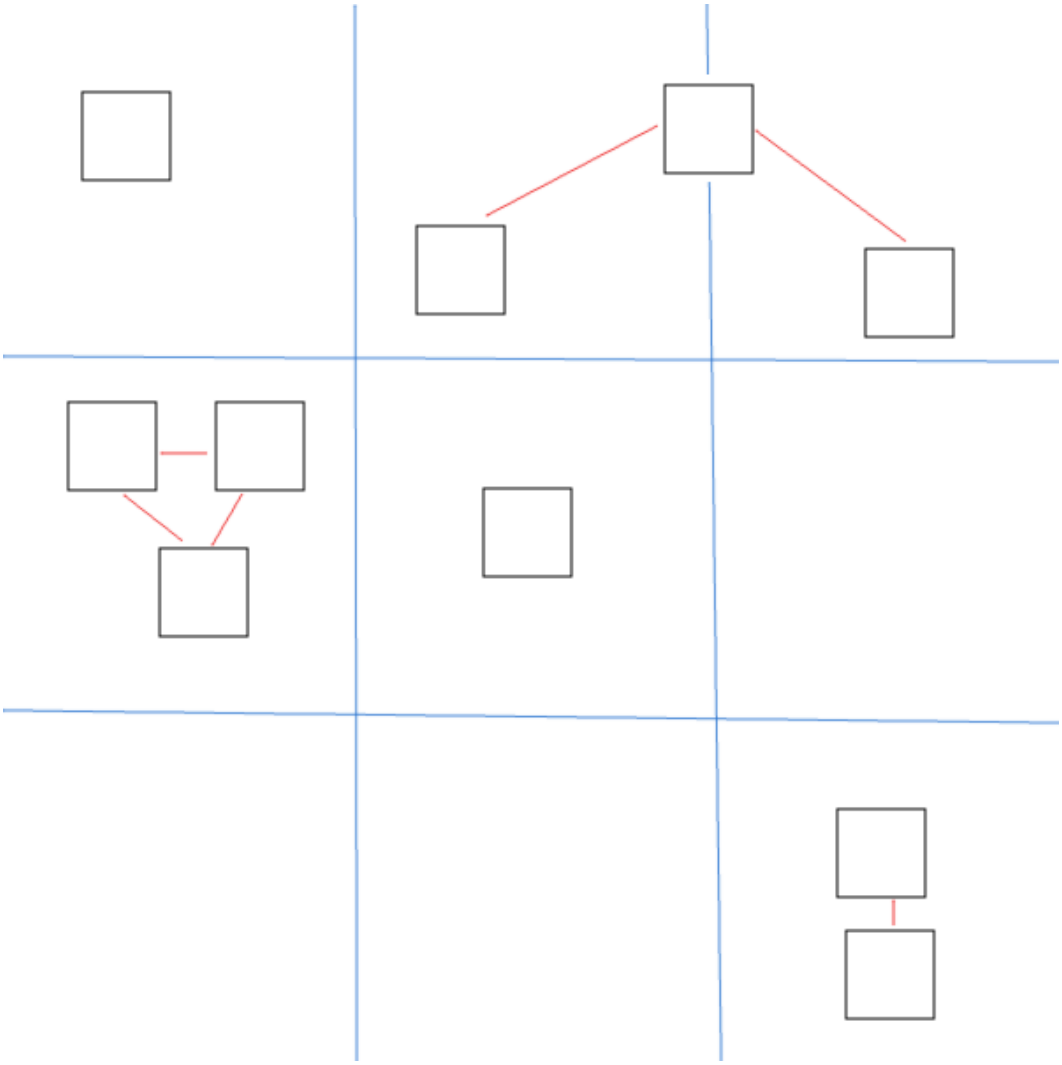
0,0



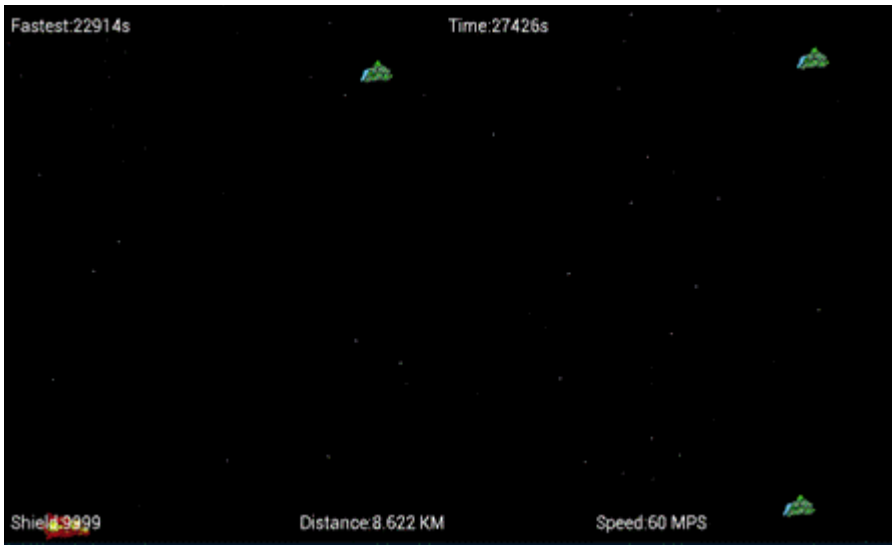

Hitboxes




Hitbox fits the
object exactly!

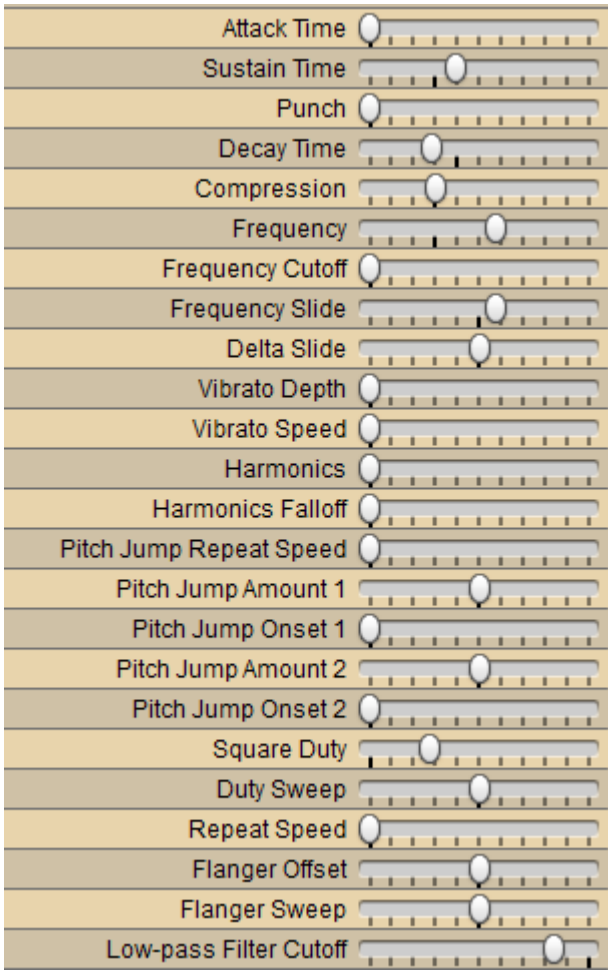


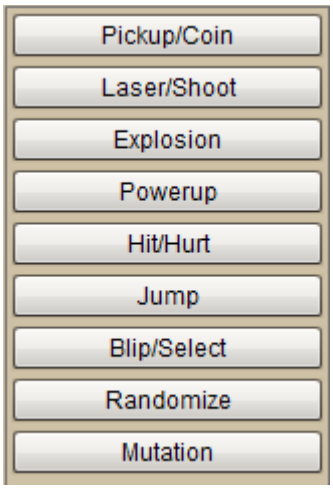
## Chapter 4: Tappy Defender – Going Home


Fastest:22914s
Time:27426s
Shield:9999
Distance:8.622 KM
Speed:60 MPS

Game Over
Fastest:14363s
Time:14363s
Distance remaining:0.0 KM
Tap to replay!

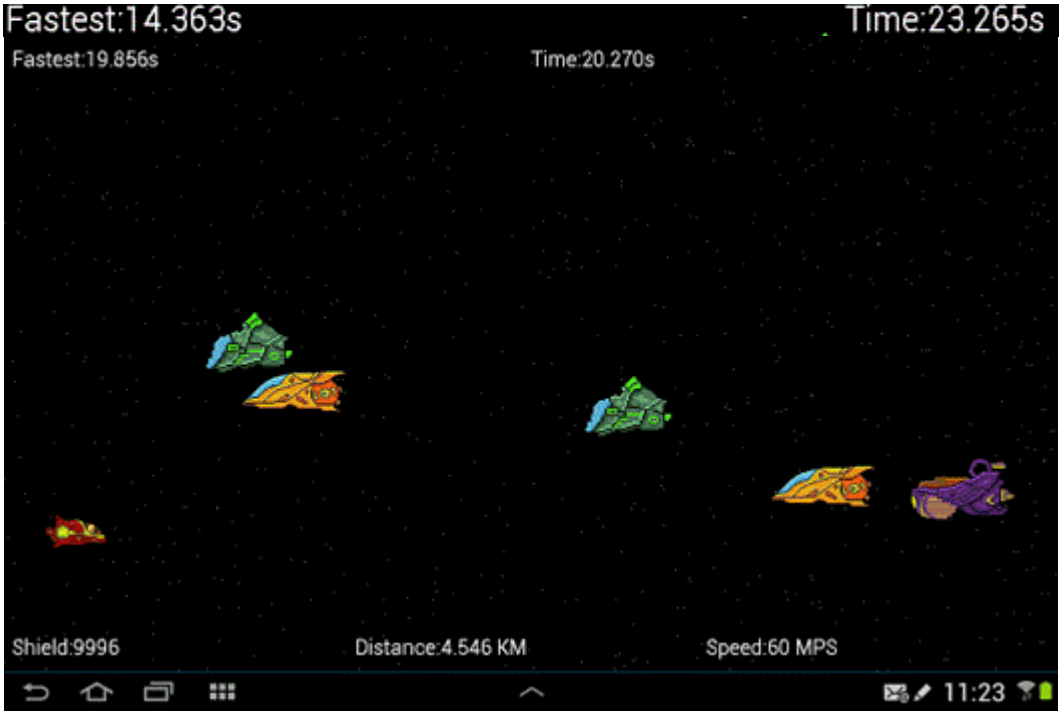
Pickup/Coin
Laser/Shoot
Explosion
Powerup
Hit/Hurt
Jump
Blip/Select
Randomize
Mutation
Create New Sound
Apply Synth
Revert Synth
Duplicate Synth
Jump
X
Synth
Mixer
Triangle
Sin
Square
Saw
Breaker
Tan
Whistle
White
Pink
Attack Time
Sustain Time
Punch
Decay Time
Compression
Frequency
Frequency Cutoff
Frequency Slide
Delta Slide
Vibrato Depth
Vibrato Speed
Harmonics
Harmonics Falloff
Pitch Jump Repeat Speed
Pitch Jump Amount 1
Pitch Jump Onset 1
Pitch Jump Amount 2
Pitch Jump Onset 2
Square Duty
Duty Sweep
Repeat Speed
Flanger Offset
Flanger Sweep
Low-pass Filter Cutoff
Play On Change
Play
Master Volume
Export Wav
Load from Disk
Save to Disk
Copy
Paste
Copy Link
About


Attack Time
Sustain Time
Punch
Decay Time
Compression
Frequency
Frequency Cutoff
Frequency Slide
Delta Slide
Vibrato Depth
Vibrato Speed
Harmonics
Harmonics Falloff
Pitch Jump Repeat Speed
Pitch Jump Amount 1
Pitch Jump Onset 1
Pitch Jump Amount 2
Pitch Jump Onset 2
Square Duty
Duty Sweep
Repeat Speed
Flanger Offset
Flanger Sweep
Low-pass Filter Cutoff


Pickup/Coin
Laser/Shoot
Explosion
Powerup
Hit/Hurt
Jump
Blip/Select
Randomize
Mutation

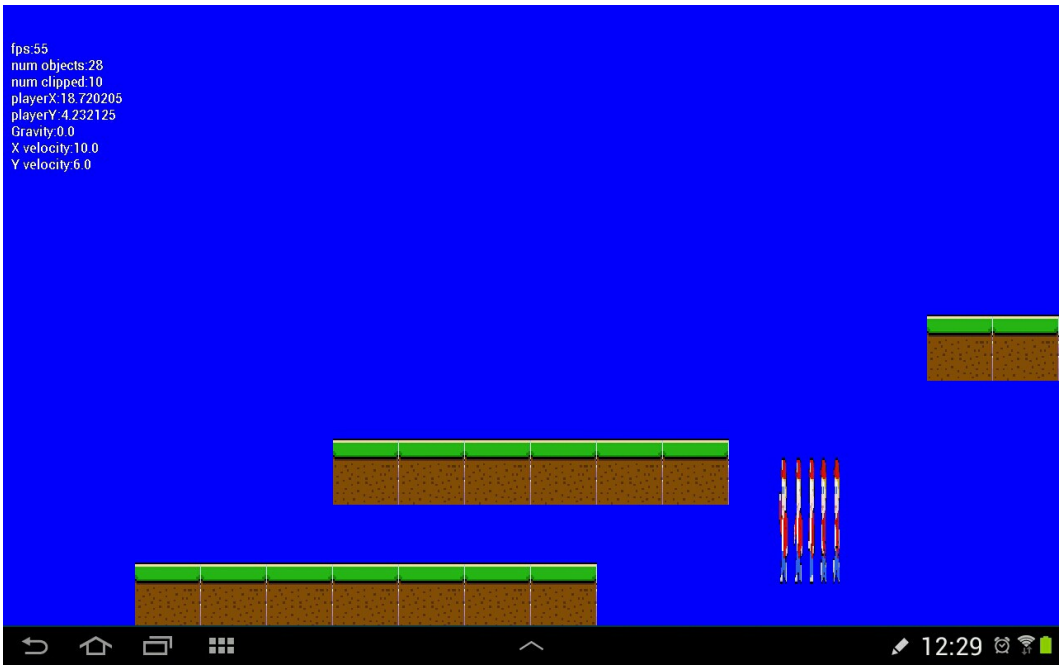
Export Wav

Time:10407s

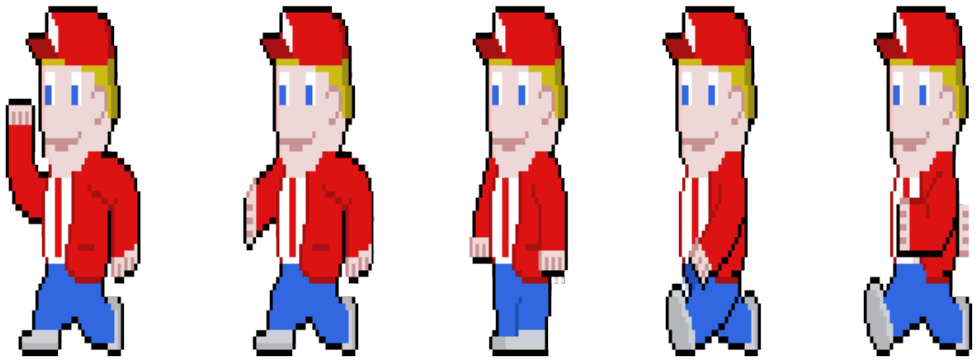

Fastest:14.363s
Time:23.265s
Fastest:19.856s
Time:20.270s
Shield:9996
Distance:4.546 KM
Speed:60 MPS
11:23

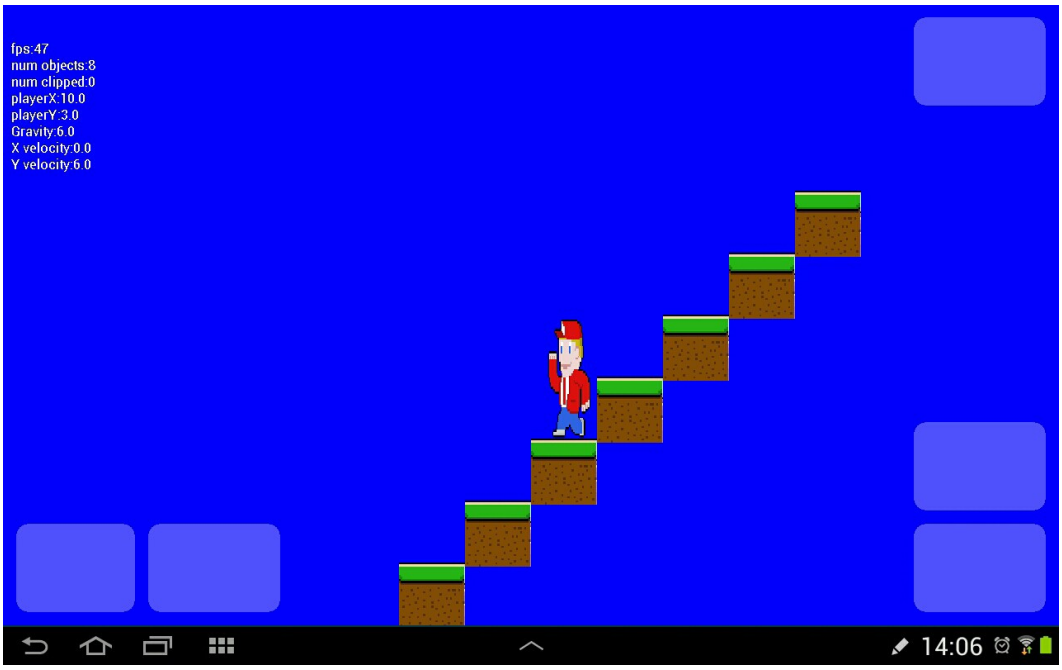
# Chapter 5: Platformer – Upgrading the Game Engine

# Chapter 6: Platformer – Bob, Beeps, and Bumps

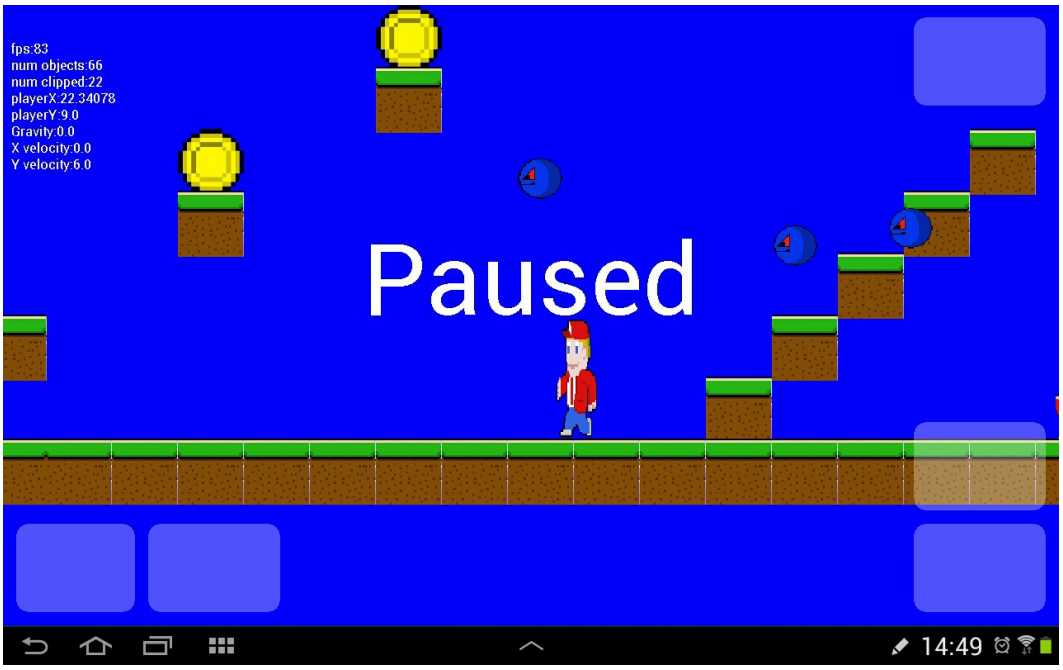

fps:55
num objects:28
num clipped:10
playerX:18.720205
playerY:4.232125
Gravity:0.0
X velocity:10.0
Y velocity:6.0
12:29

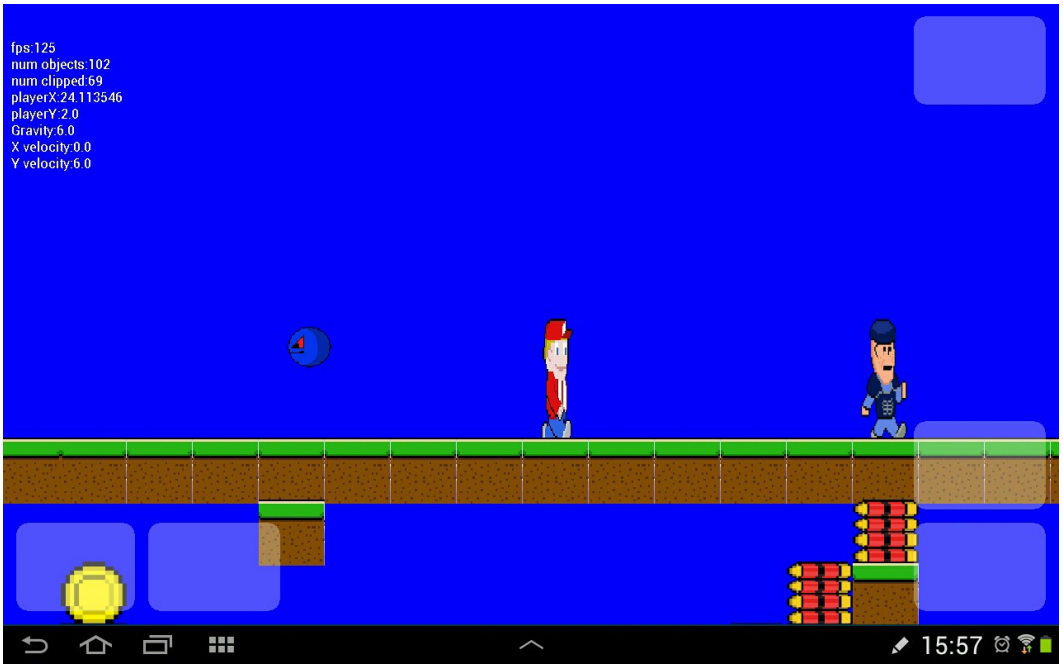
fps:62
num objects:8
num clipped:2
playerX:13.837371
playerY:-1.0
Gravity:6.0
X velocity:0.0
Y velocity:6.0
17:02



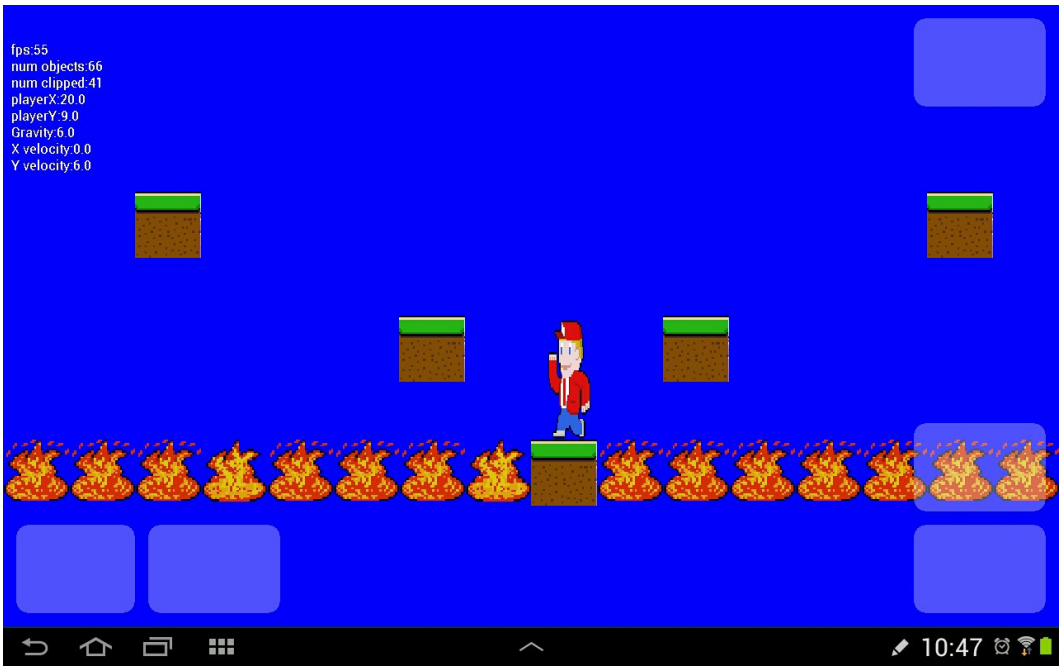

fps:47
num objects:8
num clipped:0
playerX:10.0
playerY:3.0
Gravity:6.0
X velocity:0.0
Y velocity:6.0
14:06

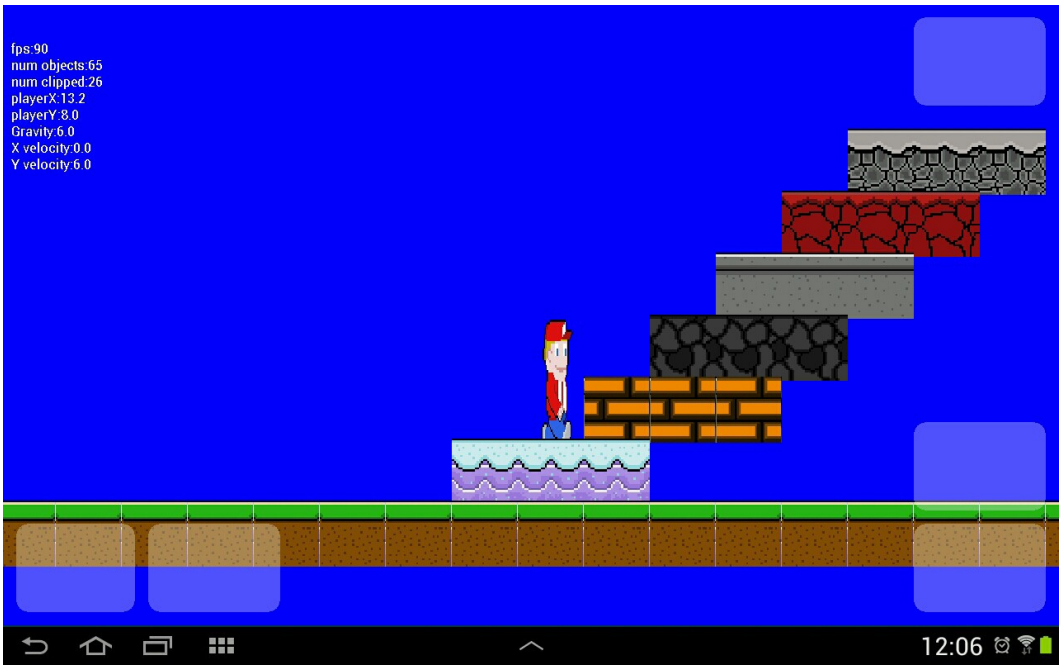
# Chapter 7: Platformer – Guns, Life, Money, and the Enemy

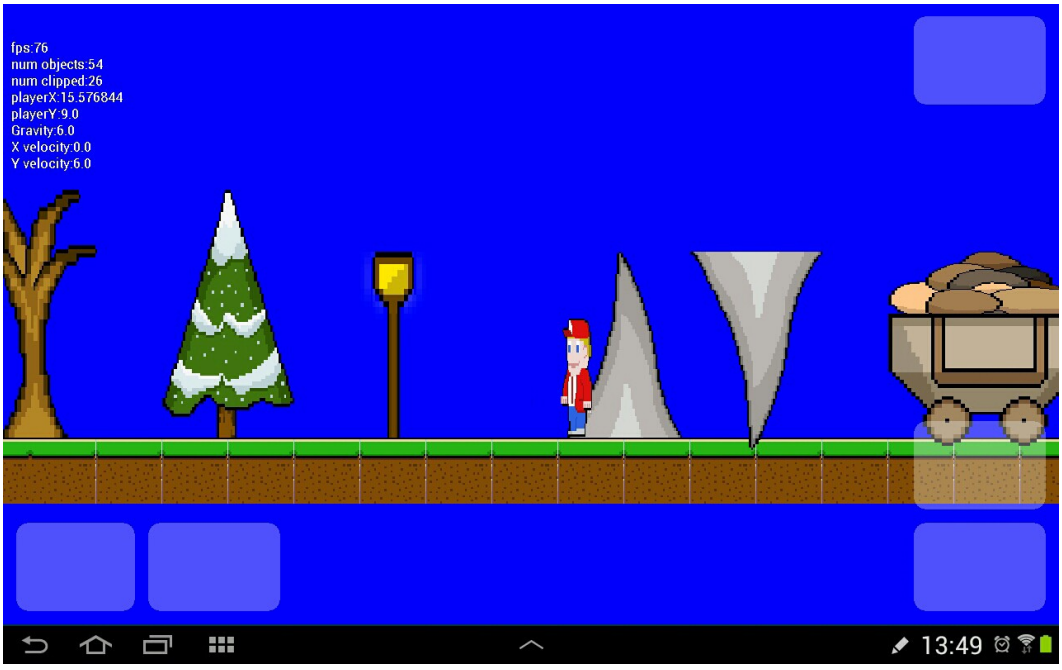

fps:83
num objects:66
num clipped:22
playerX:22.34078
playerY:9.0
Gravity:0.0
X velocity:0.0
Y velocity:6.0
Paused
14:49

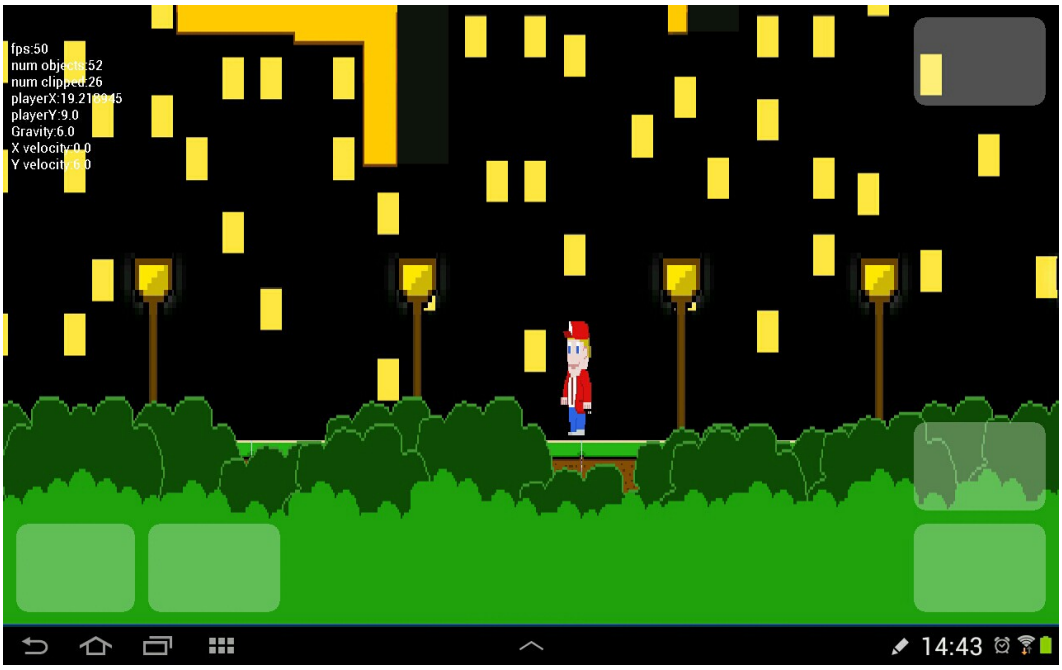

fps:125
num objects:102
num clipped:69
playerX:24.113546
playerY:2.0
Gravity:6.0
X velocity:0.0
Y velocity:6.0
15:57

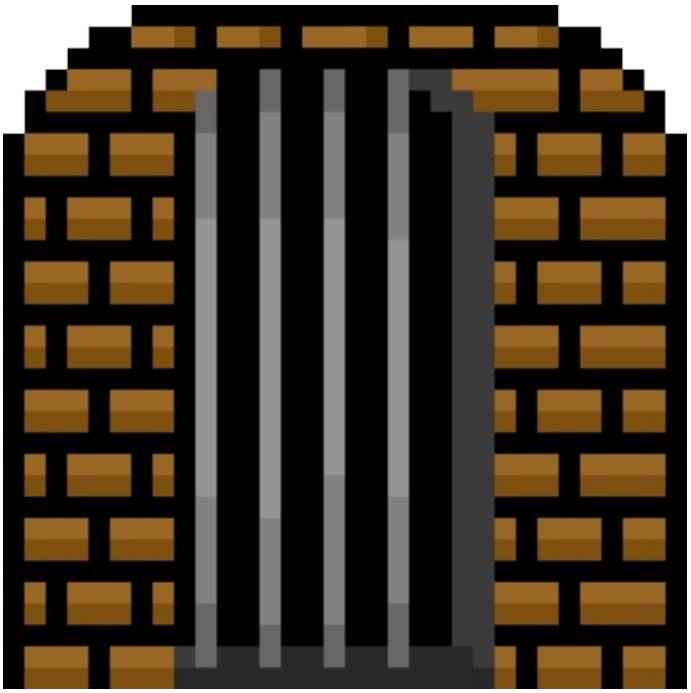
# Chapter 8: Platformer – Putting It All Together




fps:90
num objects:65
num clipped:26
playerX:13.2
playerY:8.0
Gravity:6.0
X velocity:0.0
Y velocity:6.0
12:06


fps:76
num objects:54
num clipped:26
playerX:15.576844
playerY:9.0
Gravity:6.0
X velocity:0.0
Y velocity:6.0
13:49


fps:50
num objects:52
num clipped:26
playerX:19.218945
playerY:9.0
Gravity:6.0
X velocity:0.0
Y velocity:6.0
14:43



Paused
11:52

```
p.............................333333....5555....5555.....5555555...5..5...5....555555555555555555555.....g...g.......t.
.u.u.u.u.u.u.u.u.....................................................................................55.c.c.c.c.c.c.c.....
55555555555555555.......333.........................................................................555555555555555555555
.....................................................................................1.................................
...............................33.....................................................1.................e.......................
.....................................................................................333333333333333333.........
.............................33.....................................1.............33333.........................333..
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3.....................................................................33.....................................................
3......33...............1.............................1.......................................333.....................
3.......................d.........................d......3333333333.....................................................
3....3...................e.......1.........1.................................333.........................
3.....................3333333......d.........d.....33333.....................................e.....................
333...................3.........cccccc.......u.................................333.....................
3.....................3.........333333.....33333.................................................333..............
3...3.................3.....1................1..................1..............1.....................................1
3...e..cccccccccccccc.3.....................................................d.................g......333........
3.....3cccccccccccccc....c......c......c..........c.....c.......c.......c..........c..........3.c.......c.......c......
111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
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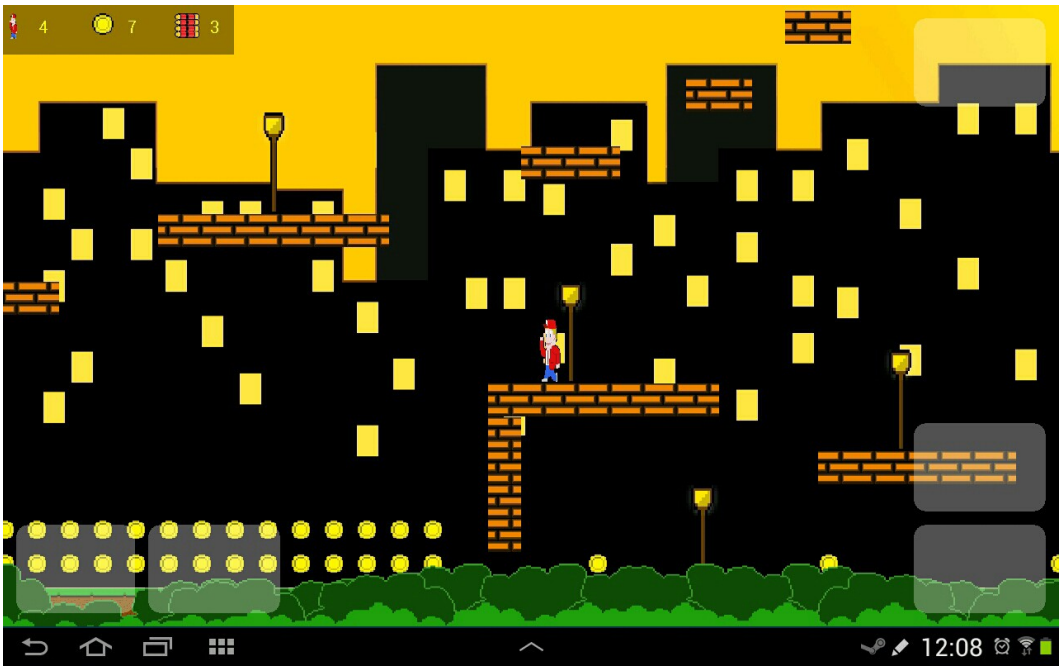
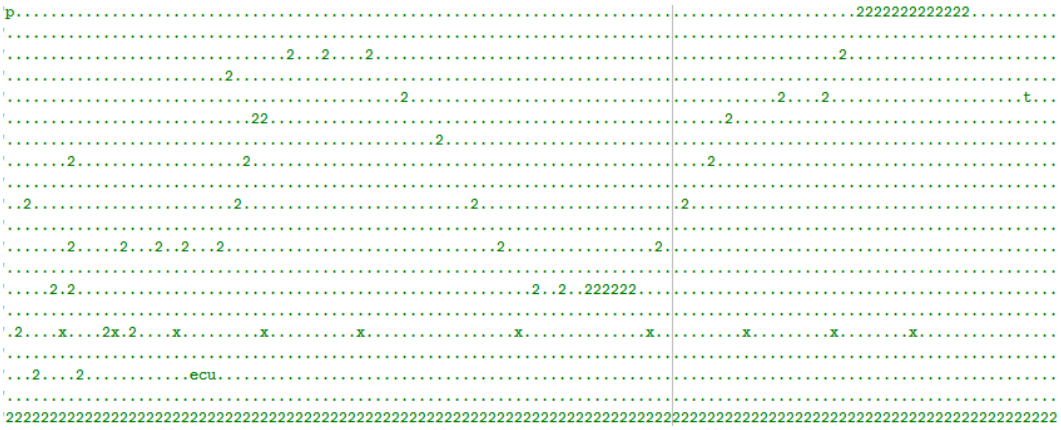
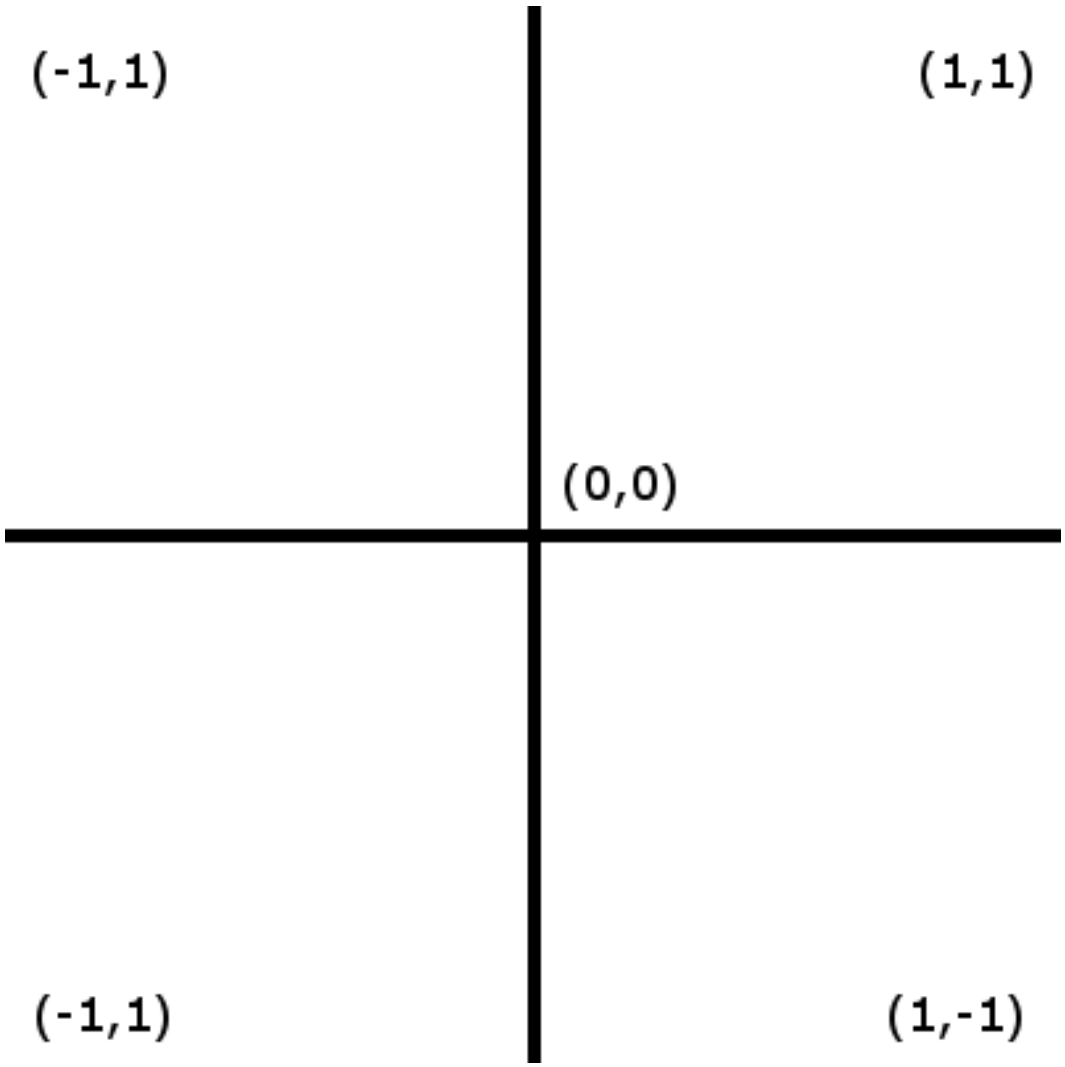


```
'p.......t..................g.....................................................|.....................................uuu'
'.............ddddddddddddddddddddddddd.....................1111111....111....|.....................................555'
'1111111111111111111111111111111111111111111111111111111111111111111111111111|..11.....................................1...'
'.......w.w.....w.w..w.........w.....................................................|.1111111111.....................................'
'.....................................................................11.11111.....|.....................................1.....'
'.....................................................................11.....|.....................................'
'.....................................1111111....11111111.....|.....w..w..w.....1.....'
'....1111111111111111111.....11111111111.....|.....'
'5.....|.....1.....'
'55.....|.....c.c.c.....'
'..55.....|.....1111111111111111111.....1.....'
'.....55.....55...55.....55555.....|.....'
'........55..55....55...55....55.....55...55....55.....|.....1.....1.....'
'7.....d.....|.....7'
'7.....|.....z.....1...1.....7"]
'7.....d.....|.....z.z.....7'
'7w.....1.....z.....|.....z.z.z.....1.....w7'
'7........1111111111.....11111111111.....11111111111111111111111111111111111111111111111111111111111111111117'
'7.....d.....g.....|.....d.....d.....d.....c.c.c.c.e...7'
'7....1....z........1.....zzz....z.....|.....z...z.....7'
'1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111'
```


p
2222222222222
2...2...2
2
2
22
2
2
2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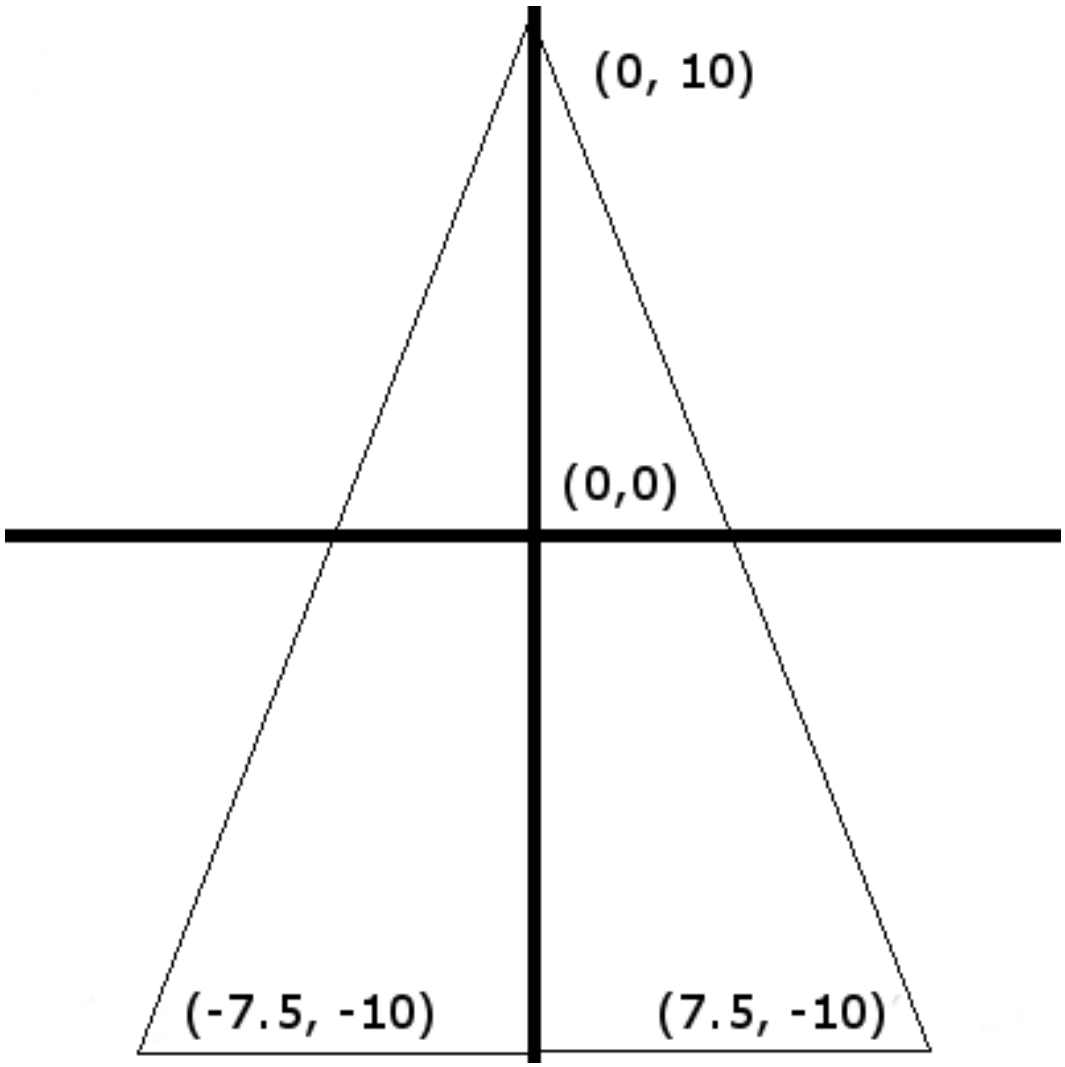
(0, 10)
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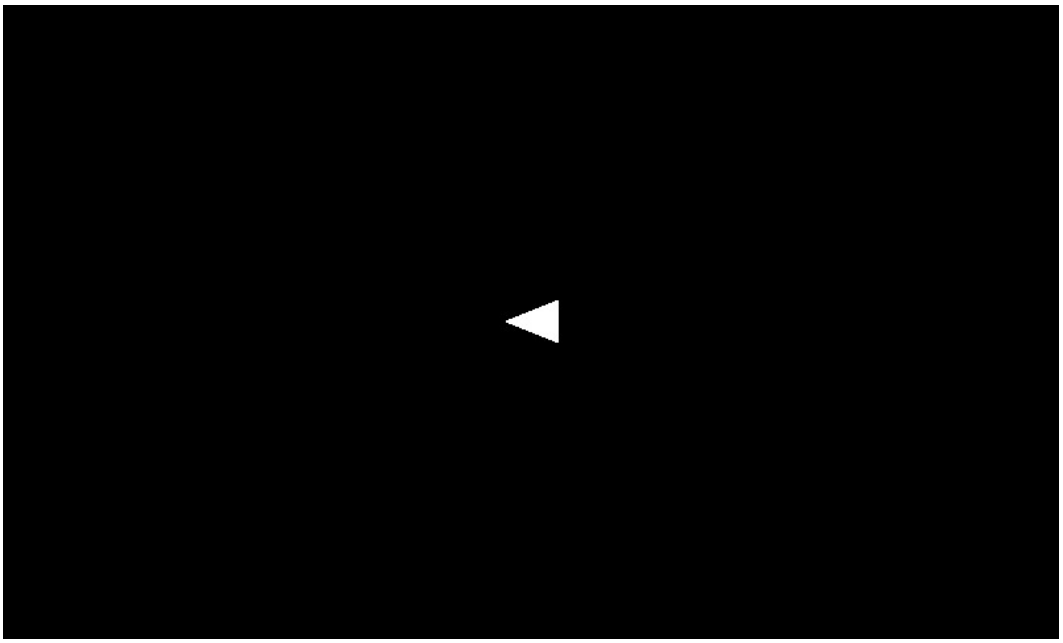
(7.5, -10)



logcat

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04-20 13:33:06.210  13882-13897/com.gamecodeschool.c9asteroids E/averageFPS:: 94
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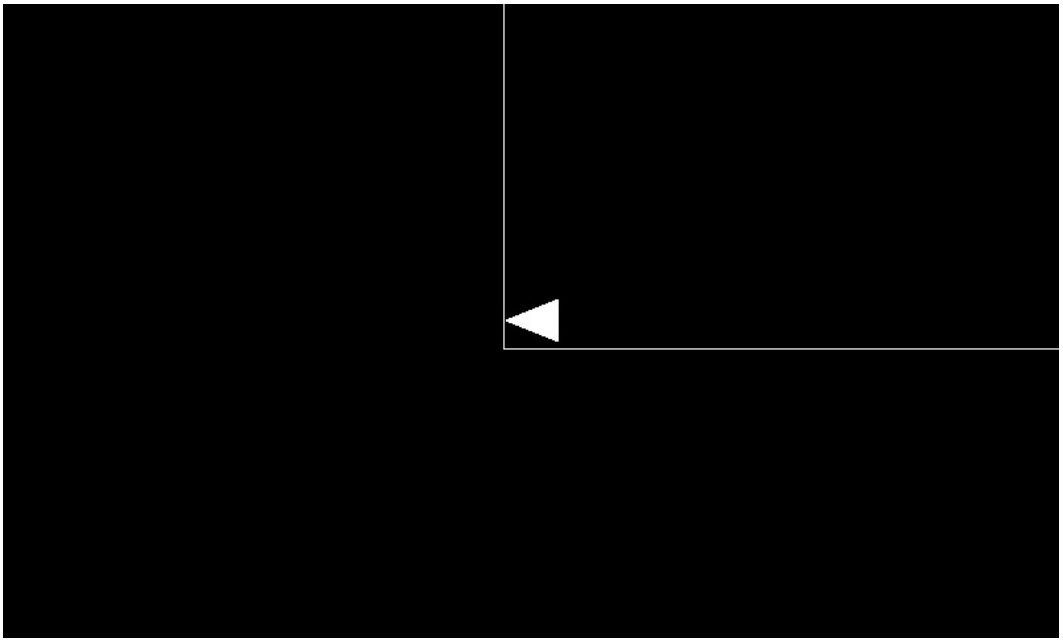
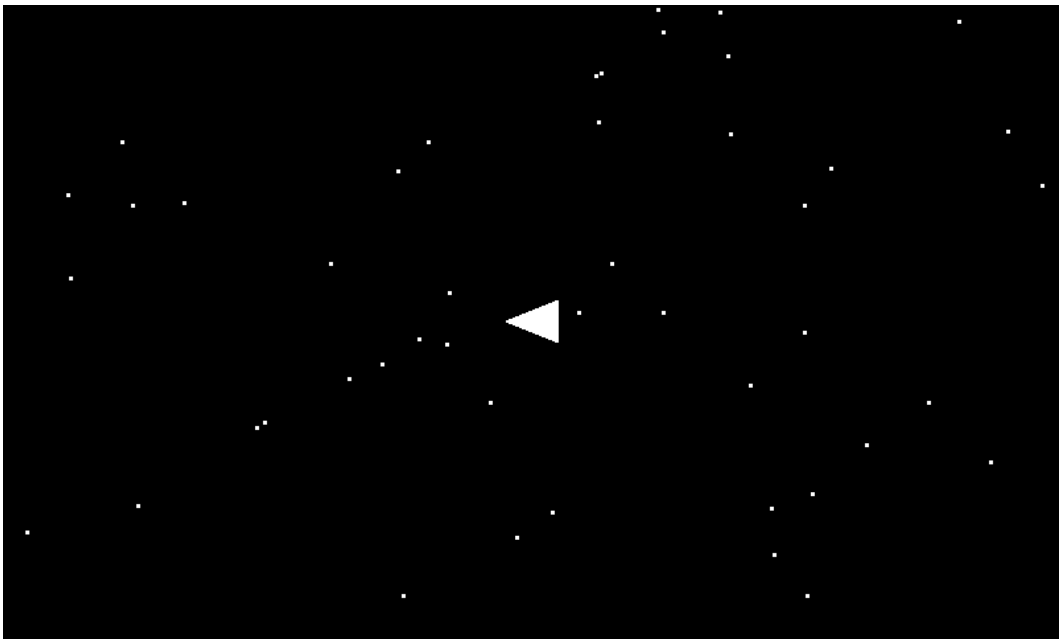
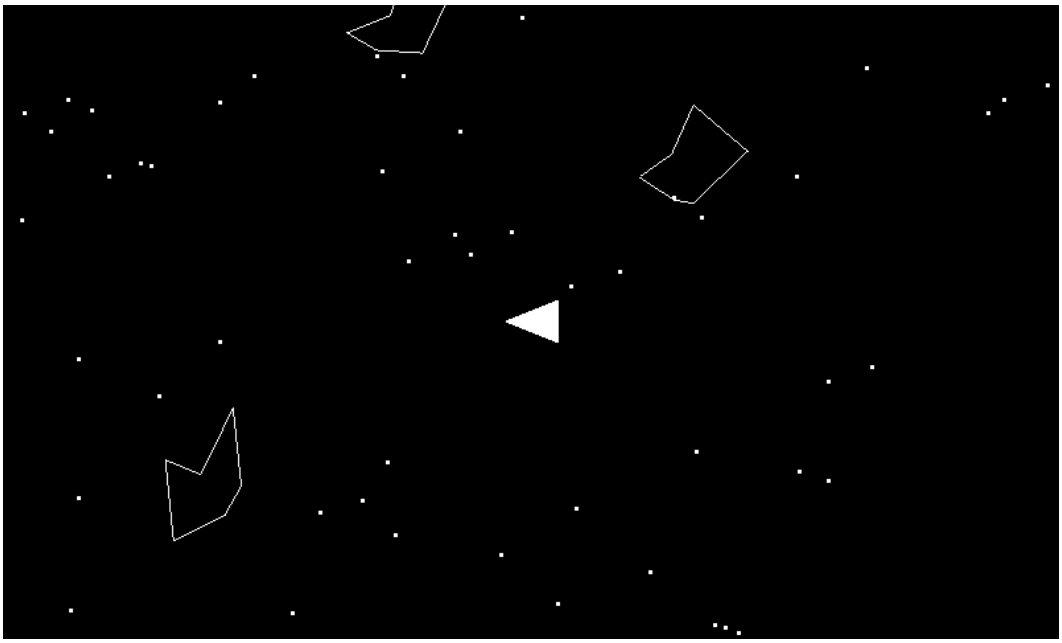
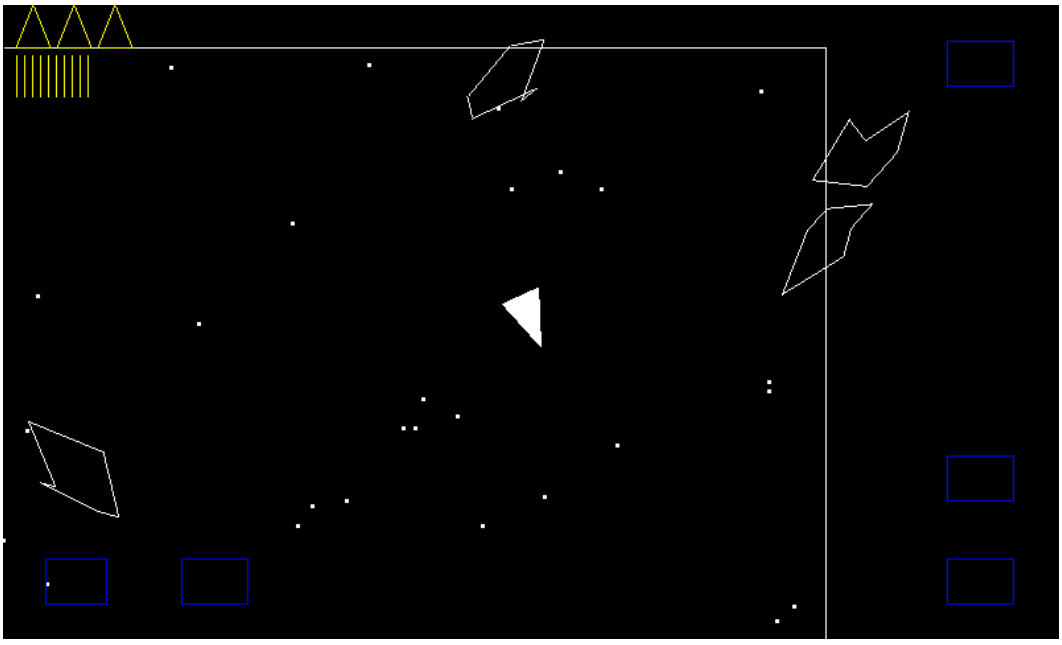
# Chapter 10: Move and Draw with OpenGL ES 2



## Chapter 11: Things That Go Bump – Part II