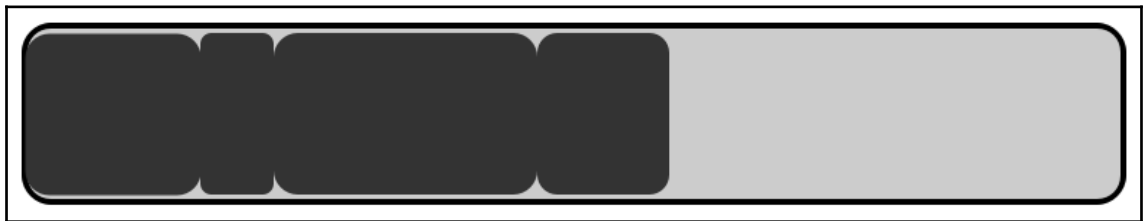
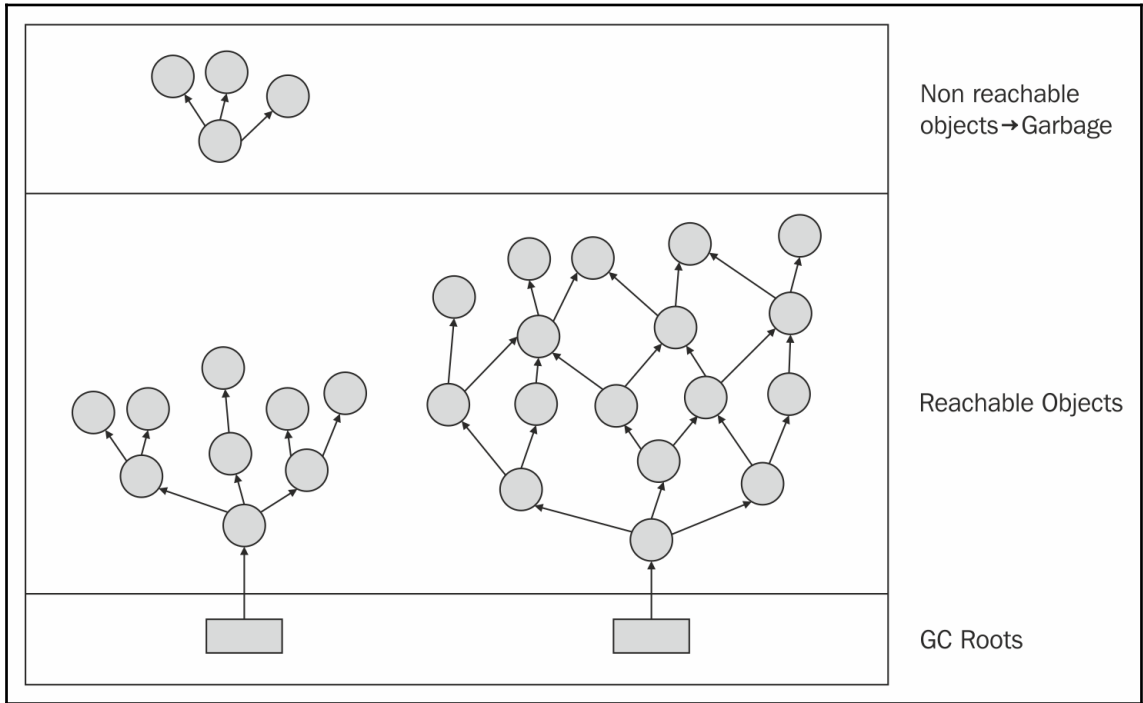
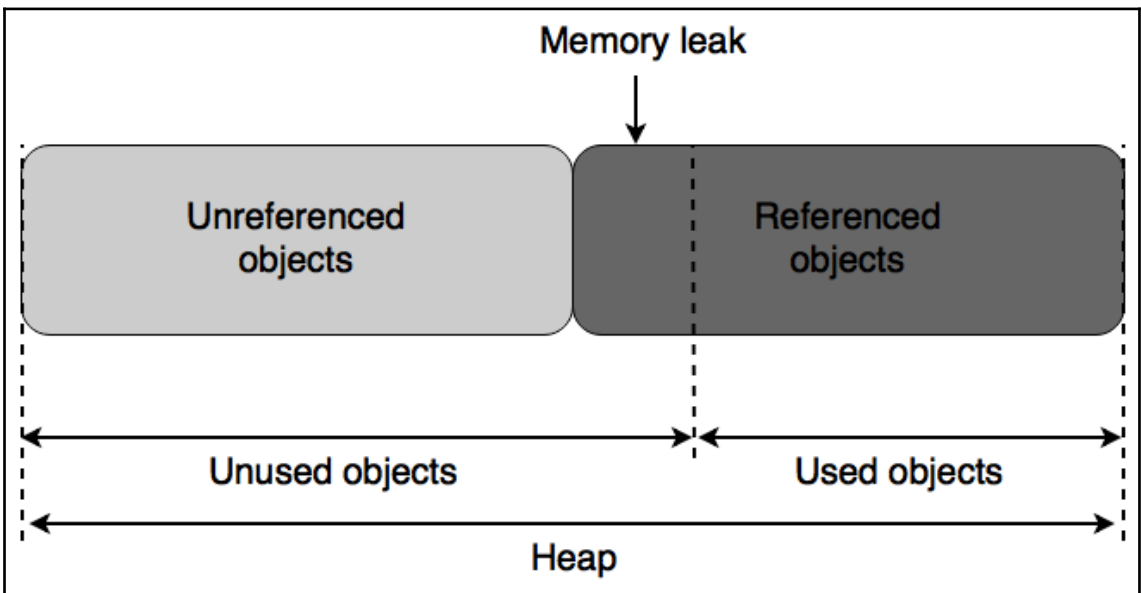
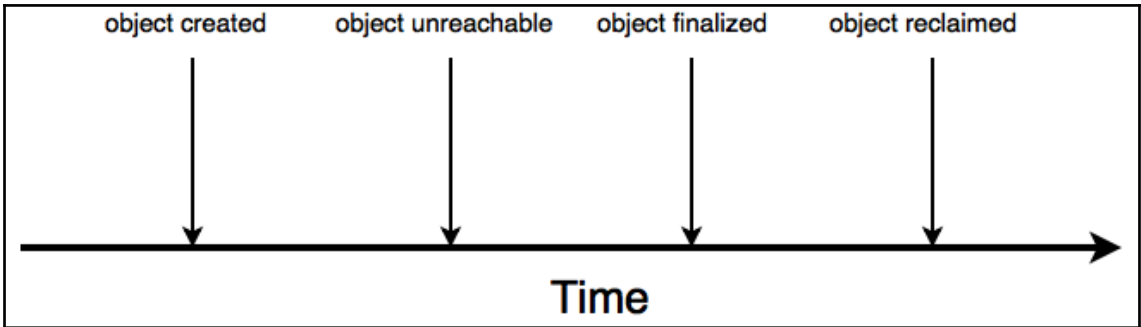
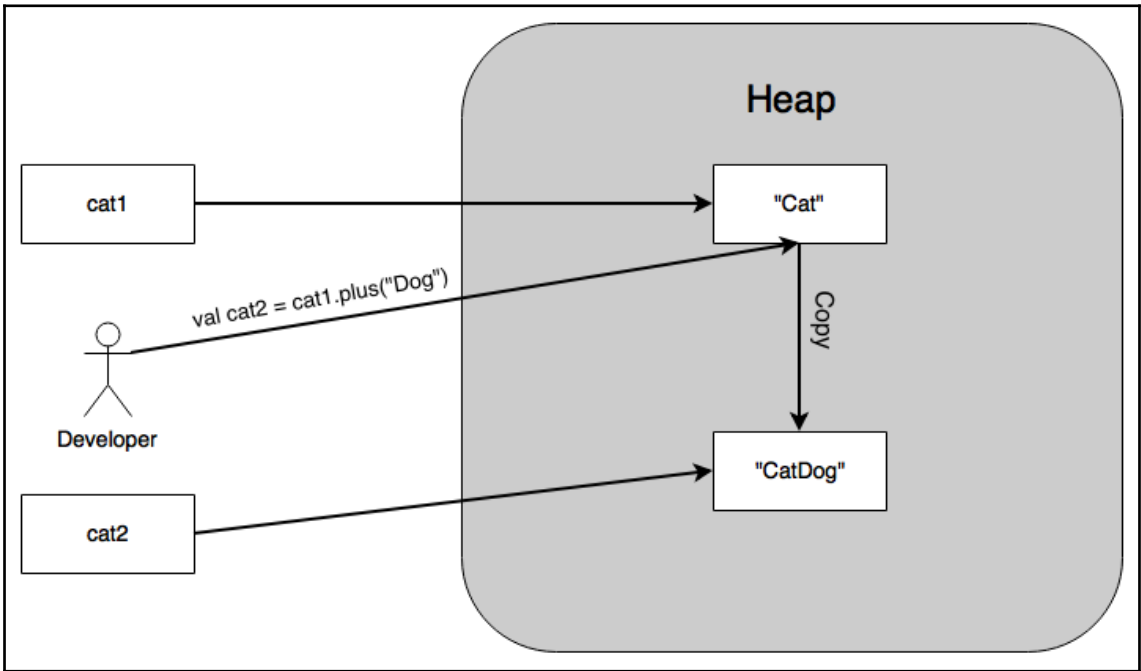
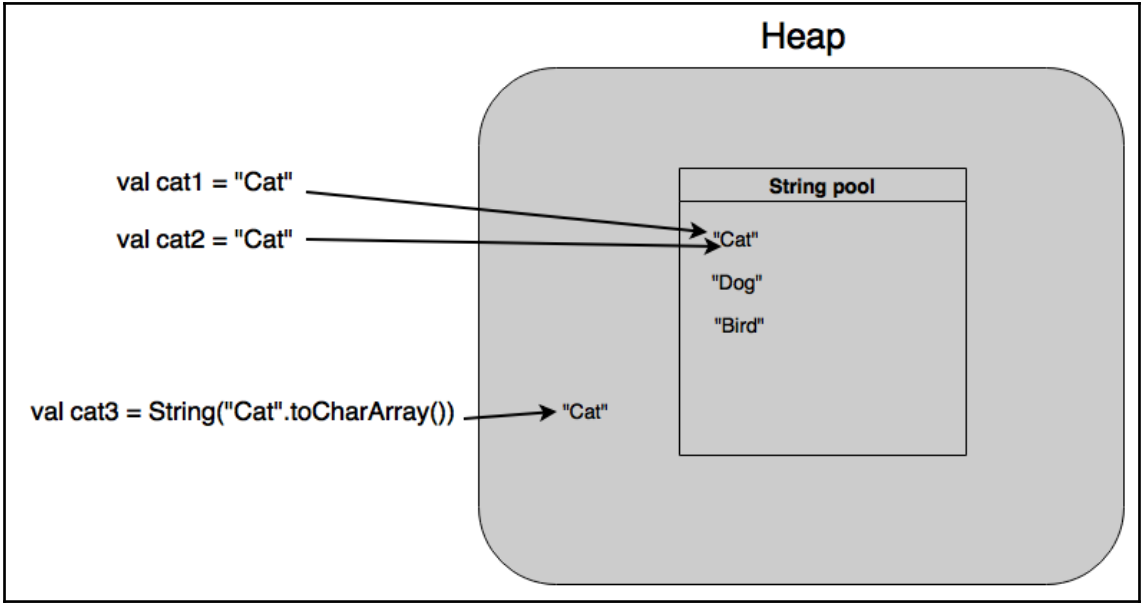


Chapter 1: Identifying Performance Bottlenecks





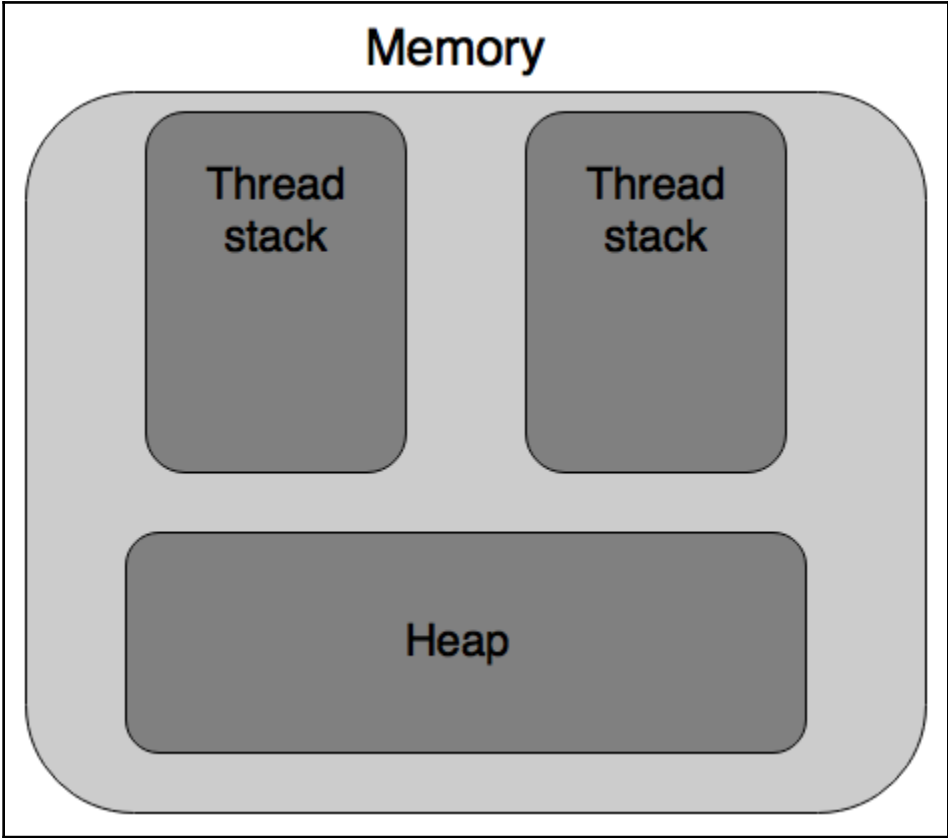


Memory

Thread
stack

Thread
stack

Heap



Thread stack

methodOne()

local variable

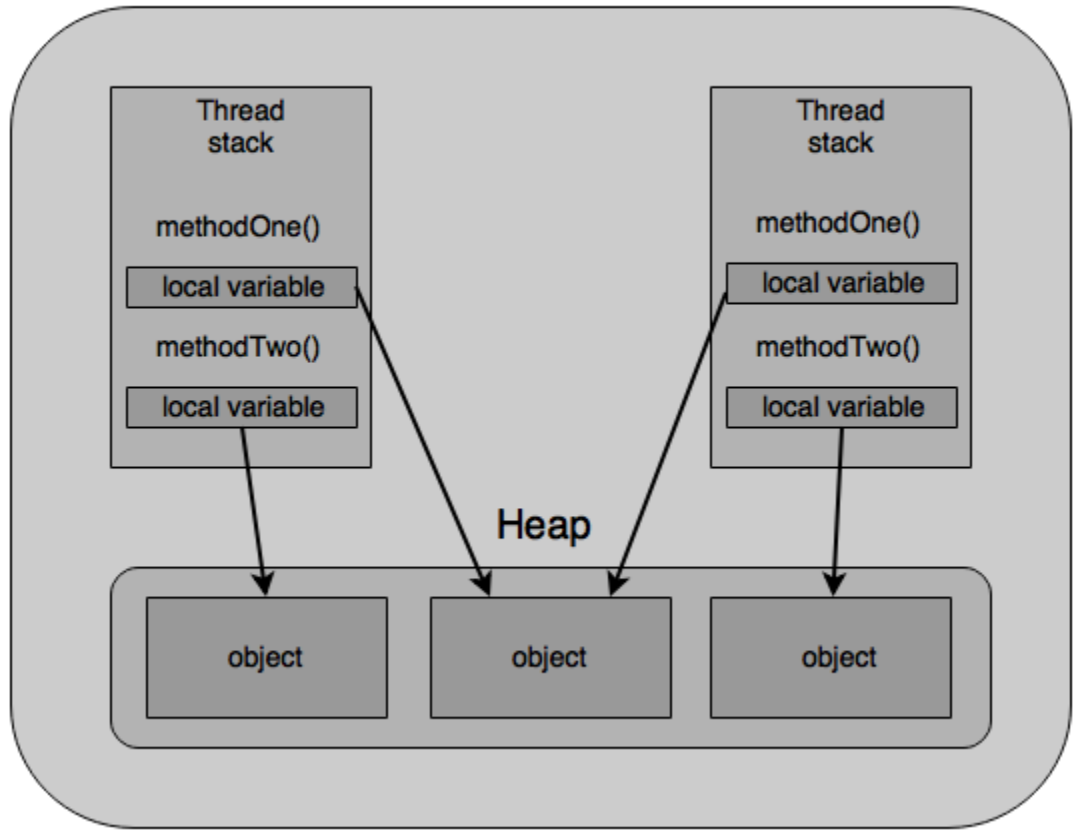
local variable

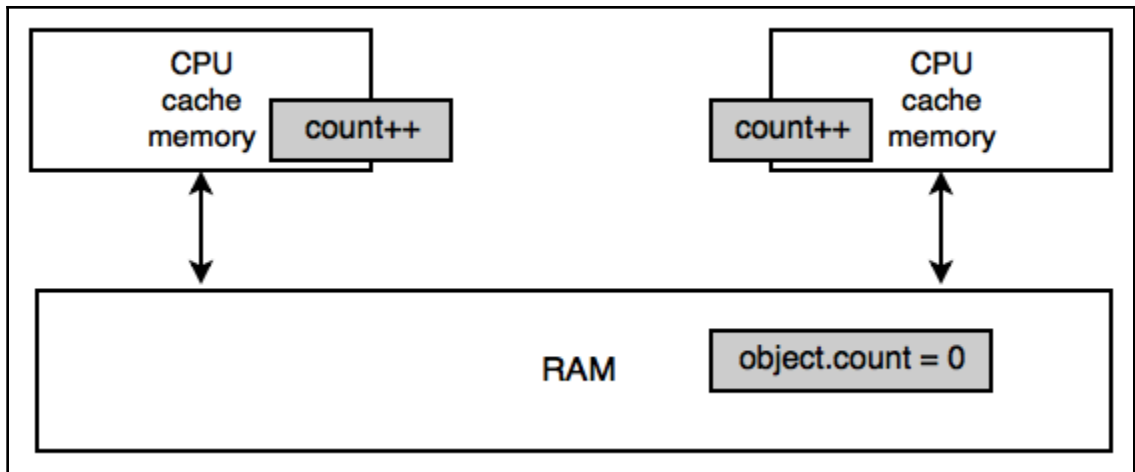
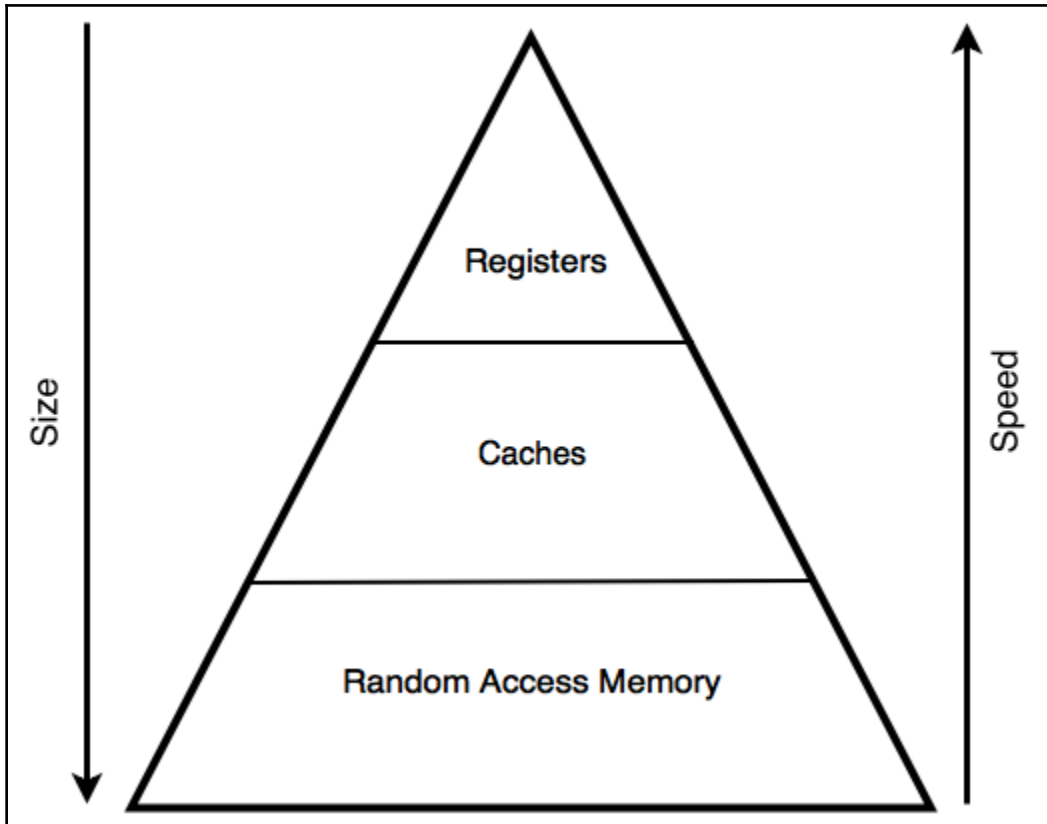
methodTwo()

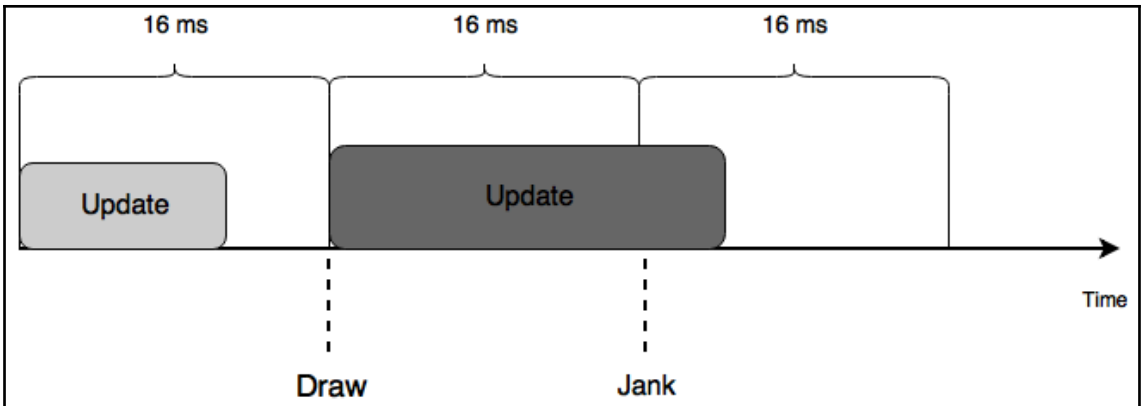
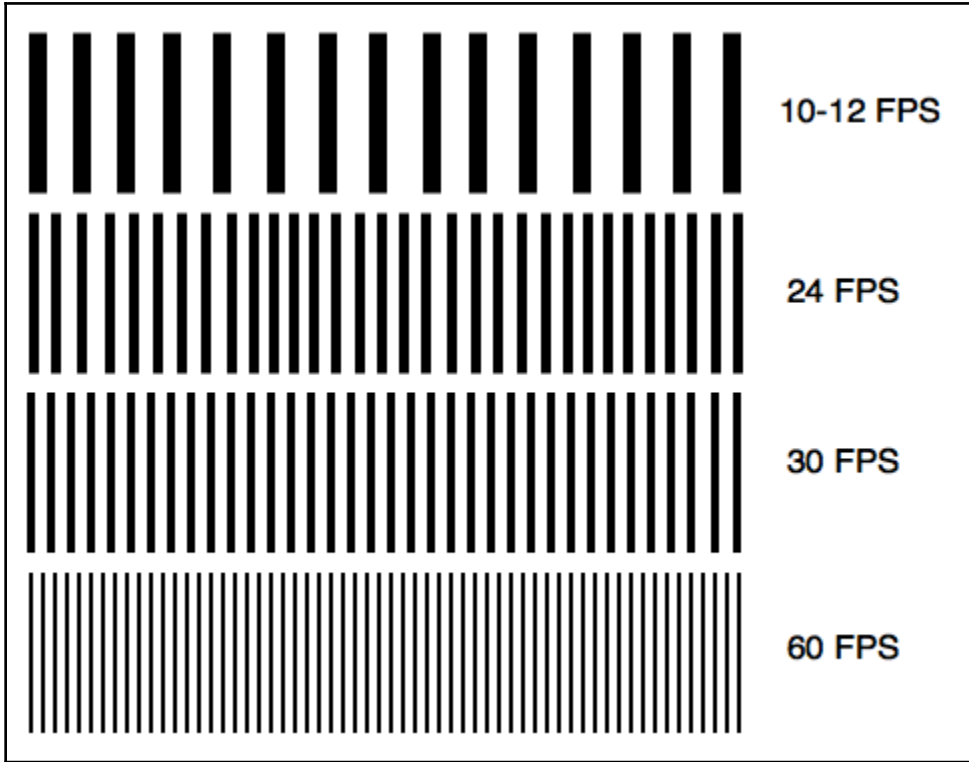
local variable

local variable

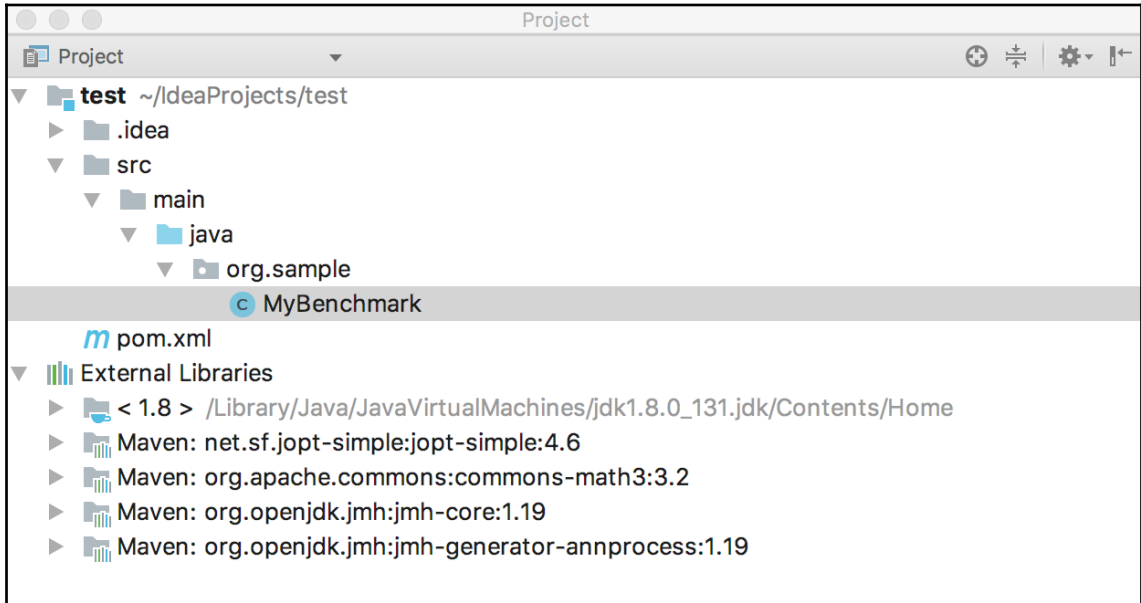
Memory

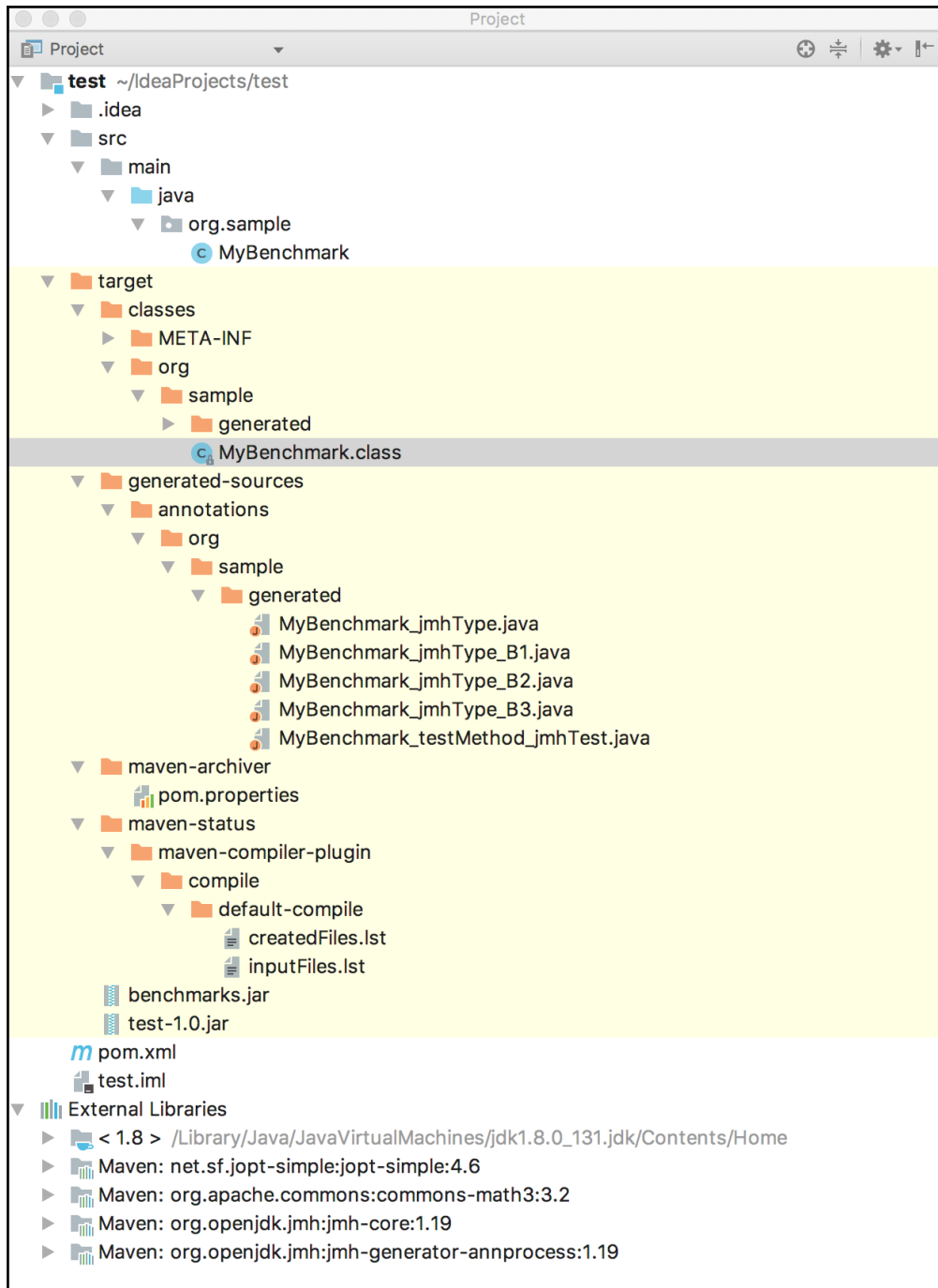


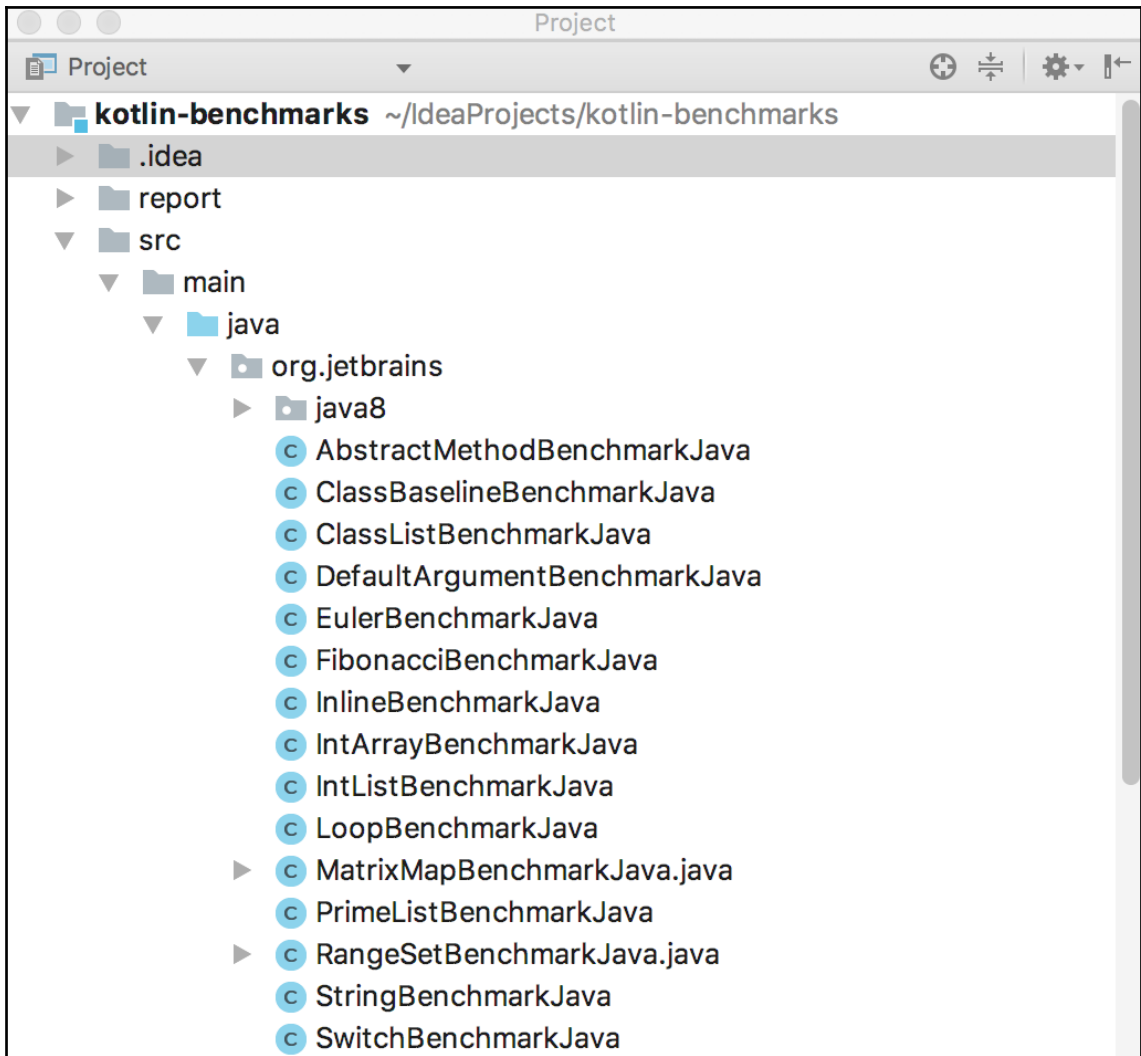


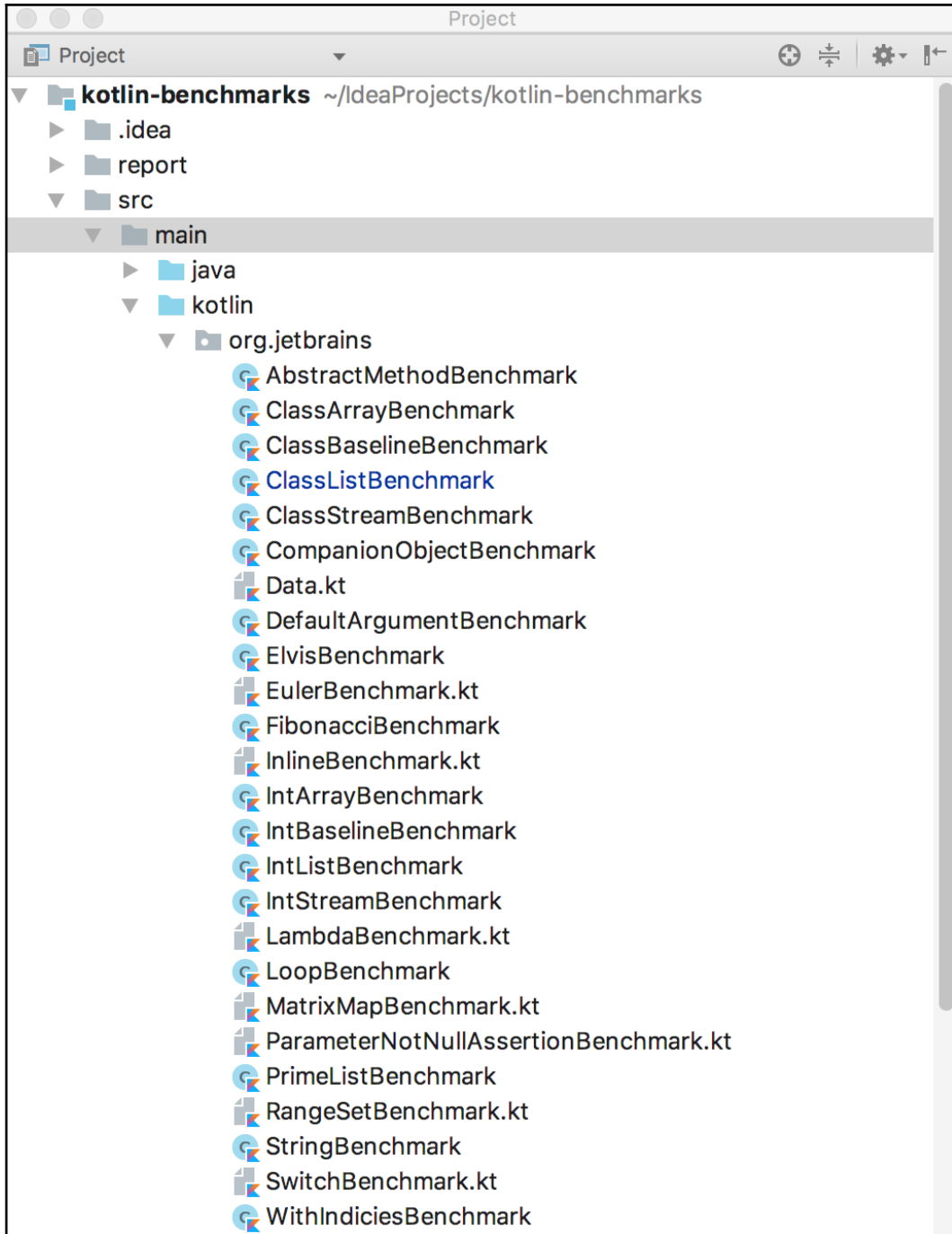


Chapter 2: Identifying Indicators of Performance Issues

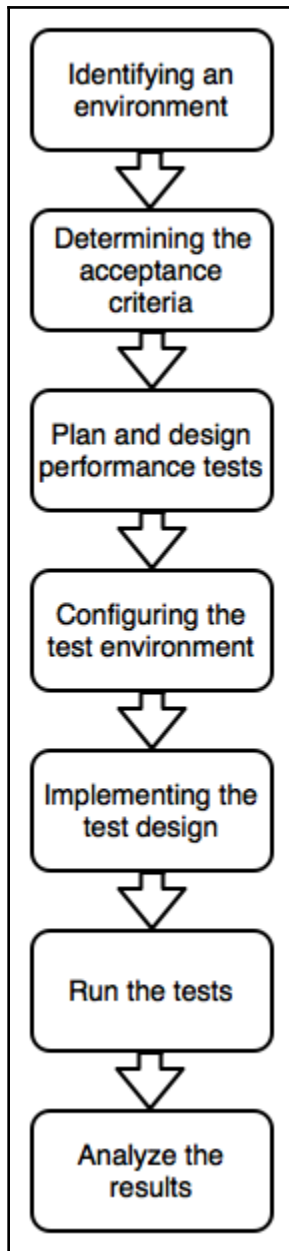


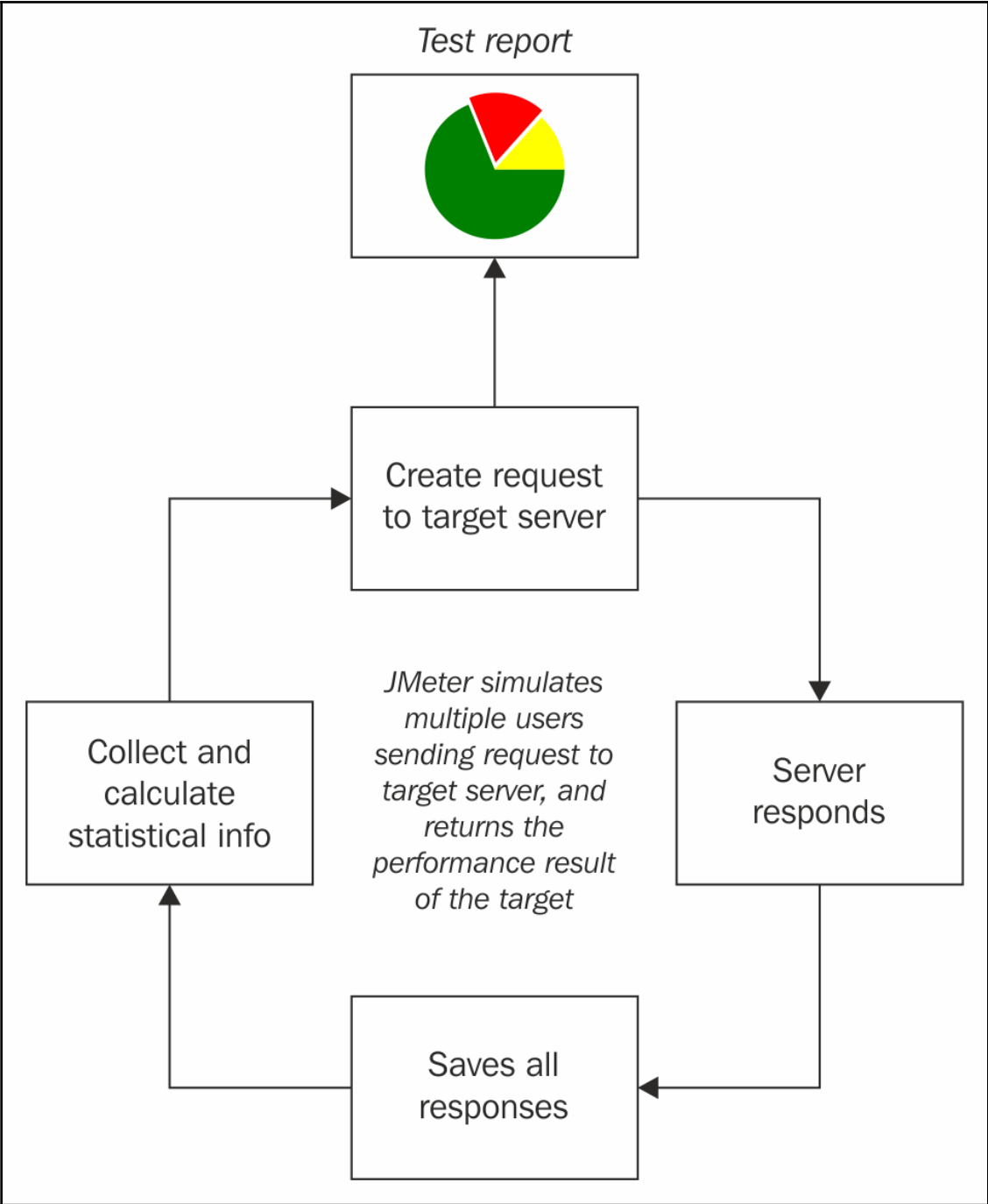




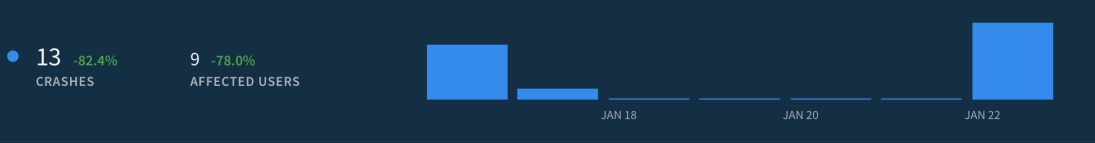
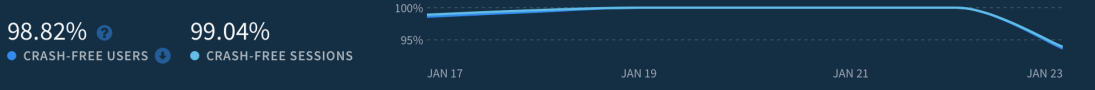


AbstractMethodBenchmark.sortStrings	10	avgt	523.000	ns/op
AbstractMethodBenchmark.sortStrings	1000	avgt	46534.937	ns/op
AbstractMethodBenchmark.sortStrings	100000	avgt	5610020.939	ns/op
AbstractMethodBenchmark.sortStringsWithComparator	10	avgt	2256.651	ns/op
AbstractMethodBenchmark.sortStringsWithComparator	1000	avgt	1239050.026	ns/op
AbstractMethodBenchmark.sortStringsWithComparator	100000	avgt	107923516.400	ns/op
AbstractMethodBenchmark.sortStringsWithComparatorLambda	10	avgt	2677.882	ns/op
AbstractMethodBenchmark.sortStringsWithComparatorLambda	1000	avgt	1191127.699.	ns/op
AbstractMethodBenchmark.sortStringsWithComparatorLambda	100000	avgt	121202897.778	ns/op
AbstractMethodBenchmark.sortStringsWithComparatorSAM	10	avgt	2277.184	ns/op
AbstractMethodBenchmark.sortStringsWithComparatorSAM	1000	avgt	1376984.133	ns/op
AbstractMethodBenchmark.sortStringsWithComparatorSAM	100000	avgt	102603110.300	ns/op
AbstractMethodBenchmarkJava.sortStrings	10	avgt	294.954	ns/op
AbstractMethodBenchmarkJava.sortStrings	1000	avgt	51724.762	ns/op
AbstractMethodBenchmarkJava.sortStrings	100000	avgt	4917147.471	ns/op
AbstractMethodBenchmarkJava.sortStringsWithComparator	10	avgt	1815.581	ns/op
AbstractMethodBenchmarkJava.sortStringsWithComparator	1000	avgt	931273.516	ns/op
AbstractMethodBenchmarkJava.sortStringsWithComparator	100000	avgt	89377734.417	ns/op





Top Builds ? x Crashes Last 7 Days 📅

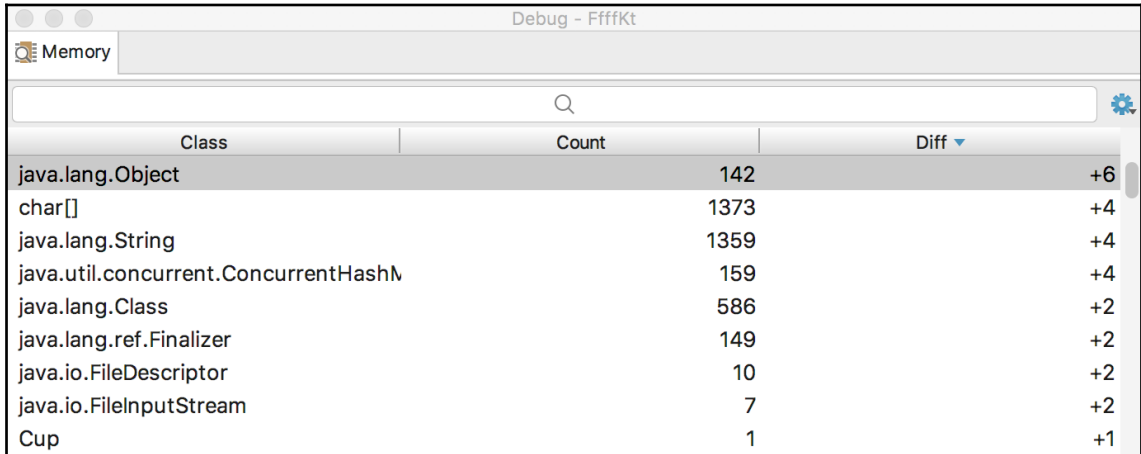


FILTER 5 ISSUES BY Status Device & OS Crash Insights 🔍 Keys, notes, users...

Open Closed All

<input type="checkbox"/>	ContactsAdapter.java line 257 #12 <code>ContactsAdapter\$ContactViewHo...</code>	1.0.1 (2) – 1.0.2 (3)	4 CRASHES	1 USER
<input type="checkbox"/>	ContactsAdapter.java line 169 #16 <code>ContactsAdapter\$ContactViewHo...</code>	1.0.2 (3)	4 CRASHES	3 USERS
<input type="checkbox"/>	SetupProfileFragment.java line 178 #20 <code>SetupProfileFragment.hideProg...</code>	1.0.2 (3)	3 CRASHES	3 USERS
<input type="checkbox"/>	FragmentTransition.java line 1017 #8 <code>android.support.v4.app.FragmentTransition.addToFirstInLastOut</code>	1.0.1 (2) – 1.0.2 (3)	1 CRASH	1 USER
<input type="checkbox"/>	SettingsFragment.java line 116 #15 <code>SettingsFragment.hideProgress</code>	1.0.2 (3)	1 CRASH	1 USER

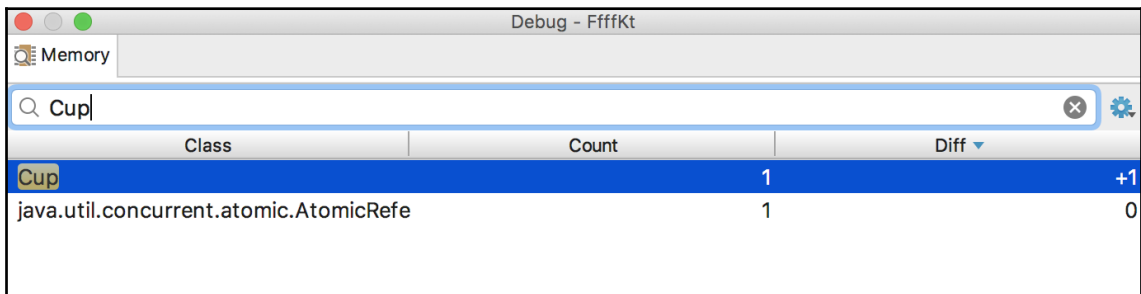
Chapter 3: Learning How to Use Profiling Tools



Debug - FfffKt

Memory

Class	Count	Diff
java.lang.Object	142	+6
char[]	1373	+4
java.lang.String	1359	+4
java.util.concurrent.ConcurrentHashMap	159	+4
java.lang.Class	586	+2
java.lang.ref.Finalizer	149	+2
java.io.FileDescriptor	10	+2
java.io.FileInputStream	7	+2
Cup	1	+1

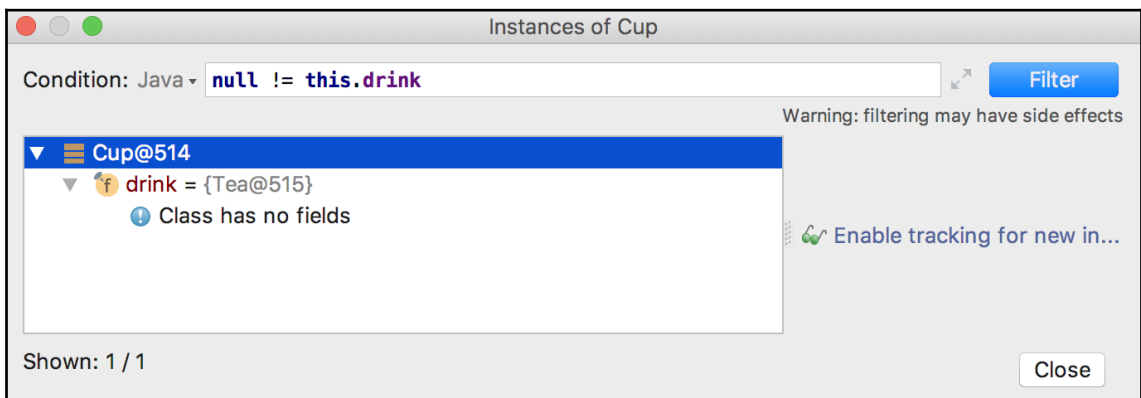


Debug - FfffKt

Memory

Search: Cup

Class	Count	Diff
Cup	1	+1
java.util.concurrent.atomic.AtomicReference	1	0



Instances of Cup

Condition: Java `null != this.drink` Filter

Warning: filtering may have side effects

Cup@514

- drink = {Tea@515}
- Class has no fields

Enable tracking for new in...

Shown: 1 / 1 Close

Inspect...


Mark Object... F3


Set Value... F2

Copy Value ⌘C

Compare Value with Clipboard

Copy Name

 Evaluate Expression... ⌘F8

 Add to Watches

Show Referring Objects...

Show Cup Objects...

Jump To Source ⌘↓

Jump To Type Source ⌘F4

View Text

View as ▶

✓ Show types

Mute Renderers

Tasks & Contexts ▶

Save File as Template...

Generate JavaDoc...

Save Project as Template...

Manage Project Templates...

IDE Scripting Console

Create Command-line Launcher...

JShell Console...



Capture Memory Snapshot



Deployment ▶

Show HTTP Requests History

Test RESTful Web Service



Groovy Console...



V8 Profiling ▶


WebServices ▶




Kotlin ▶

Start SSH session...

Search


 Welcome

 Help Contents

 Search

Show Contextual Help

Tips and Tricks...

 Report Bug or Enhancement...

Cheat Sheets...

 Eclipse User Storage 

 Perform Setup Tasks...

 Check for Updates

 Install New Software...

 Eclipse Marketplace...

Install

Available Software

Check the items that you wish to install.

Work with: Add... Manage...

type filter text

Name	Version
<input type="checkbox"/> ▶ BIRT 4.2 Charting SDK	
<input type="checkbox"/> ▶ BIRT 4.2 Engine OSGi Runtime SDK	
<input type="checkbox"/> ▶ BIRT 4.2 Reporting SDK	
<input type="checkbox"/> ▶ BIRT 4.2 WTP Integration SDK	

Select All Deselect All

Details

Show only the latest versions of available software Hide items that are already installed
 Group items by category What is [already installed](#)?
 Show only software applicable to target environment
 Contact all update sites during install to find required software

? < Back Next > Cancel Finish

Getting Started Wizard

Getting Started

Choose one of the common reports below. Press Escape to close this dialog.

Leak Suspects Report

Automatically check the heap dump for leak suspects. Report what objects are kept alive and why they are not garbage collected.


Component Report

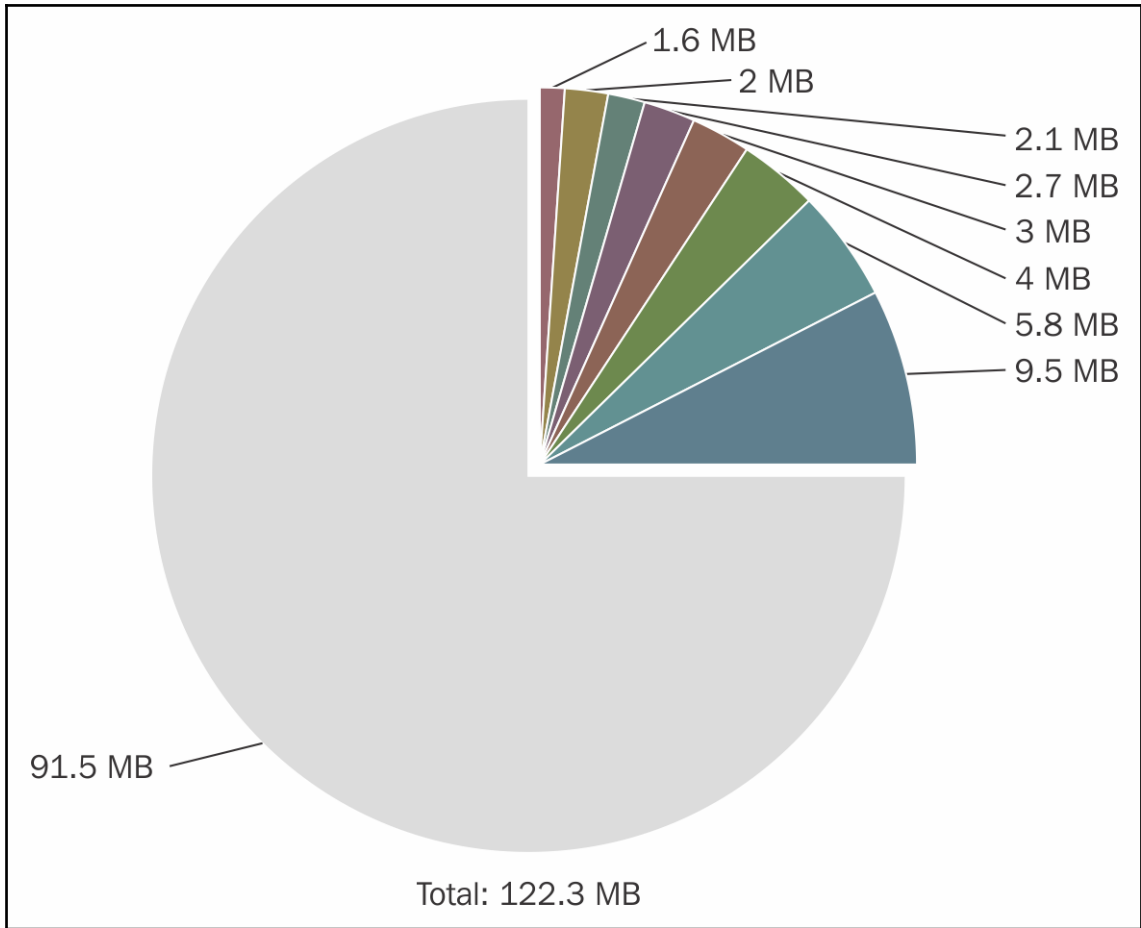
Analyze a set of objects for suspected memory issues: duplicate strings, empty collections, finalizer, weak references, etc.

Re-open previously run reports


Existing reports are stored in ZIP files next to the heap dump.


Show this dialog when opening a heap dump.





▼ **Actions**

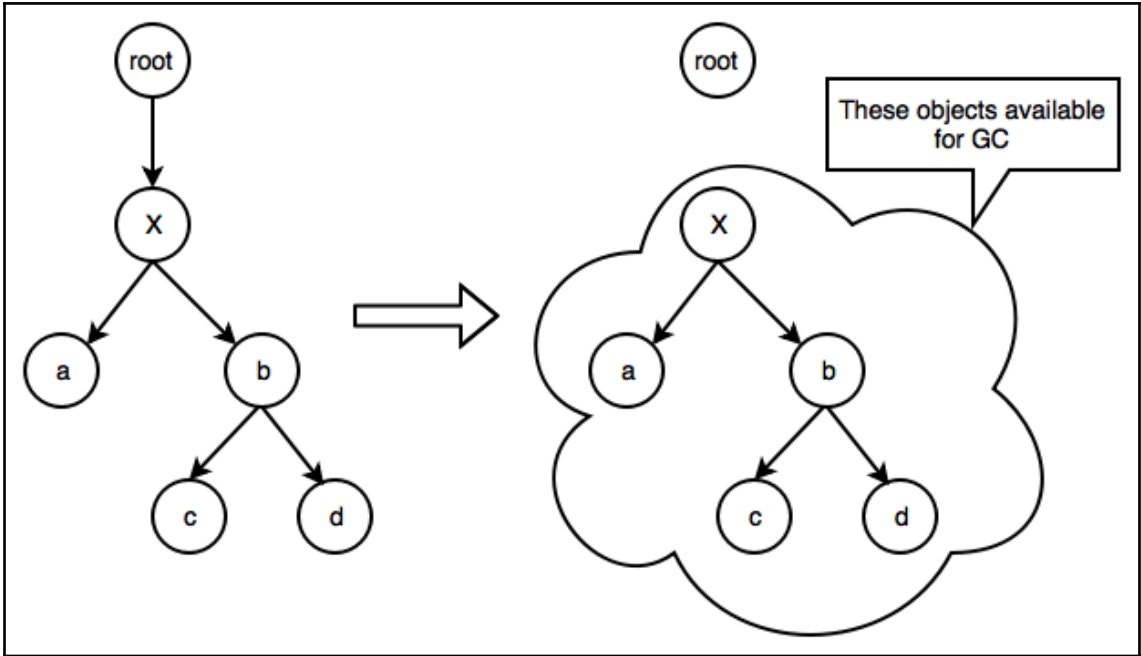
 [Histogram](#): Lists number of instances per class

 [Dominator Tree](#): List the **biggest objects** and what they keep alive.

[Top Consumers](#): Print the most **expensive objects** grouped by class and by package.

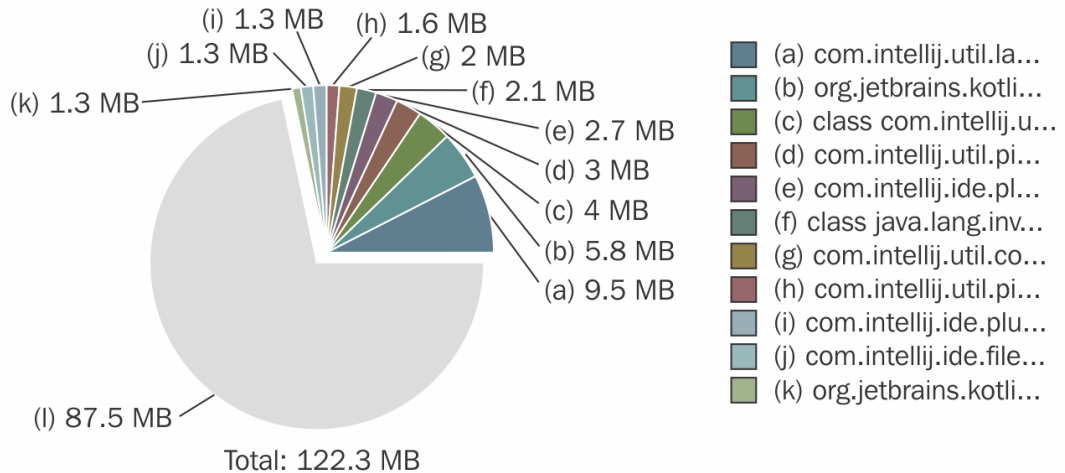
[Duplicate Classes](#): Detect classes loaded by multiple class loaders.

Class Name	Objects	Shallow Heap	Retained Heap
<Regex>	<Numeric>	<Numeric>	<Numeric>
char[]	263,643	26,391,128	>= 26,391,128
java.lang.String	261,976	6,287,424	>= 31,023,800
java.lang.Object[]	87,230	6,648,424	>= 41,548,216
com.intellij.util.SmartList	62,267	1,494,408	>= 3,441,328
byte[]	57,929	9,760,144	>= 9,760,144
java.util.HashMap\$Node	55,158	1,765,056	>= 9,063,744
java.util.concurrent.ConcurrentHashMap\$Node	52,513	1,680,416	>= 12,974,120
org.jdom.Attribute	49,916	1,597,312	>= 2,006,064
com.intellij.util.text.ByteArrayCharSequence	49,166	1,573,312	>= 3,682,960
java.lang.Class	48,685	293,504	>= 27,808,112
java.util.ArrayList	47,707	1,144,968	>= 17,118,240
java.util.LinkedHashMap\$Entry	41,670	1,666,800	>= 2,789,176
com.intellij.util.containers.IntObjectLinkedMap\$MapEntry	37,036	1,185,152	>= 4,031,696
com.intellij.psi.impl.java.stubs.impl.PsiModifierListStubImpl	32,632	1,305,280	>= 1,509,368
org.jetbrains.kotlin.protobuf.SmallSortedMap\$1	31,783	1,271,320	>= 2,069,080
org.jetbrains.kotlin.protobuf.FieldSet	31,783	762,792	>= 2,831,880
com.intellij.psi.impl.cache.TypeInfo	31,308	751,392	>= 788,712
org.jdom.Text	30,194	724,656	>= 791,792
org.jdom.ContentList	24,444	782,208	>= 3,594,208
org.jdom.Element	24,138	965,520	>= 6,825,560
org.jdom.AttributeList	24,138	772,416	>= 3,583,304
org.jetbrains.kotlin.storage.LockBasedStorageManager\$LockBa...	22,224	533,376	>= 10,130,608
int[]	21,902	9,419,696	>= 9,419,696
com.intellij.util.containers.hash.LinkedHashMap\$Entry	20,213	808,520	>= 6,774,288
org.jetbrains.kotlin.name.Name	19,621	470,904	>= 592,672
org.jdom.Attribute[]	18,845	804,472	>= 2,810,648
java.util.Hashtable\$Entry	18,319	586,208	>= 1,896,696
org.jetbrains.kotlin.serialization.ProtoBuf\$Type	17,873	1,572,824	>= 3,668,352
java.util.Collections\$UnmodifiableRandomAccessList	17,804	427,296	>= 6,172,408
com.intellij.psi.impl.java.stubs.impl.PsiClassReferenceListStubImpl	15,295	734,160	>= 857,768
com.intellij.psi.impl.java.stubs.impl.PsiParameterStubImpl	14,929	716,592	>= 1,447,520
Σ Total: 31 of 48,676 entries; 48,645 more	2,624,085	128,200,600	



Class Name	Shallow Heap	Retained Heap	Percentage
<Regex>	<Numeric>	<Numeric>	<Numeric>
com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	80	9,961,488	7.77%
java.util.Vector @ 0x7a0d826f0	32	9,044,736	7.06%
com.intellij.util.lang.ClassPath @ 0x7a0ce0660	48	379,608	0.30%
java.util.HashMap @ 0x7a0cbf288	48	274,120	0.21%
java.util.HashMap\$Node[2048] @ 0x7a5275e48	8,208	274,072	0.21%
java.util.HashMap\$Node @ 0x7a0f140e8	32	824	0.00%
java.util.HashMap\$Node @ 0x7a0f14108	32	632	0.00%
java.lang.String @ 0x7a17dd408 com.intellij.openapi.vcs.actions	24	104	0.00%
char[32] @ 0x7a17d4f60 com.intellij.openapi.vcs.actions	80	80	0.00%
java.lang.Package @ 0x7a133a698	56	56	0.00%
Σ Total: 3 entries			
java.util.HashMap\$Node @ 0x7a318d160	32	808	0.00%
java.util.HashMap\$Node @ 0x7a0f142a8	32	800	0.00%
java.util.HashMap\$Node @ 0x7a19d6a90	32	784	0.00%
java.util.HashMap\$Node @ 0x7a42410d0	32	752	0.00%

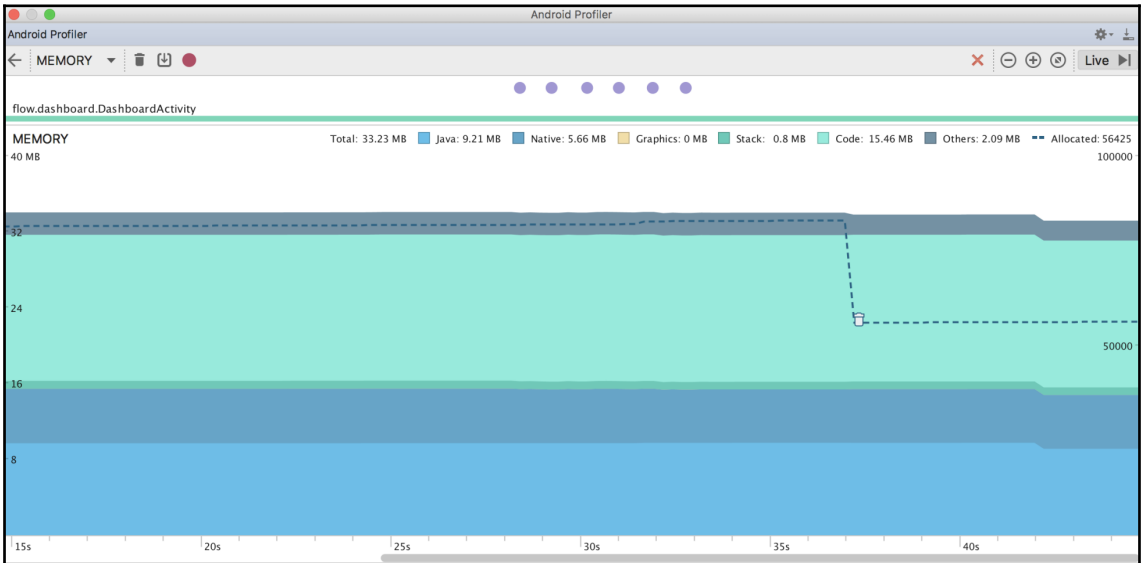
▼ Biggest Objects (Overview)



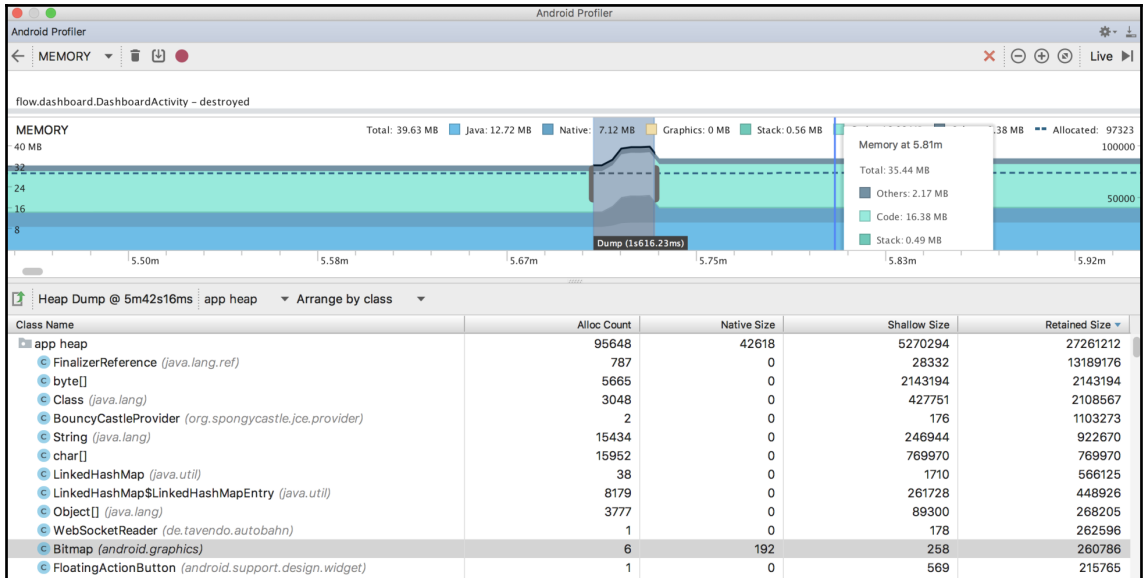
Class Name	Shallow Heap	Retained Heap
com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970 »	80	9,961,488
org.jetbrains.kotlin.load.java.lazy.descriptors.JvmPackageScope @ 0x7a41e49c0 »	32	6,053,480
class com.intellij.util.io.CompressedAppendableFile @ 0x7a1ae7198 »	32	4,205,704
com.intellij.util.pico.DefaultPicoContainer @ 0x7a126fcc0 »	40	3,190,528
com.intellij.ide.plugins.cl.PluginClassLoader @ 0x7a32c45b8 »	96	2,813,472
class java.lang.invoke.MethodType @ 0x7a0d8d5b8 System Class »	56	2,210,944
com.intellij.util.containers.RecentStringInterner @ 0x7a3876360 »	24	2,084,200
com.intellij.util.pico.DefaultPicoContainer @ 0x7a4110150 »	40	1,713,152
com.intellij.ide.plugins.cl.PluginClassLoader @ 0x7a323fe28 »	96	1,472,296
com.intellij.ide.fileTemplates.impl.ExportableFileTemplateSettings @ 0x7a7515448 »	56	1,369,296
org.jetbrains.kotlin.load.kotlin.BinaryClassAnnotationAndConstantLoaderImpl @ 0x7a3314fa0 »	40	1,353,184
Σ Total: 11 entries		

Class Name	Defined Classes	No. of Instances
<Regex>	<Numeric>	<Numeric>
com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	20,330	895,210
com.intellij.ide.plugins.cl.PluginClassLoader @ 0x7a32c45b8	9,263	396,375
<system class loader>	6,212	1,309,050
char[]		263,643
java.lang.String		261,976
java.lang.Object[]		87,230
byte[]		57,929
java.util.HashMap\$Node		55,158
java.util.concurrent.ConcurrentHashMap\$Node		52,513
java.lang.Class		48,685
java.util.ArrayList		47,707
java.util.LinkedHashMap\$Entry		41,670
int[]		21,902
java.util.Hashtable\$Entry		18,319
java.util.Collections\$UnmodifiableRandomAccessList		17,804
java.util.concurrent.ConcurrentHashMap		13,779
java.util.LinkedHashMap		13,774
java.util.HashMap\$Node[]		11,728
java.util.Collections\$SingletonList		9,854
java.lang.Class[]		8,893
java.util.TreeMap\$Entry		8,557
java.beans.PropertyChangeSupport\$PropertyChangeListenerMap		8,459
java.beans.PropertyChangeSupport		8,426
java.util.HashMap		7,871
java.lang.Object		7,785
long[]		7,392
java.lang.String[]		6,781

Class Name	Count	Defined Classes	No. of Instances
<Regex>	<Numeric>	<Numeric>	<Numeric>
java.lang.invoke.LambdaForm\$DMH	384		
java.lang.invoke.LambdaForm\$MH	165		
com.intellij.ultimate.PluginVerifier	15		
java.lang.invoke.LambdaForm\$BMH	7		
<system class loader> @ 0x0 System Class		6,212	1,309,050
<system class loader> @ 0x0 System Class		6,212	1,309,050
<system class loader> @ 0x0 System Class		6,212	1,309,050
<system class loader> @ 0x0 System Class		6,212	1,309,050
<system class loader> @ 0x0 System Class		6,212	1,309,050
<system class loader> @ 0x0 System Class		6,212	1,309,050
<system class loader> @ 0x0 System Class		6,212	1,309,050
Total: 7 entries			
com.intellij.Patches	2		
com.intellij.ide.ClassUtilCore	2		
com.intellij.ide.WindowsCommandLineProcessor	2		



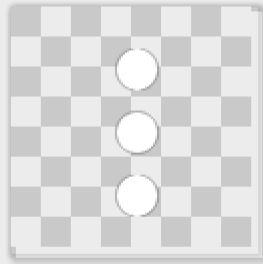
Total: 36.88 MB Java: 11.93 MB Native: 5.48 MB Graphics: 0 MB Stack: 0.47 MB Code: 16.66 MB Others: 2.34 MB Allocated: 105385



Instance	Depth	Native Size	Shallow Size	Retained Size
▶ I Bitmap@320742064 (0x131e22b0)	10	32	43	75
▶ I Bitmap@320929120 (0x1320fd60)	9	32	43	201611
▶ I Bitmap@316786384 (0x12e1c6d0)	11	32	43	75
▶ I Bitmap@316786336 (0x12e1c6a0)	10	32	43	58875
▶ I Bitmap@316193184 (0x12d8b9a0)	10	32	43	75
▼ I Bitmap@317965648 (0x12f3c550)		32	43	75
▶ mBuffer = {byte[]}		0	63504	63504
mDensity = 420		0	4	4
mHeight = 126		0	4	4
mIsMutable = false		0	1	1

References

Bitmap Preview



Capture Analysis

Analyzer Tasks

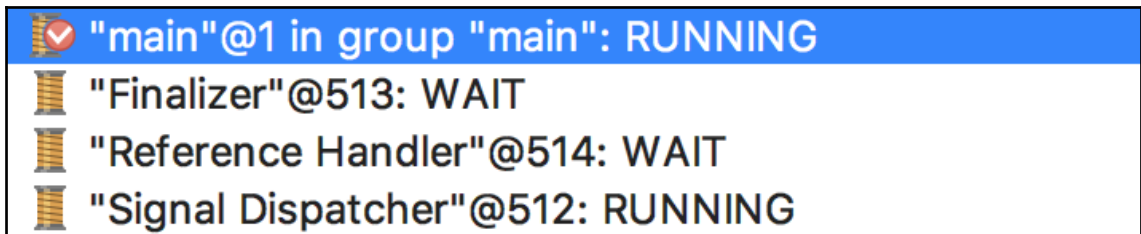
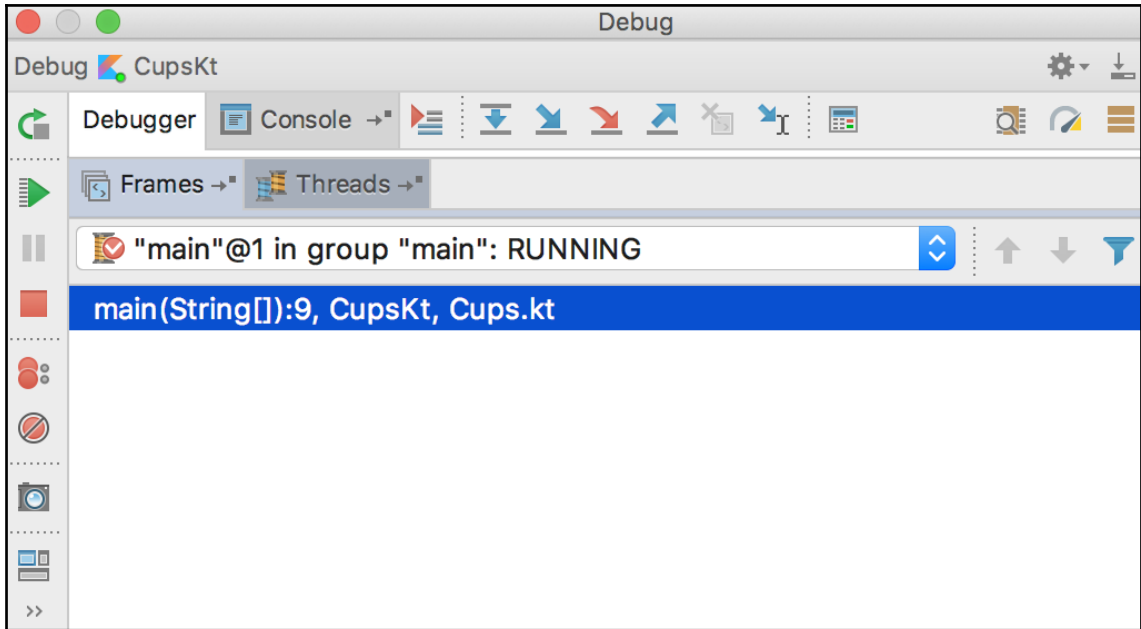
- Detect Leaked Activities
- Find Duplicate Strings

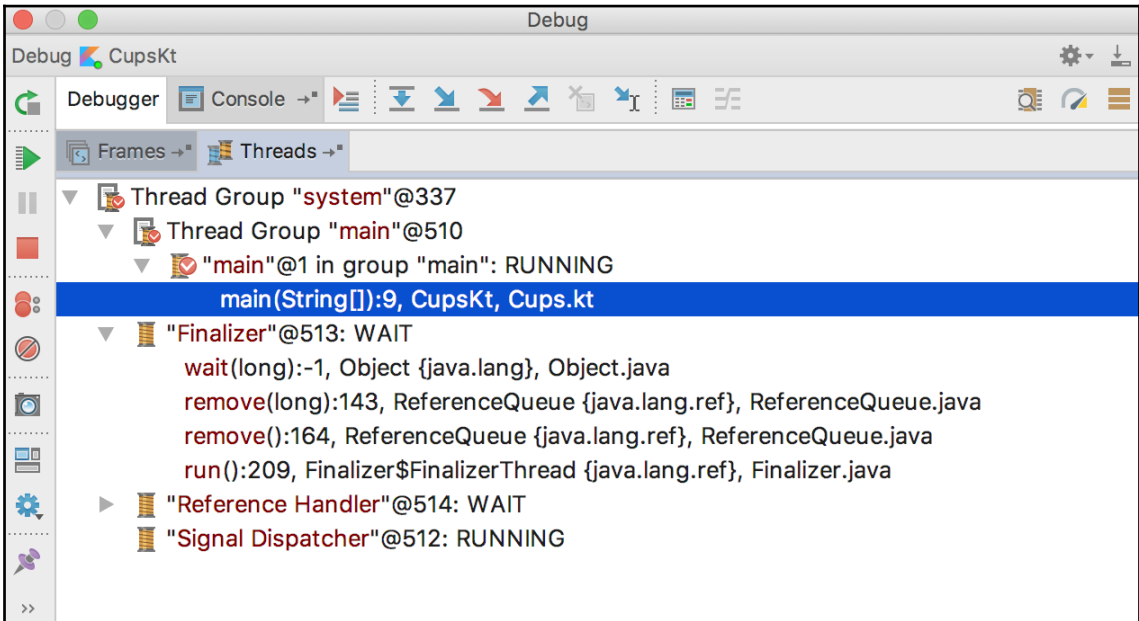
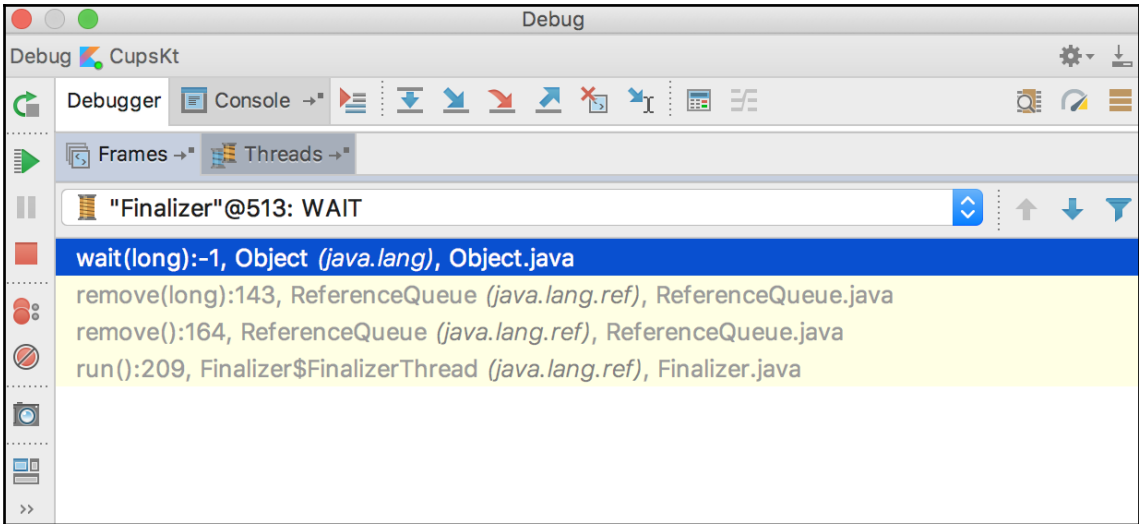
Analysis Results

Duplicated Strings

- ▼ 0 = "HMACSkein-512-384" (3 instances)
 - 0 = {String@316583320 (0x12dead98)}
 - 1 = {String@316339864 (0x12daf698)}
 - 2 = {String@315007376 (0x12c6a190)}
- ▼ 1 = "org.spongeycastle.jcajce.provider.digest.SHA512\$OldSHA512" (2 instances)
 - 0 = {String@316679680 (0x12e02600)}
 - 1 = {String@321087488 (0x13236800)}
- ▶ 2 = "/" (3 instances)
- ▶ 3 = "Alg.Alias.Mac.HMAC/SHA1" (2 instances)
- ▶ 4 = "K" (2 instances)
- ▶ 5 = "Alg.Alias.Signature.SHA512(224)withRSAandMGF1" (2 instances)
- ▶ 6 = "/contacts/lookup/3342i57a7fd7b0dc68922/entities" (2 instances)
- ▶ 7 = "Alg.Alias.KeyGenerator.Skein-MAC256/256" (2 instances)
- ▶ 8 = "Alg.Alias.Cipher.1.2.840.113549.1.5.11" (2 instances)
- ▶ 9 = "Alg.Alias.Cipher.1.2.840.113549.1.5.10" (2 instances)
- ▶ 10 = "org.spongeycastle.jcajce.provider.symmetric.Serpent\$CFB" (6 instances)

Analysis Result Explanation



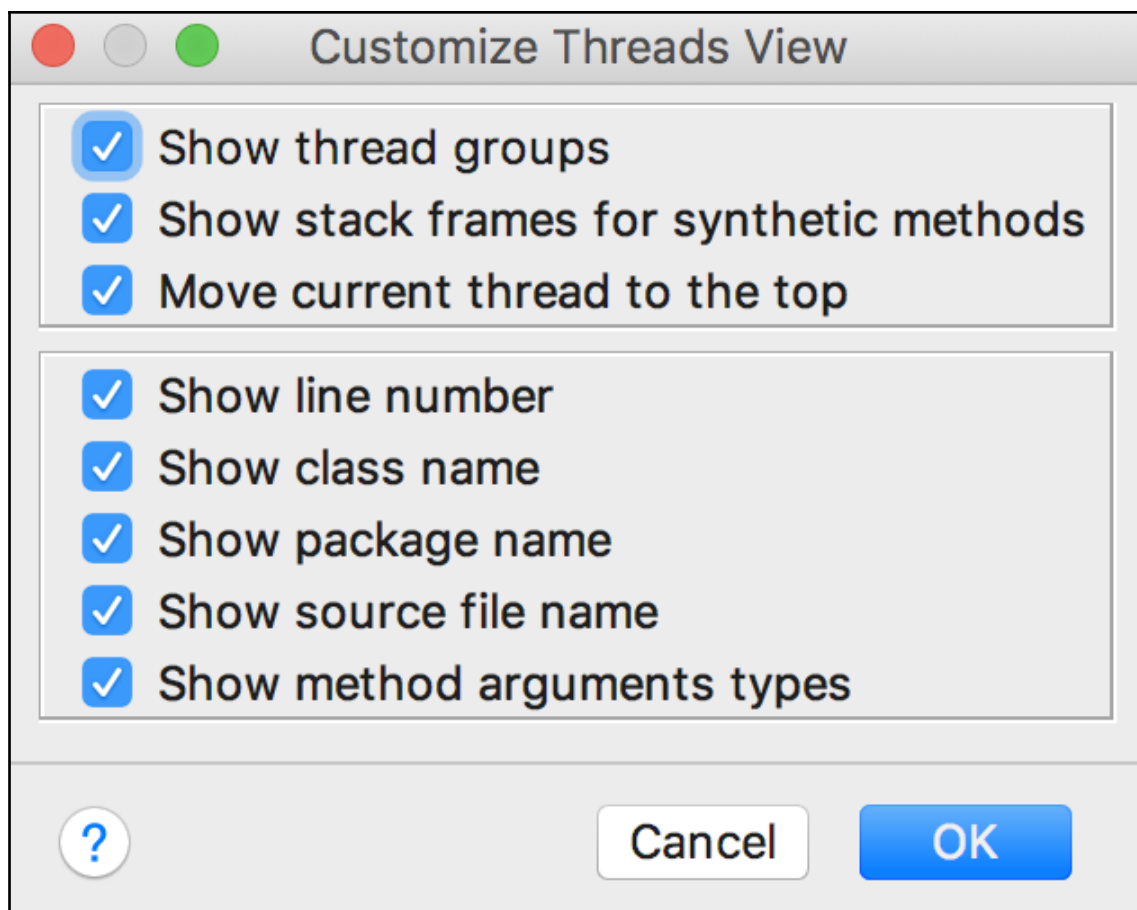




Export Threads...

Add Stepping Filter...

Customize Threads View...



Object / Stack Frame	Name	Shallow Heap	Retained Heap	Context Class Loader	Is Daemon
<Regex>	<Regex>	<Numeric>	<Numeric>	<Regex>	<Regex>
java.awt.EventQueueDispatchThread @ 0x7a1f1f3a0	AWT-EventQueue-0	136	634,712	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	false
java.lang.Thread @ 0x7a241d960	AWT-AppKit	120	181,576		true
com.intellij.concurrency.IdeaForkJoinWorkerThreadFactory\$1 @ 0x7a95deadd0	JobScheduler FJ pool 5/7	136	33,096	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
com.intellij.concurrency.IdeaForkJoinWorkerThreadFactory\$1 @ 0x7a95d65f0	JobScheduler FJ pool 6/7	136	33,096	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a9064d90	DebuggerManagerThread	120	17,104	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a102f808	ApplicationImpl pooled thread 35	120	16,520	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a12c4c48	Netty Builtin Server 1	120	14,056	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	false
java.lang.Thread @ 0x7a39c30b0	Netty Builtin Server 2	120	13,416	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	false
java.lang.Thread @ 0x7a909b280	ApplicationImpl pooled thread 86	120	11,072	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a102f228	DebugProcessEvent	120	3,488	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a0d98e68	ApplicationImpl pooled thread 30	120	2,672	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a909b428	ApplicationImpl pooled thread 82	120	2,280	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
com.intellij.concurrency.IdeaForkJoinWorkerThreadFactory\$1 @ 0x7a95d5f70	JobScheduler FJ pool 3/7	136	1,888	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
com.intellij.concurrency.IdeaForkJoinWorkerThreadFactory\$1 @ 0x7a95d5c30	JobScheduler FJ pool 0/7	136	1,848	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
com.intellij.concurrency.IdeaForkJoinWorkerThreadFactory\$1 @ 0x7a95d62b0	JobScheduler FJ pool 2/7	136	1,728	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a1259a18	SwingWorker-pool-6-thread-2	120	1,672	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a50aa3b0	SwingWorker-pool-6-thread-10	120	1,624	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
com.intellij.concurrency.IdeaForkJoinWorkerThreadFactory\$1 @ 0x7a95f2920	JobScheduler FJ pool 4/7	136	1,600	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a57954e0	ProcessWaitFor: java	120	1,264	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	false
java.lang.Thread @ 0x7a68ffc88	SwingWorker-pool-6-thread-1	120	1,056	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a2160ff0	SwingWorker-pool-6-thread-3	120	1,056	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
java.lang.Thread @ 0x7a5794d88	SwingWorker-pool-6-thread-4	120	1,000	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
com.intellij.concurrency.IdeaForkJoinWorkerThreadFactory\$1 @ 0x7a8bfaf48	JobScheduler FJ pool 1/7	136	648	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970	true
Total: 23 of 63 entries; 40 more		7,768	991,336		

Thread Details

Thread Details

- Thread **Netty Builtin Server 2**
- Thread Properties

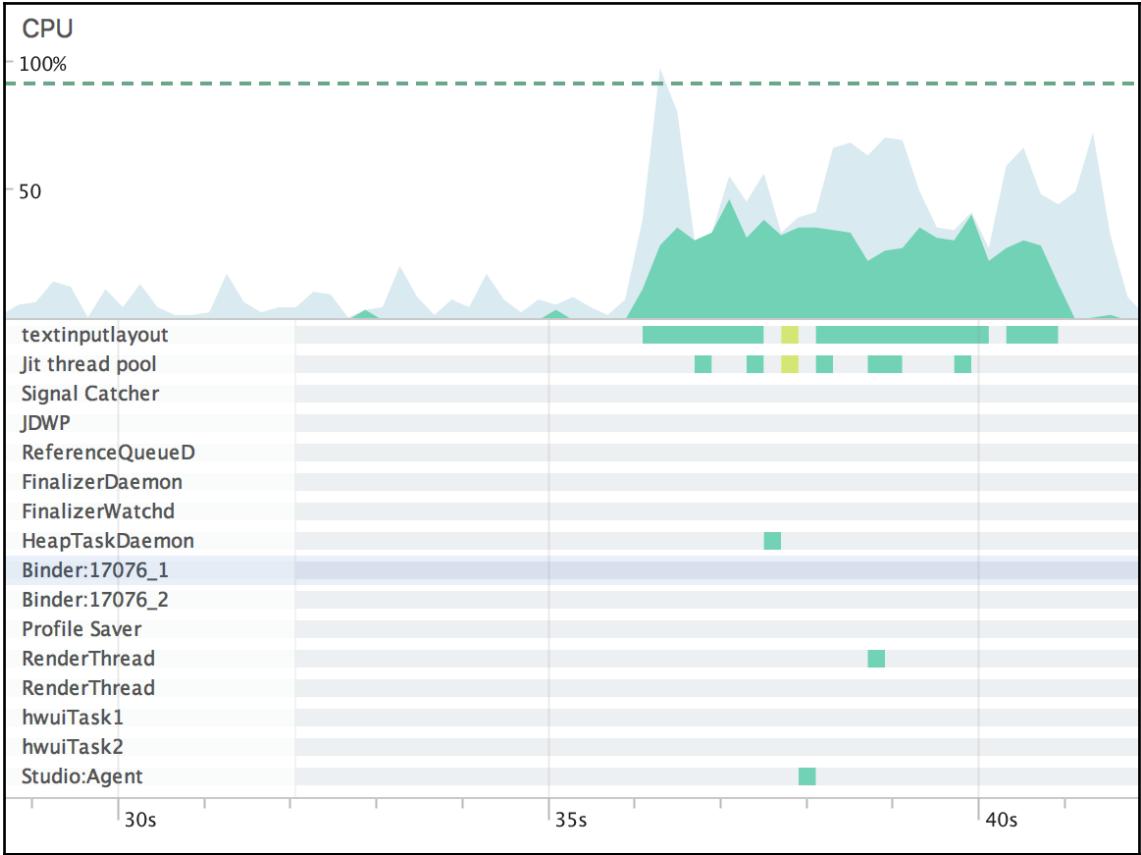
Object / Stack Frame	java.lang.Thread @ 0x7a39c30b0
Name	Netty Builtin Server 2
Shallow Heap	120
Retained Heap	13,416
Context Class Loader	com.intellij.util.lang.UrlClassLoader @ 0x7a0cbd970
Is Daemon	false
Σ Total: 6 entries	

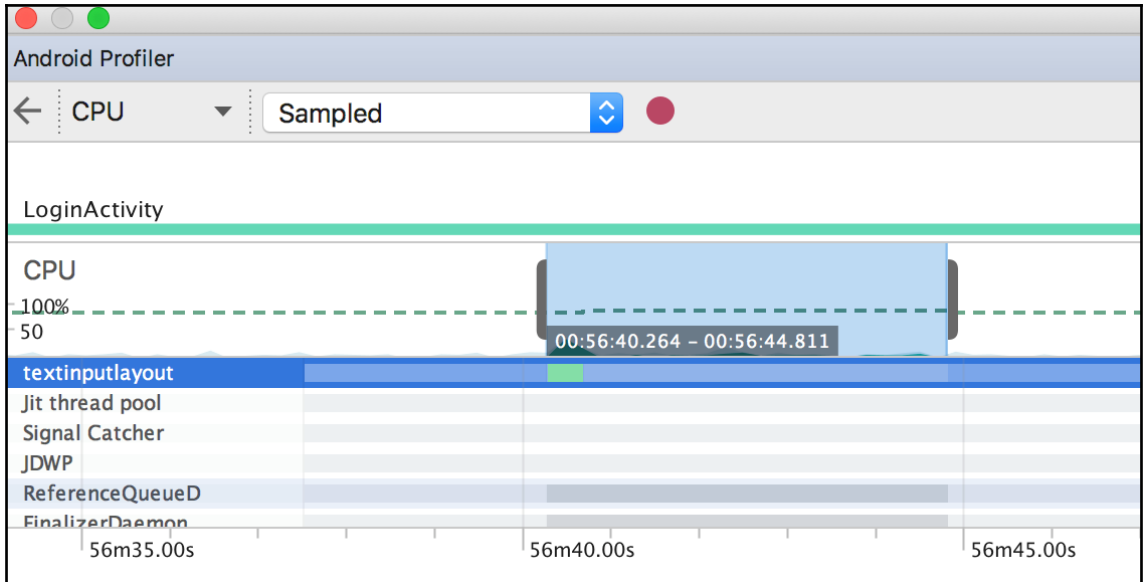
- Thread Stack

```

Netty Builtin Server 2
  at sun.nio.ch.KQueueArrayWrapper.kevent0(IJII)I (Native Method)
  at sun.nio.ch.KQueueArrayWrapper.poll(J)I (KQueueArrayWrapper.java:198)
  at sun.nio.ch.KQueueSelectorImpl.doSelect(J)I (KQueueSelectorImpl.java:117)
  at sun.nio.ch.SelectorImpl.lockAndDoSelect(J)I (SelectorImpl.java:86)
  at sun.nio.ch.SelectorImpl.select(J)I (SelectorImpl.java:97)
  at io.netty.channel.nio.SelectedSelectionKeySetSelector.select(J)I (SelectedSelectionKeySetSelector.java:62)
  at io.netty.channel.nio.NioEventLoop.select(Z)V (NioEventLoop.java:752)
  at io.netty.channel.nio.NioEventLoop.run()V (NioEventLoop.java:408)
  at io.netty.util.concurrent.SingleThreadEventExecutor$5.run()V (SingleThreadEventExecutor.java:858)
  at java.lang.Thread.run()V (Thread.java:745)

```





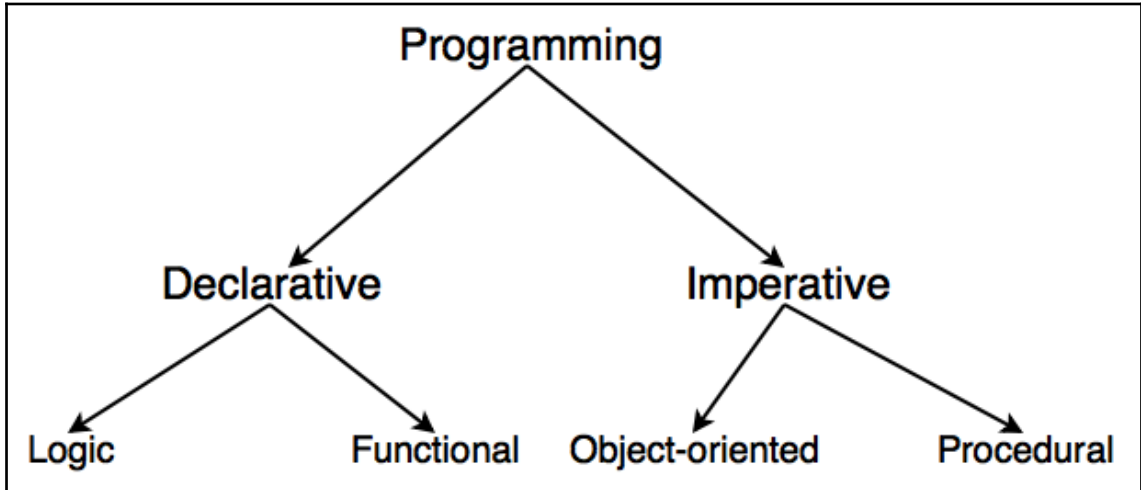
Call Chart	Flame Chart	Top Down	Bottom Up
	main		
	com.android.internal.os.ZygoteInit.main		
	com.android.internal.os.Zygote\$MethodAndArgsCaller.run		
	java.lang.reflect.Method.invoke		
	android.app.ActivityThread.main		
	android.os.Looper.loop		

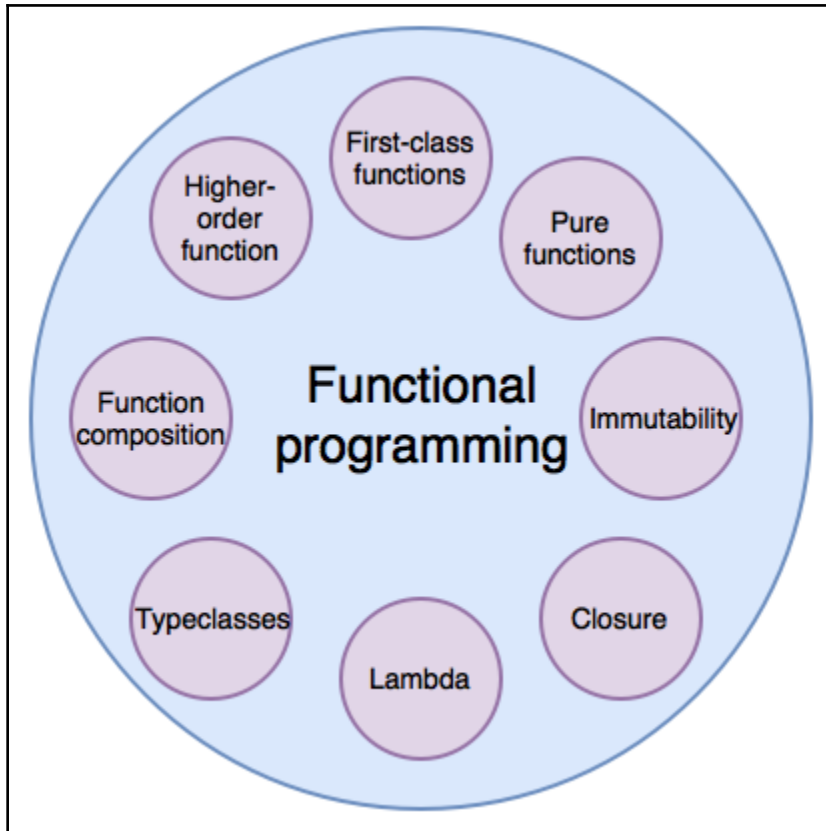
Call Chart Flame Chart Top Down Bottom Up

Name

- ▼ m main() ()
 - ▼ m main() (com.android.internal.os.ZygoteInit)
 - ▼ m run() (com.android.internal.os.Zygote\$MethodAndArgsCaller)
 - ▼ m invoke() (java.lang.reflect.Method)
 - ▼ m main() (android.app.ActivityThread)
 - ▼ m loop() (android.os.Looper)
 - ▼ m next() (android.os.MessageQueue)
 - m nativePollOnce() (android.os.MessageQueue)
 - ▼ m dispatchMessage() (android.os.Handler)
 - ▼ m **handleCallback() (android.os.Handler)**
 - ▼ m run() (android.widget.Editor\$Blink)
 - ▶ m -wrap12() (android.widget.Editor)
 - ▶ m invalidateCursorPath() (android.widget.TextView)

Chapter 4: Functional Approach





Tasks & Contexts 

Generate JavaDoc...

Save Project as Template...

Manage Project Templates...

IDE Scripting Console

Create Command-line Launcher...

JShell Console...



Capture Memory Snapshot



Deployment 


Show HTTP Requests History


Test RESTful Web Service



Groovy Console...



V8 Profiling 

WebServices 



Kotlin 

Start SSH session...

Configure Kotlin in Project

Configure Kotlin (JavaScript) in Project

Configure Kotlin Plugin Updates

Show Kotlin Bytecode

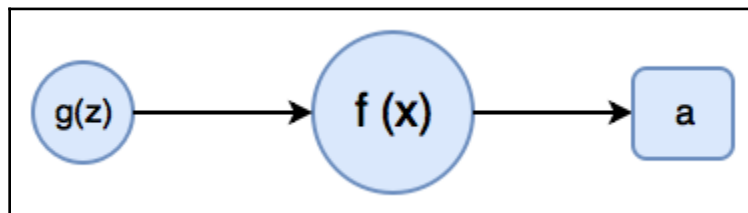
Decompile Kotlin To Java

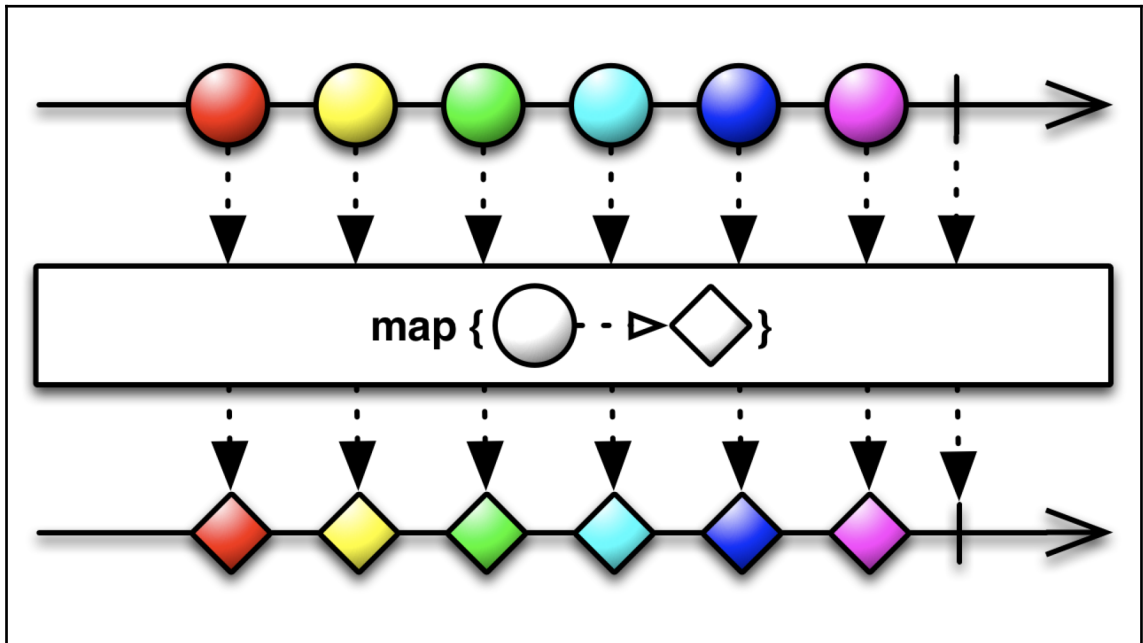
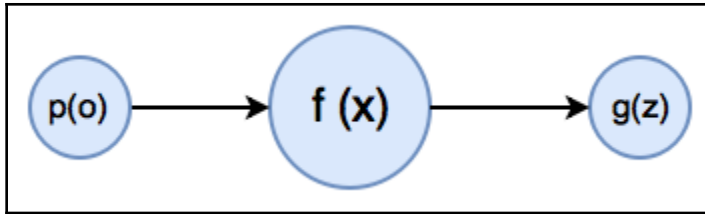
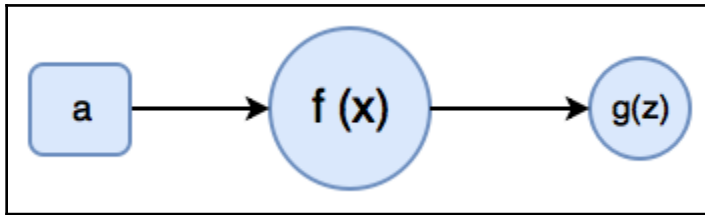
Kotlin Internal Mode

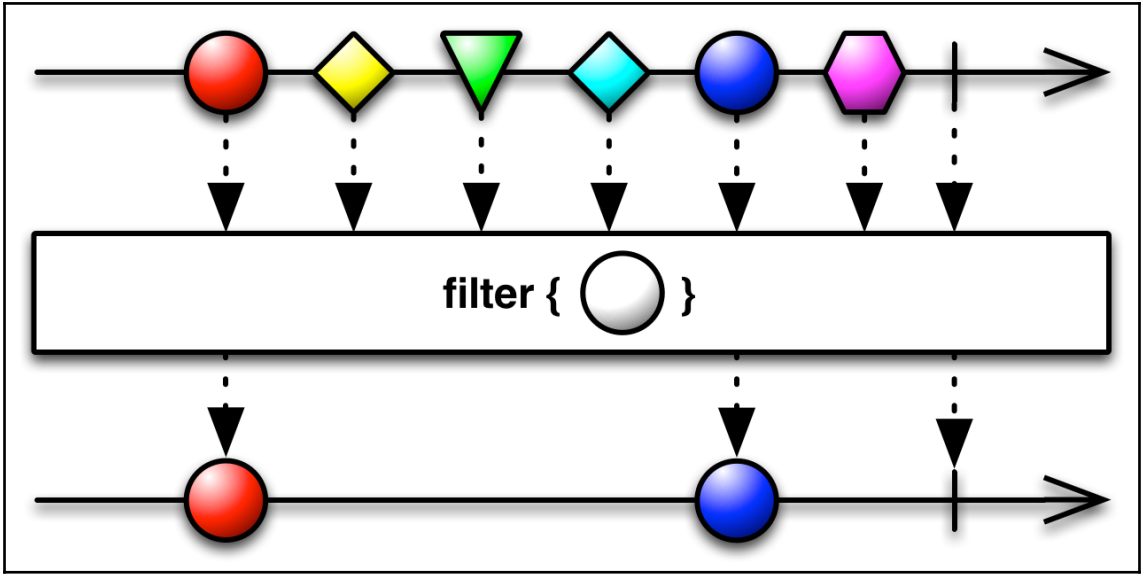
 Kotlin REPL

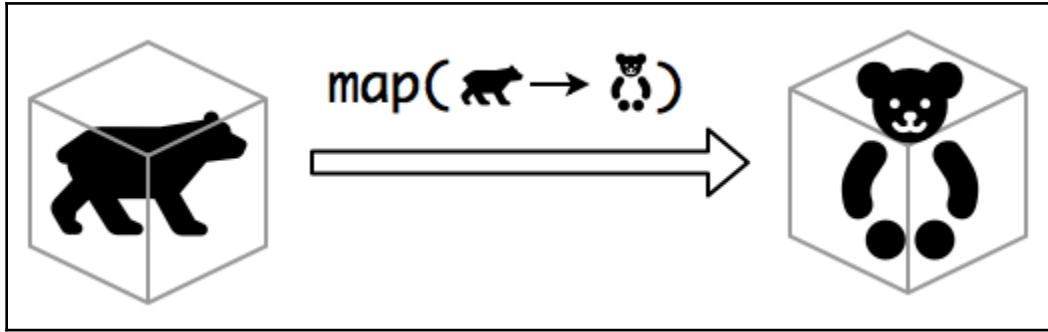
```
Kotlin Bytecode
Decompile  Inline  Optimization  Assertions  IR  JVM 8 target

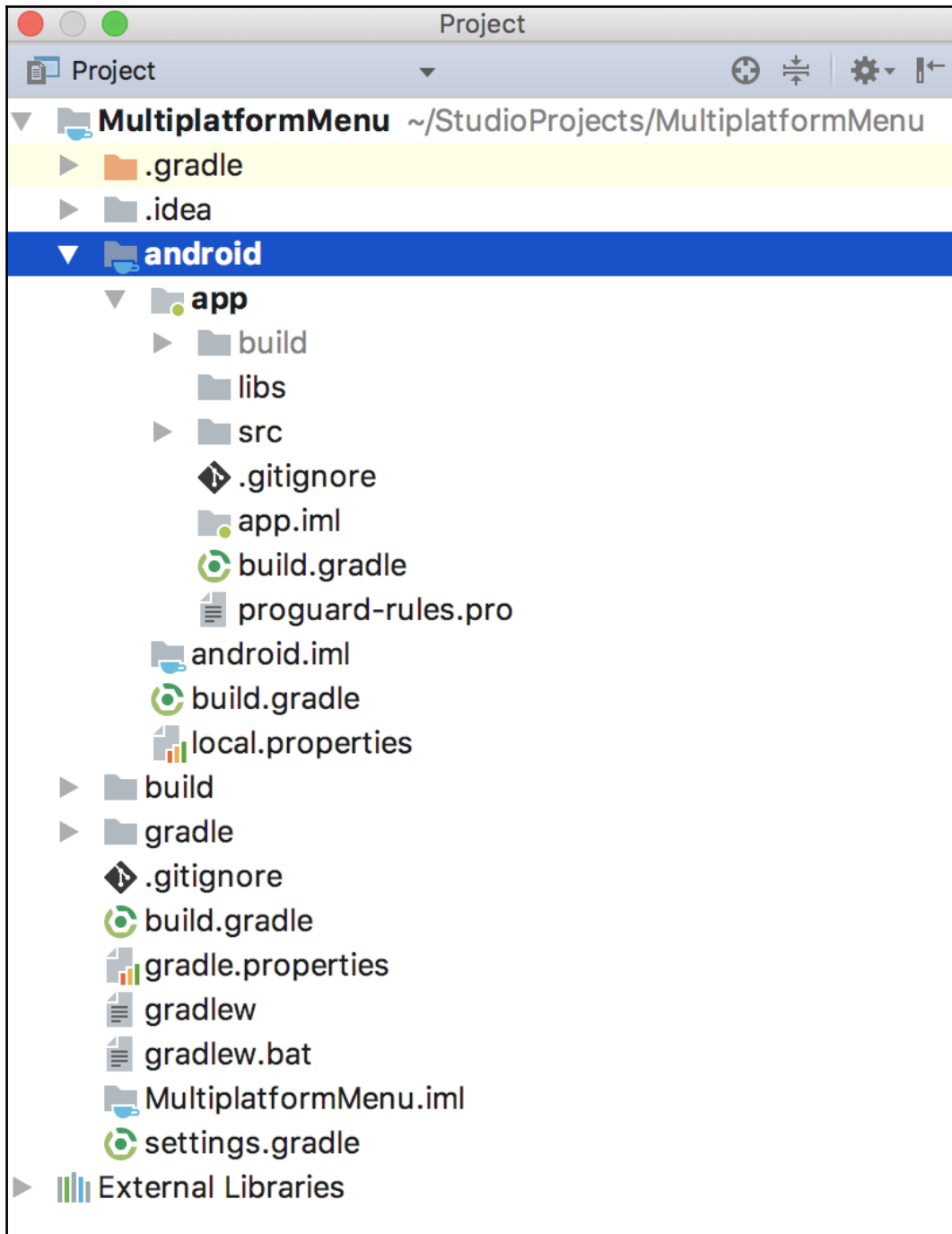
4 public final class MainKt {
5
6
7 // access flags 0x19
8 public final static main([Ljava/lang/String;)V
9 @Lorg/jetbrains/annotations/NotNull;() // invisible, parameter 0
10 L0
11 ALOAD 0
12 LDC "vars"
13 INVOKESTATIC kotlin/jvm/internal/Intrinsics.checkNotNull (Ljava/lang/Object;Ljava/lang/String;)V
14 L1
15 LINENUMBER 11 L1
16 ICONST_3
17 ISTORE 1
18 ICONST_4
19 ISTORE 2
20 L2
21 ILOAD 1
22 ILOAD 2
```

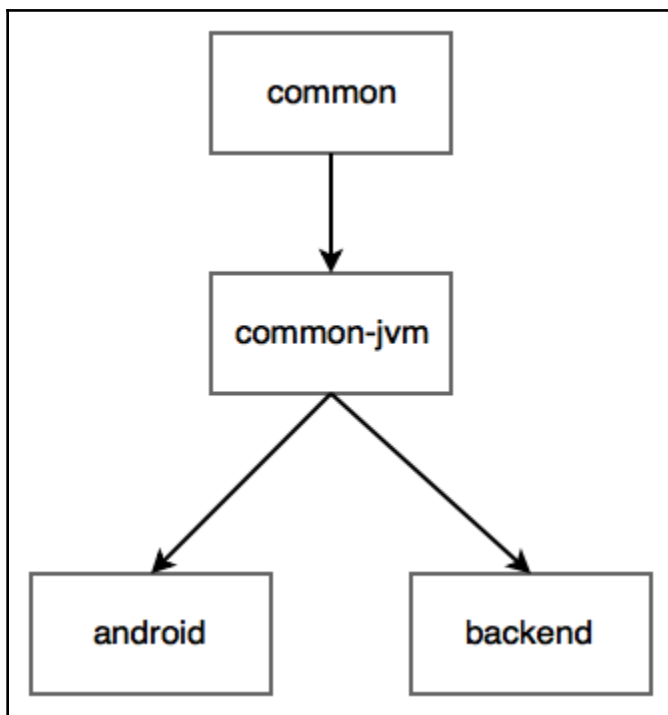


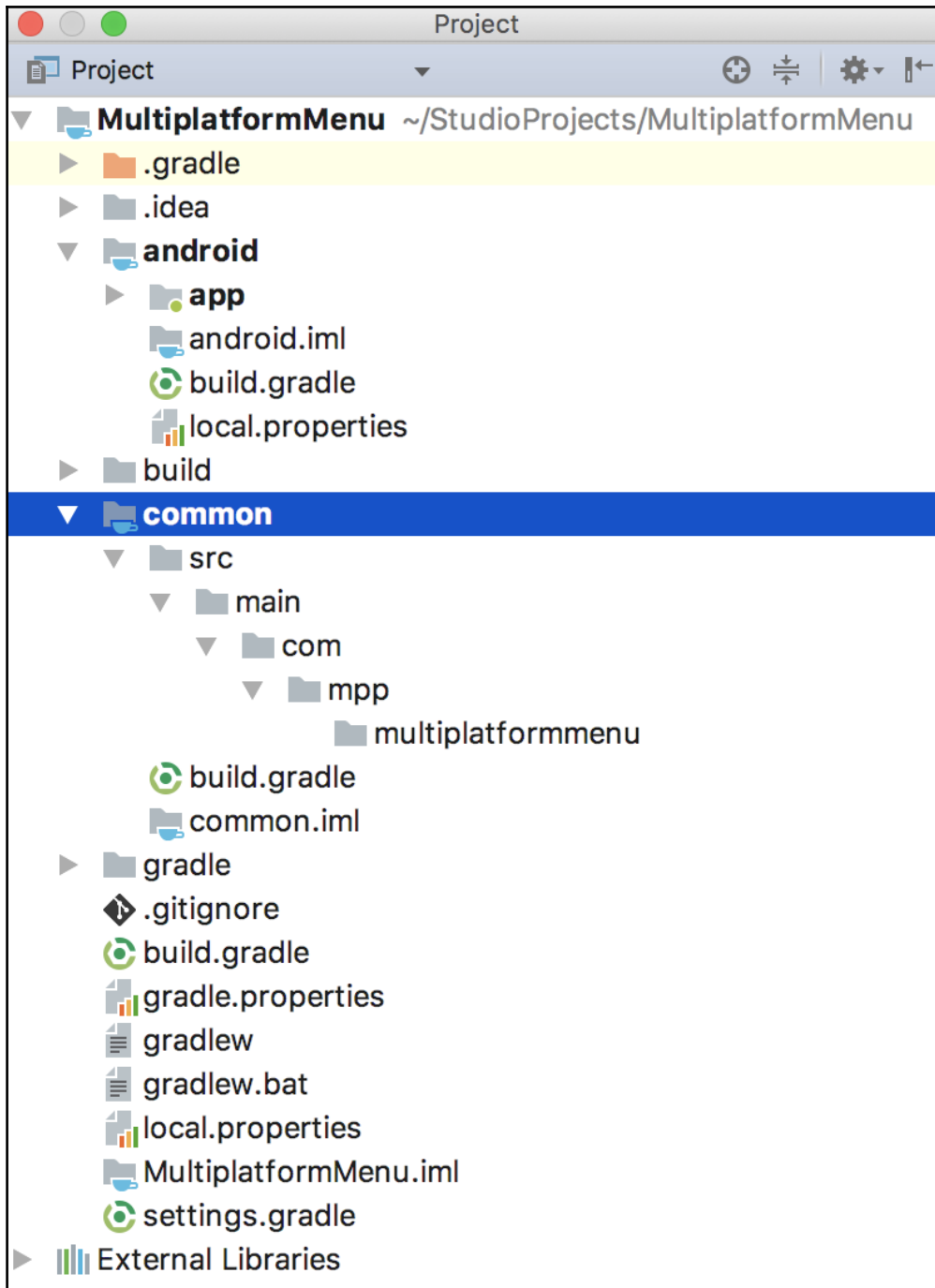


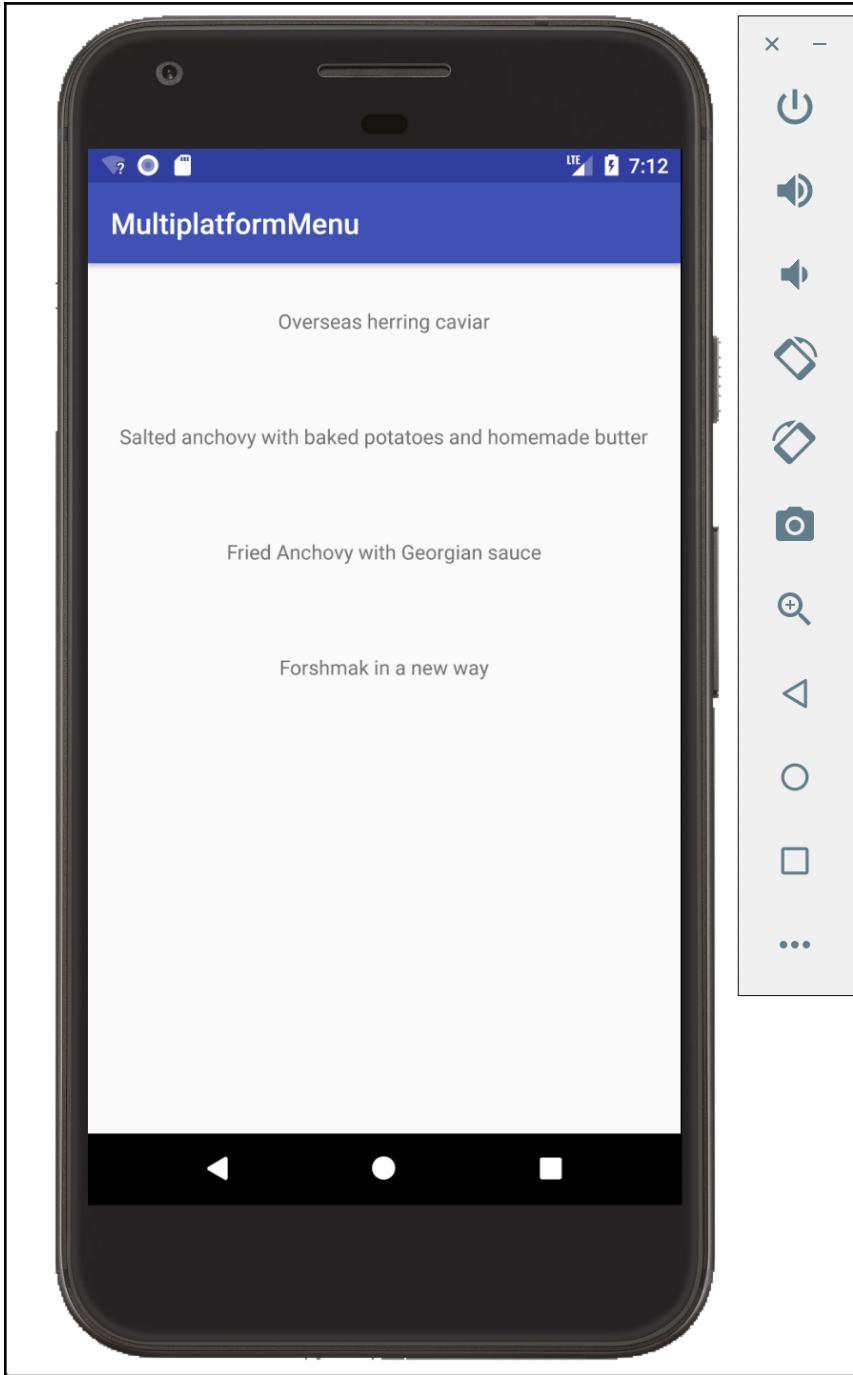












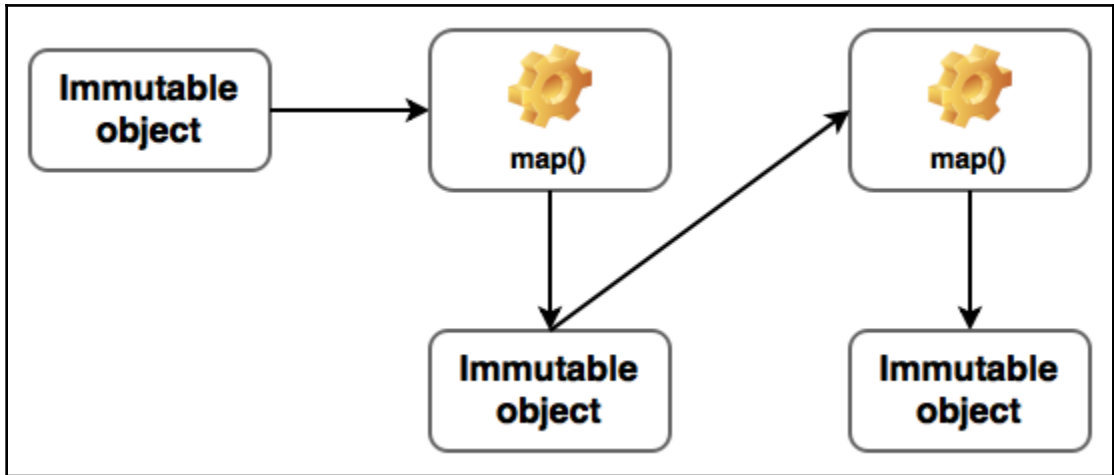
MultiplatformMenu

Overseas herring caviar

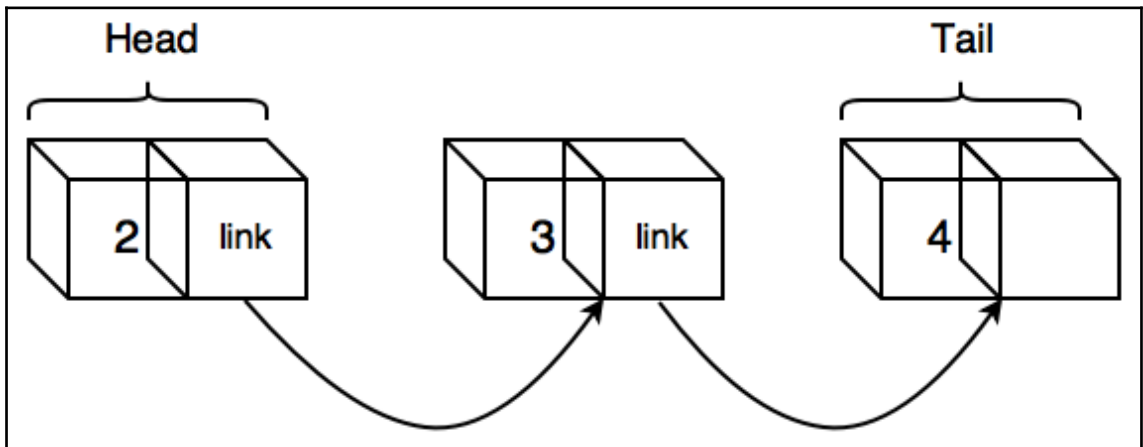
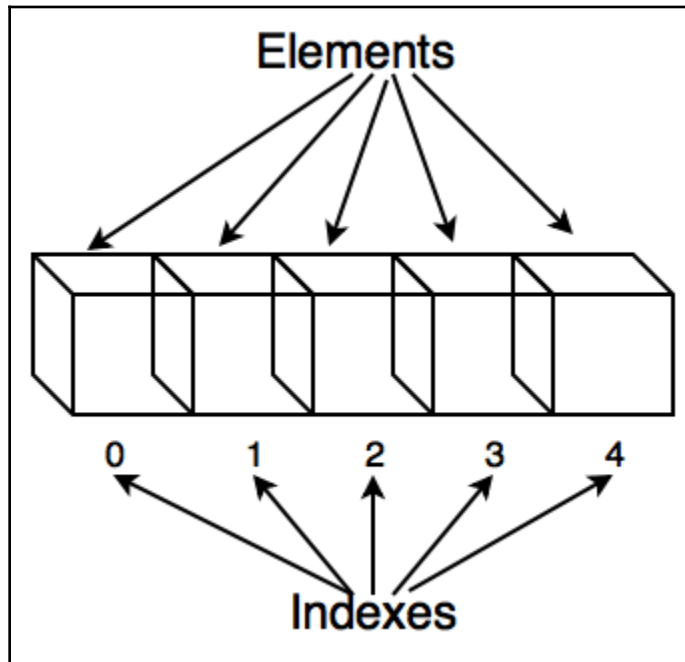
Salted anchovy with baked potatoes and homemade butter

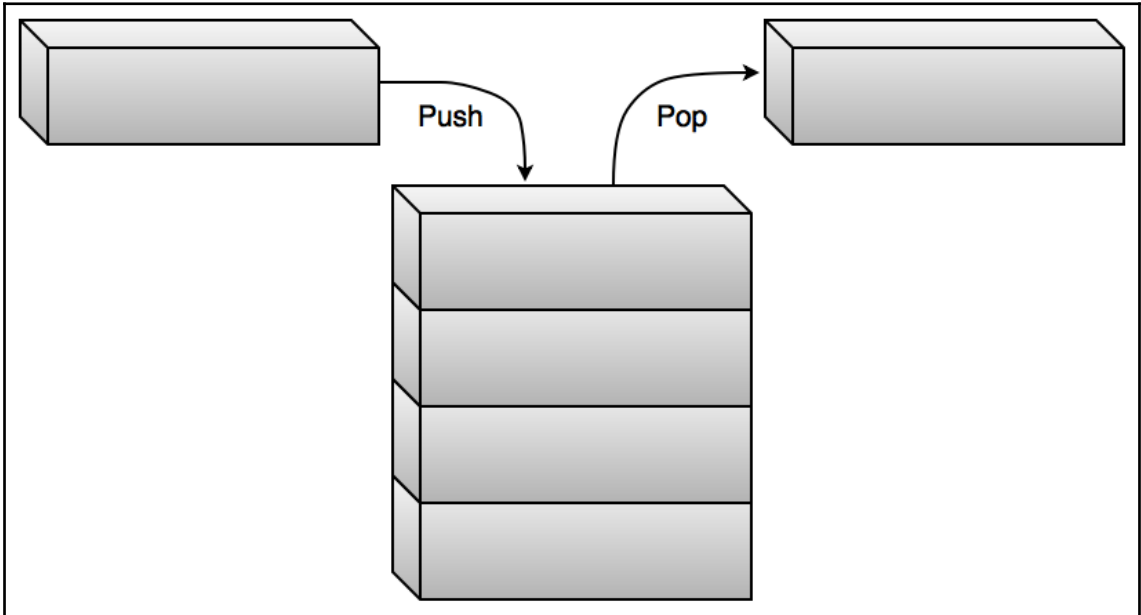
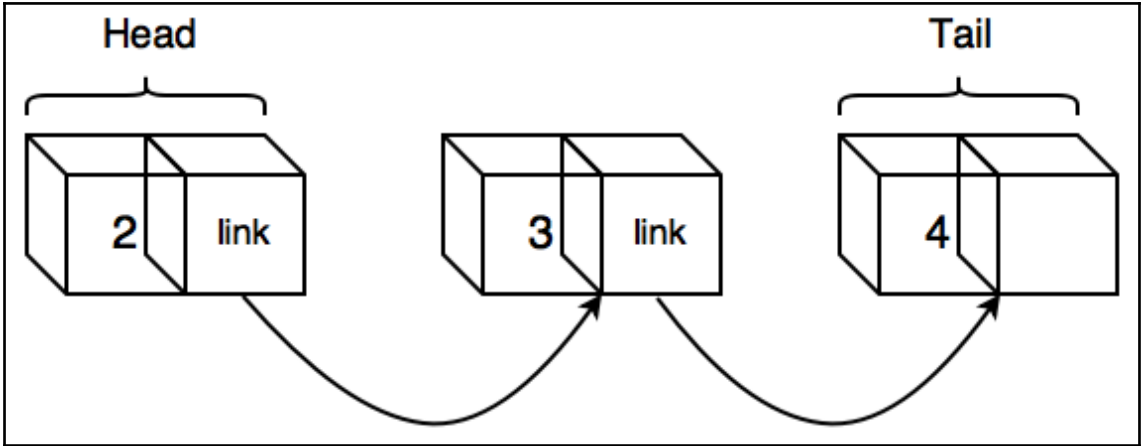
Fried Anchovy with Georgian sauce

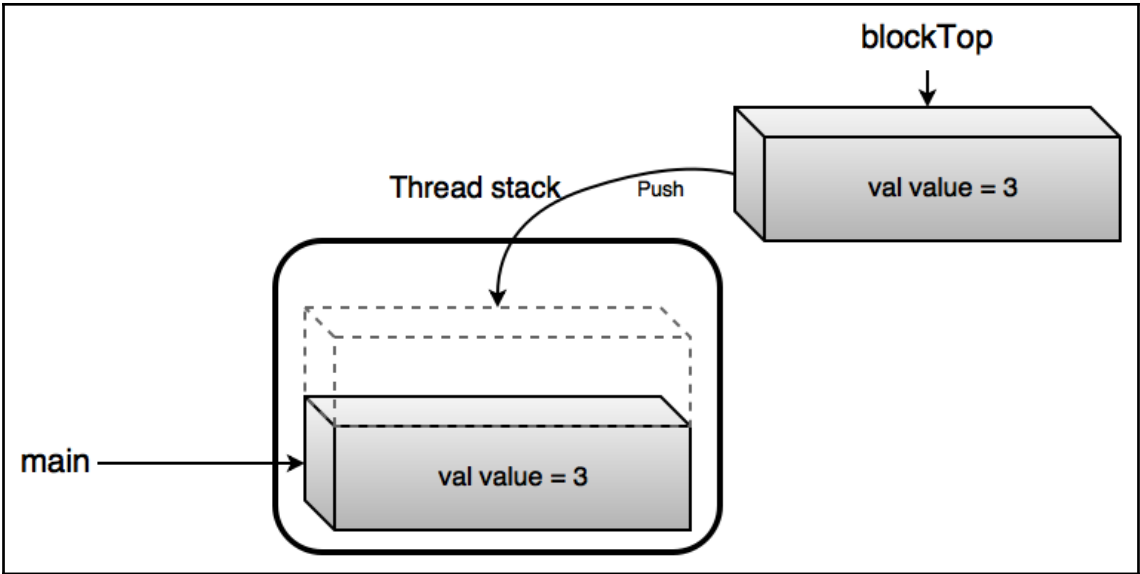
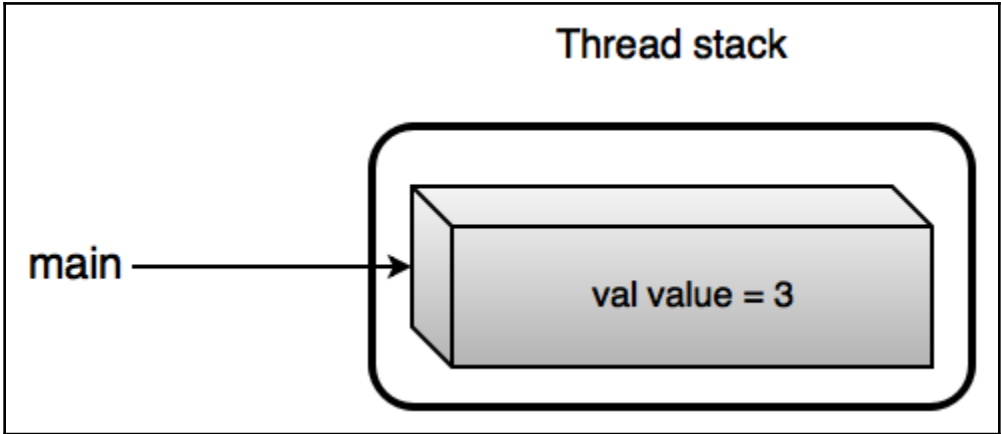
Forshmak in a new way



Chapter 5: Enhancing the Performance of Collections



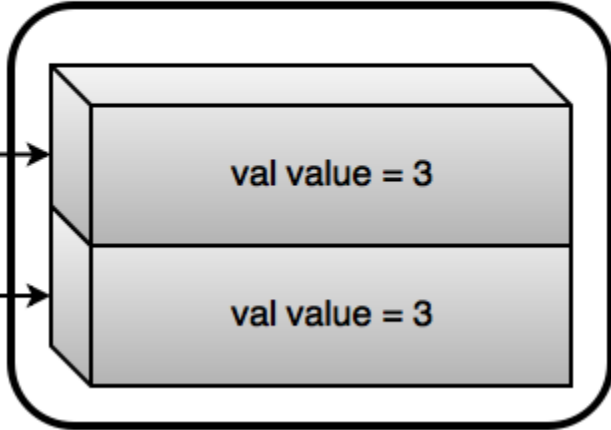


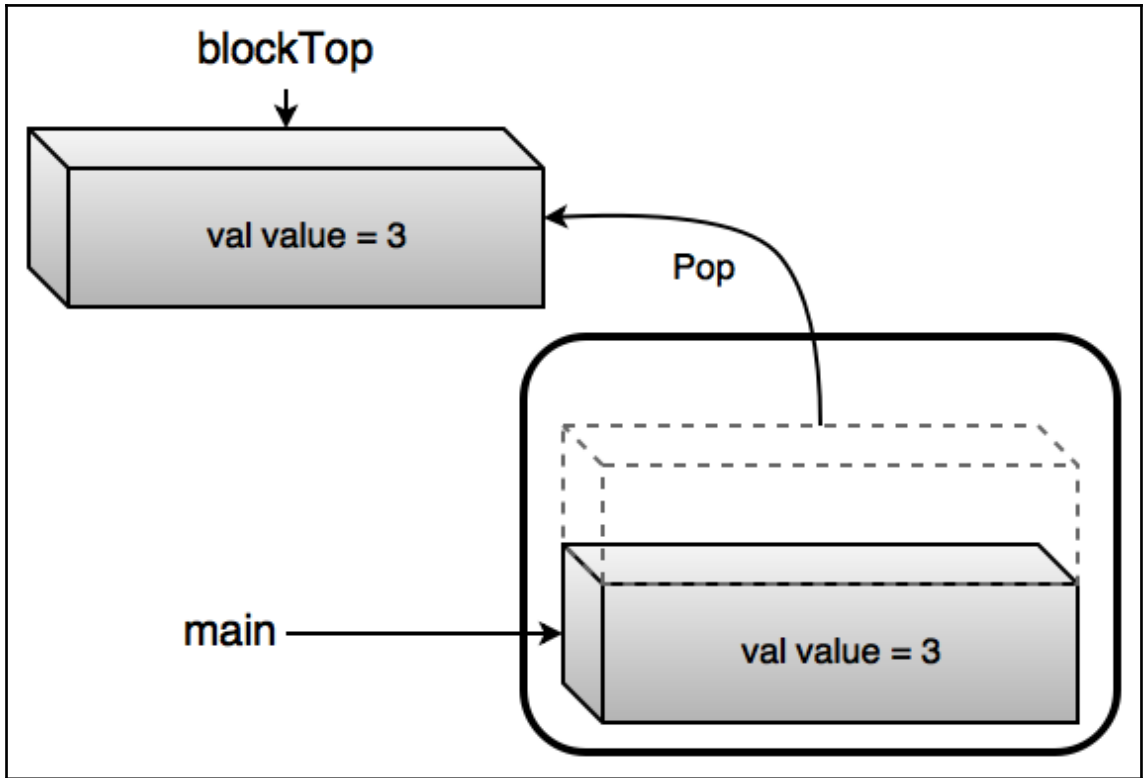


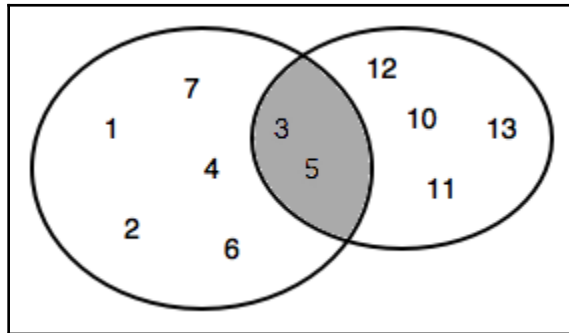
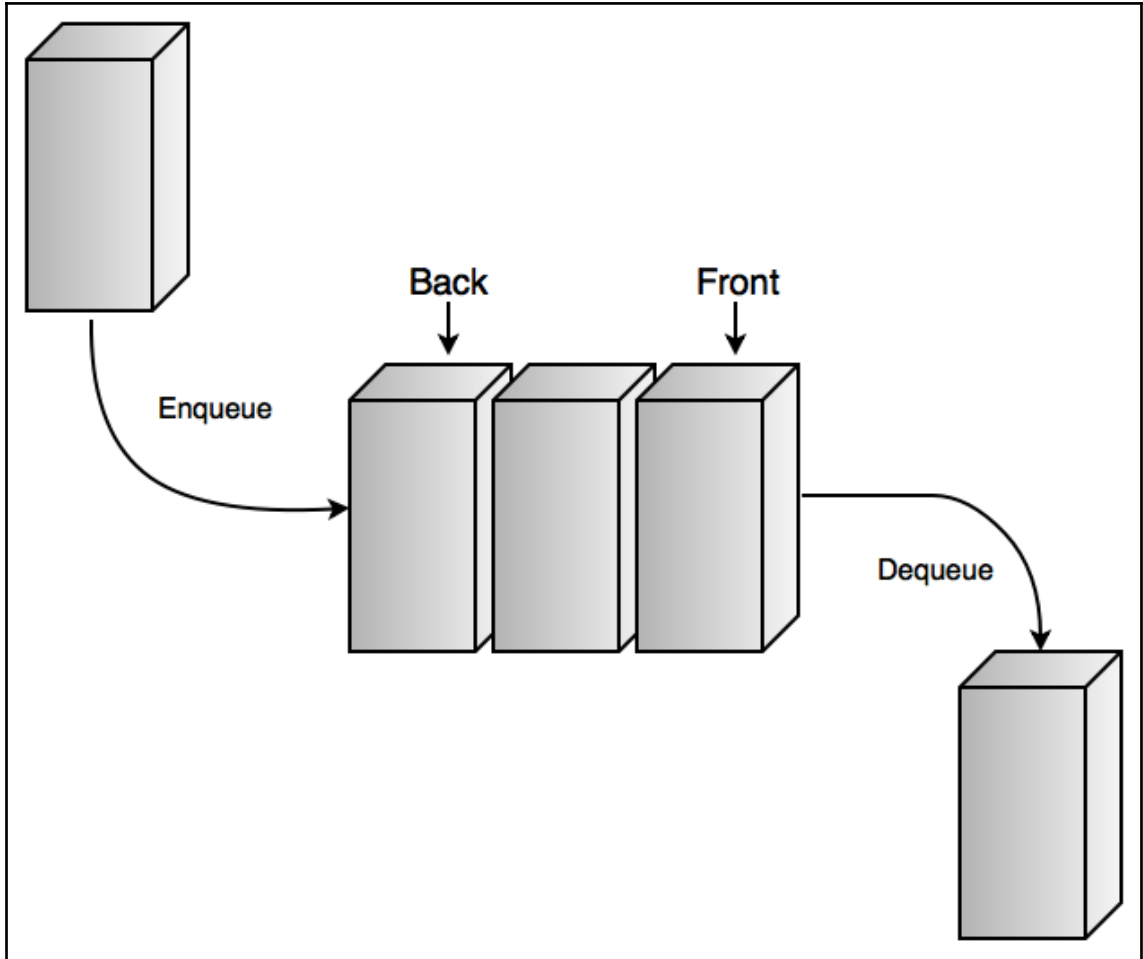
Thread stack

blockTop

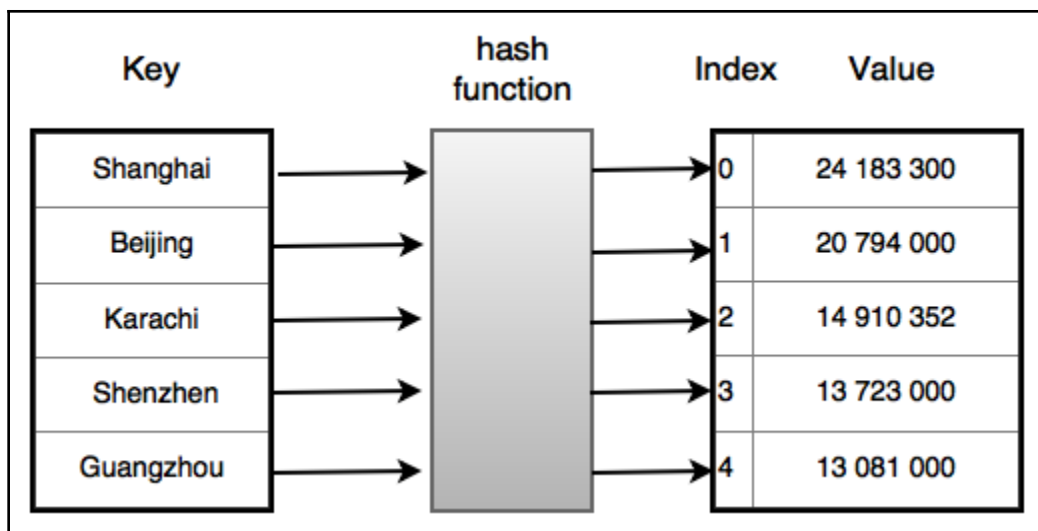
main

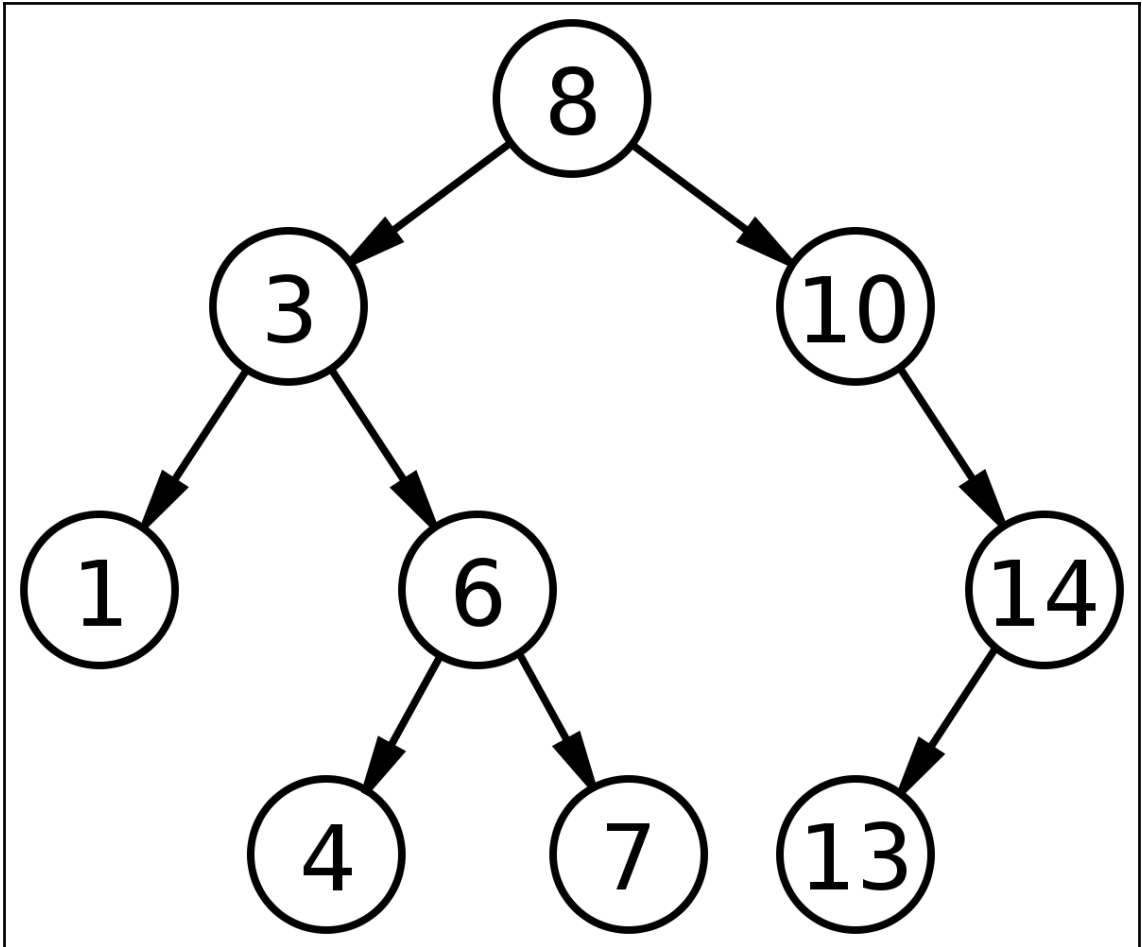


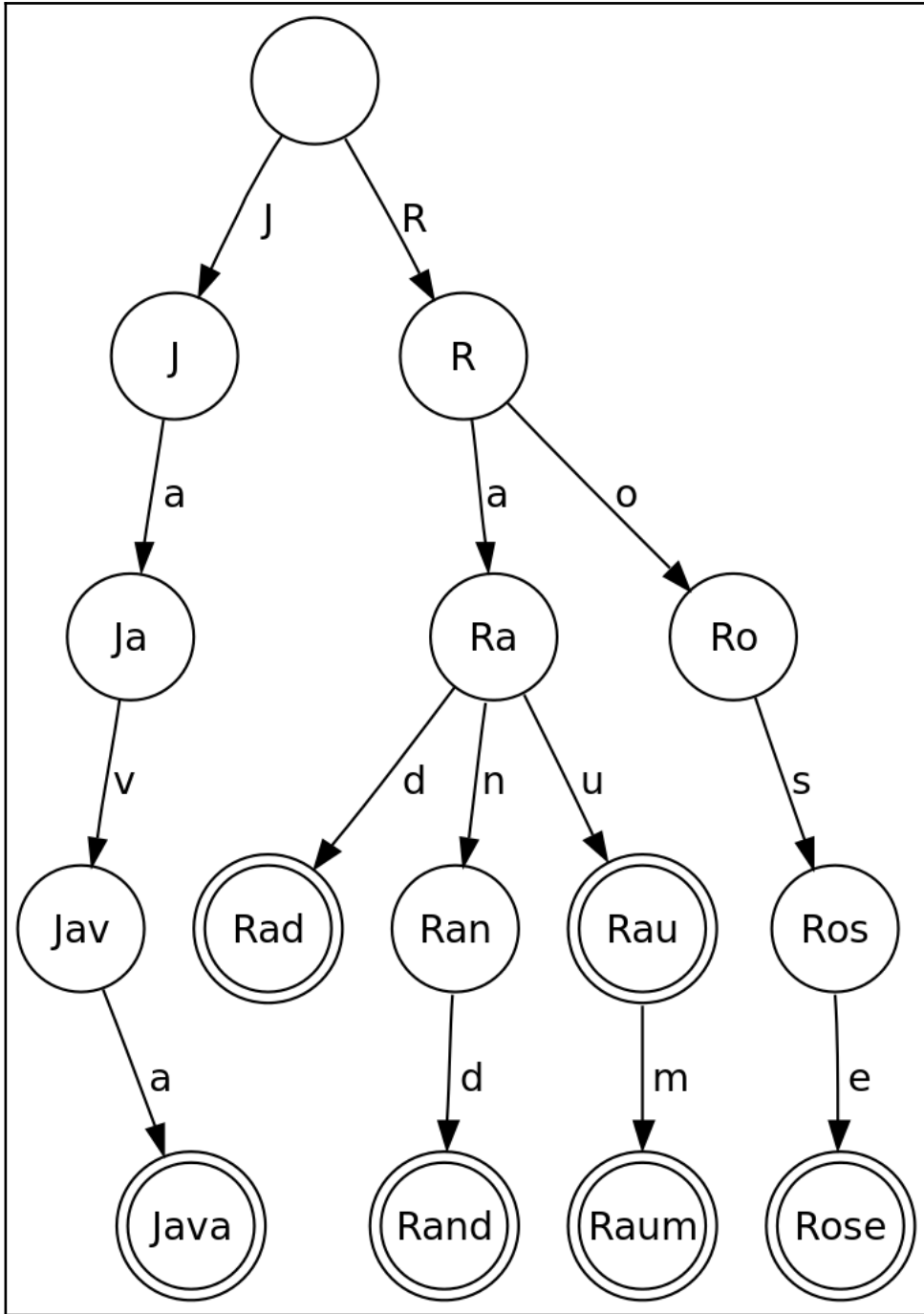


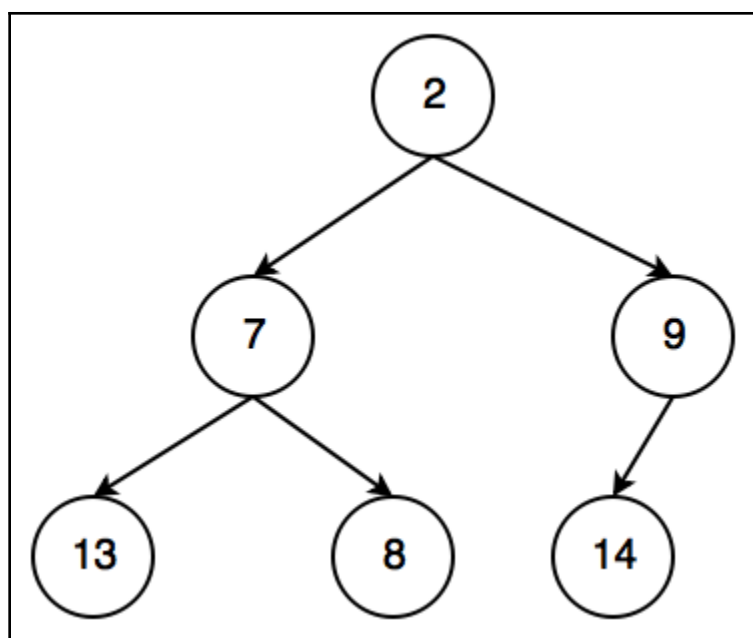
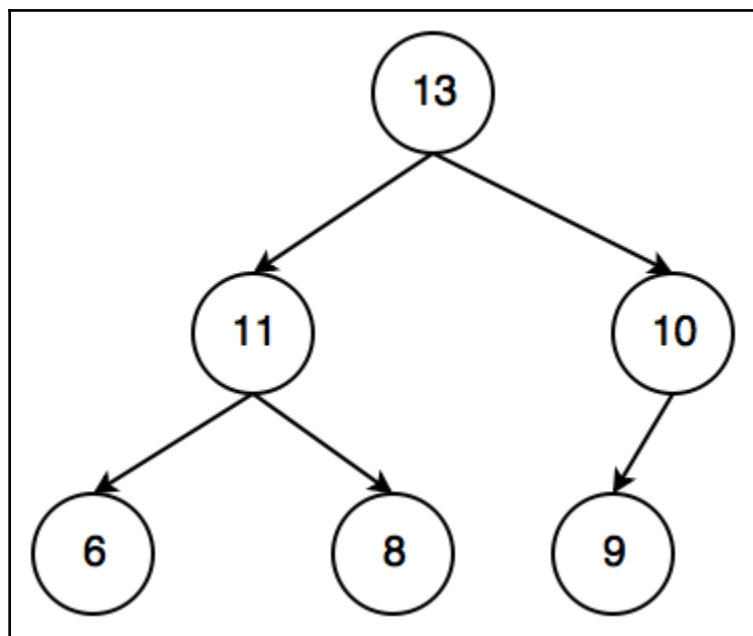


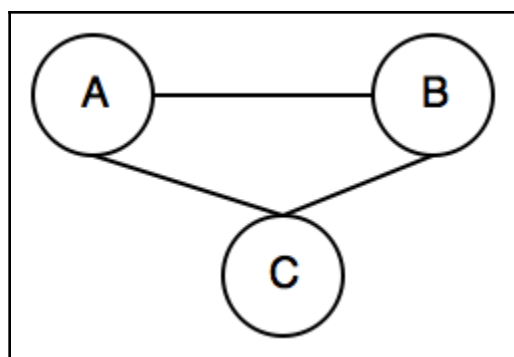
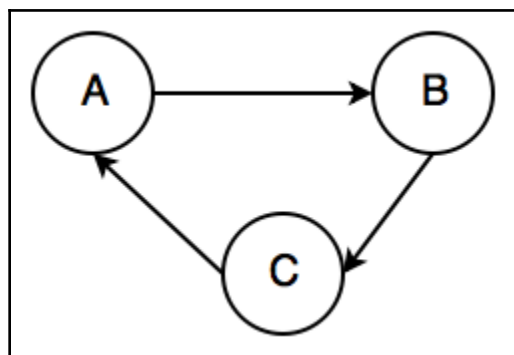
Key	Value
Shanghai	24 183 300
Beijing	20 794 000
Karachi	14 910 352
Shenzhen	13 723 000
Guangzhou	13 081 000

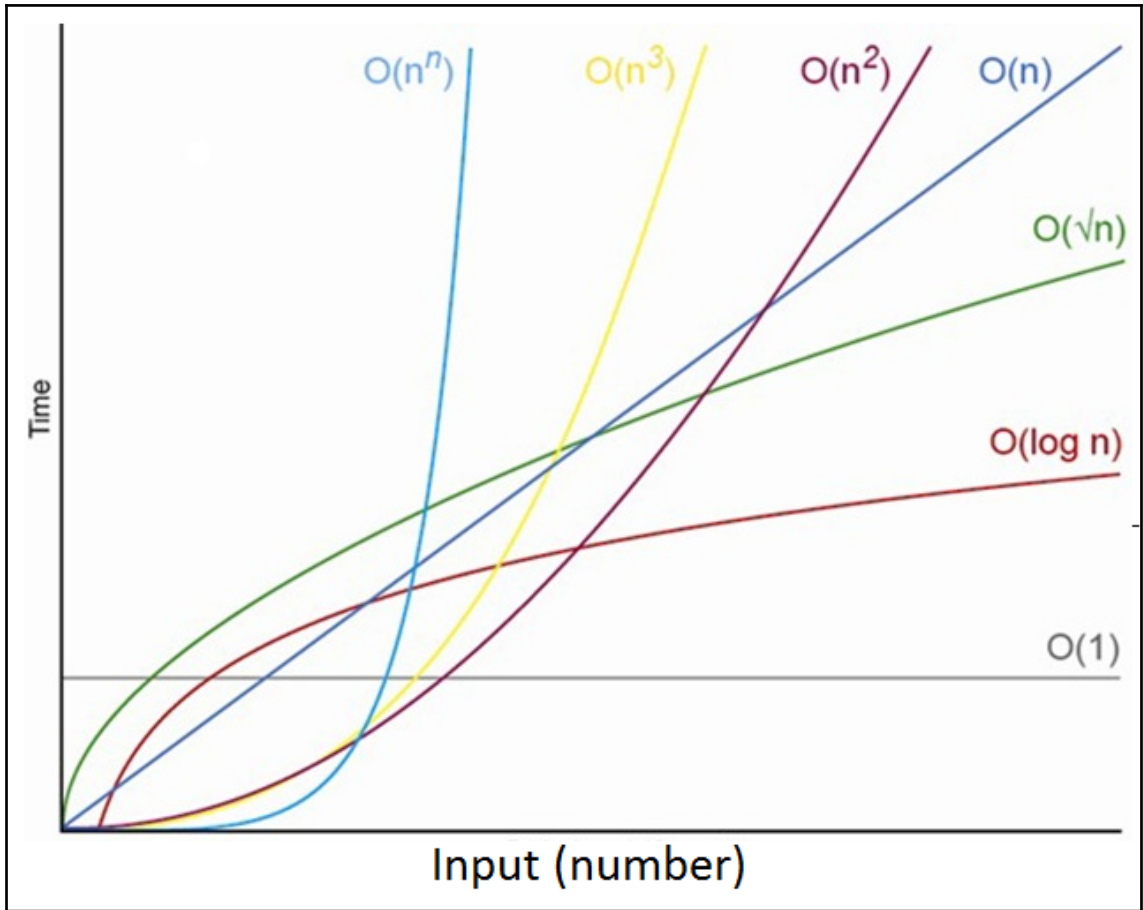








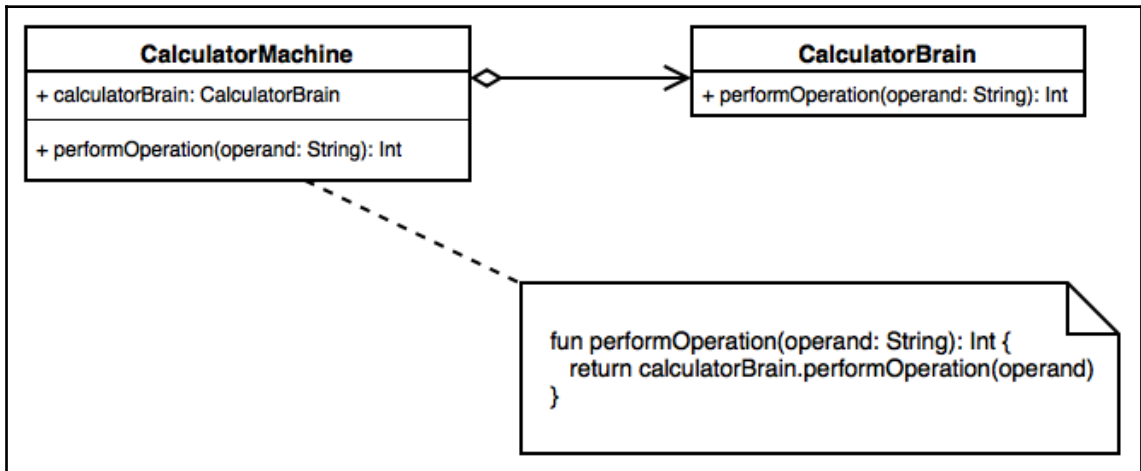
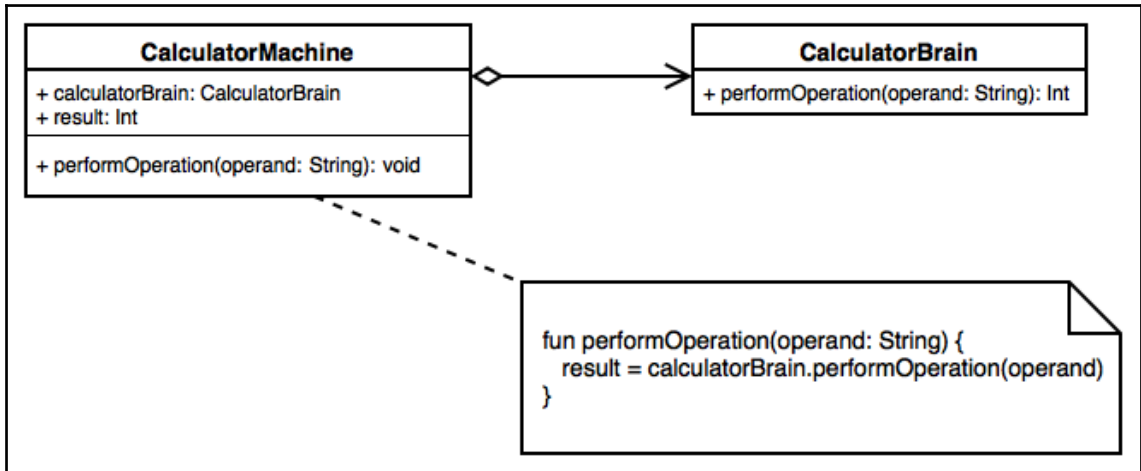




Chapter 6: Optimizing Access to Properties

No images

Chapter 7: Preventing Unnecessary Overhead Using Delegates



Generate

Constructor

Getter

Setter

Getter and Setter

equals() and hashCode()
toString()

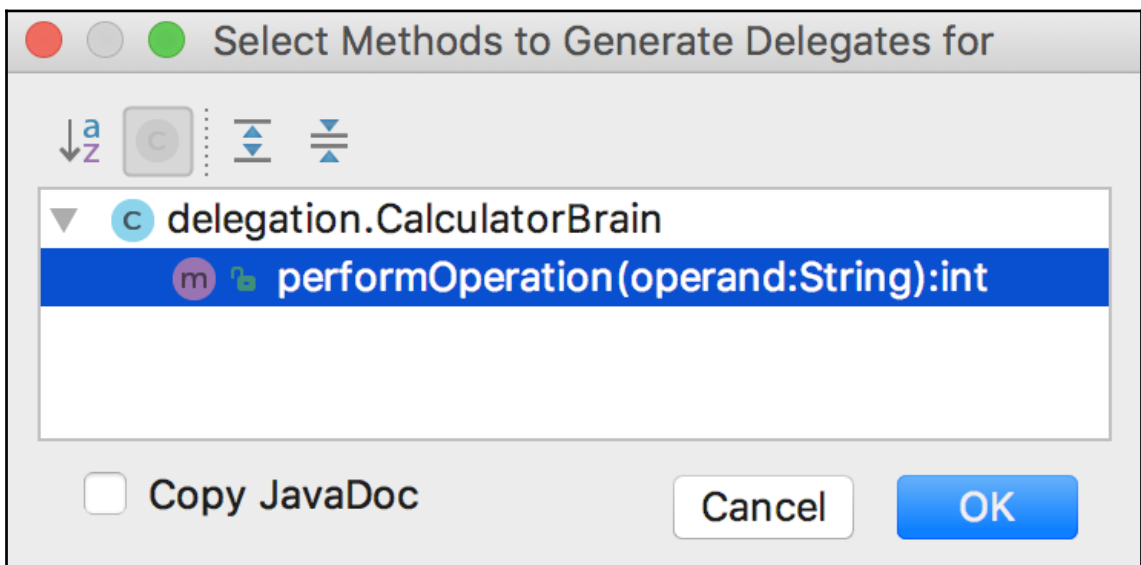
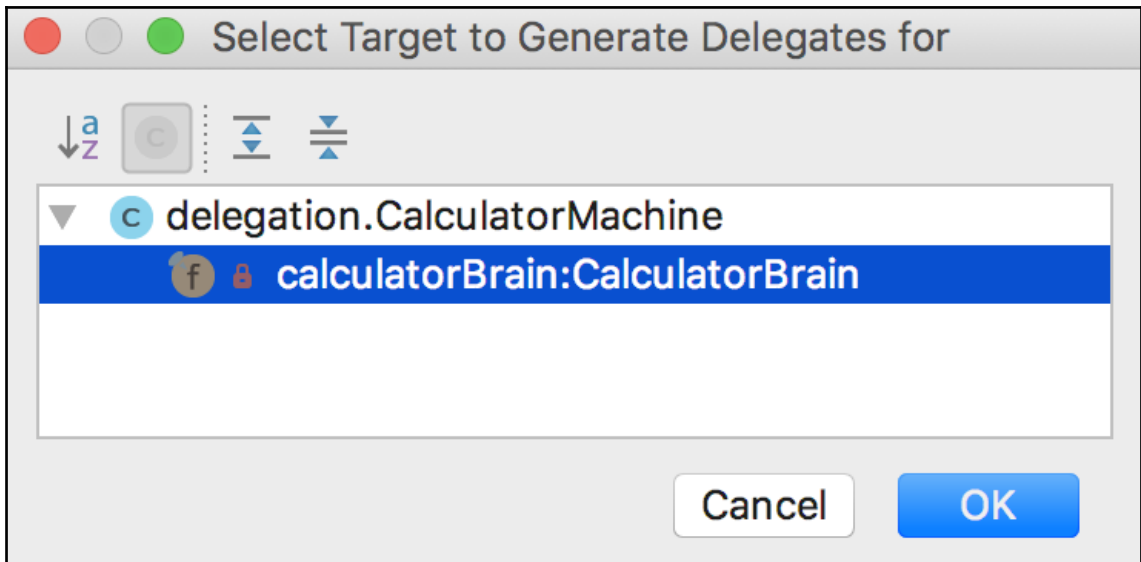
Override Methods... ^O

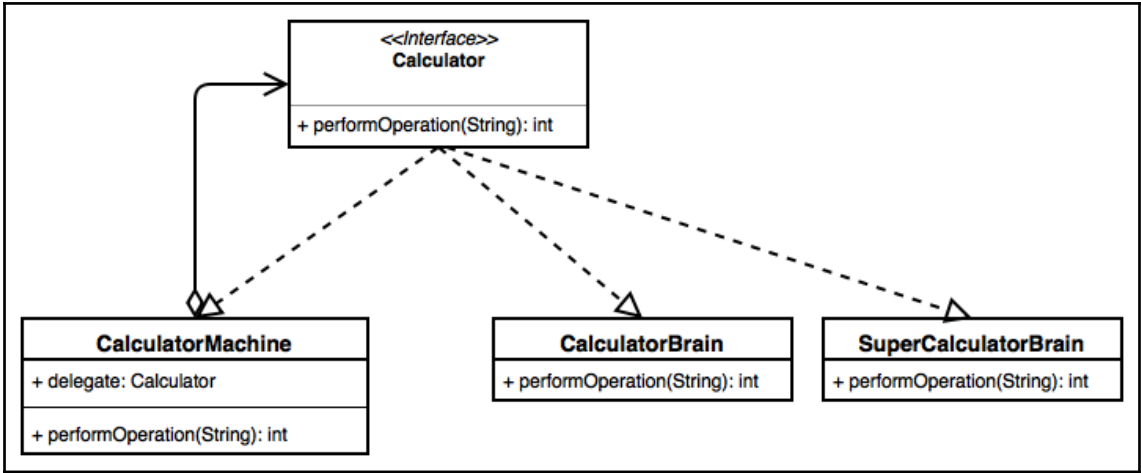
Implement Methods... ^I

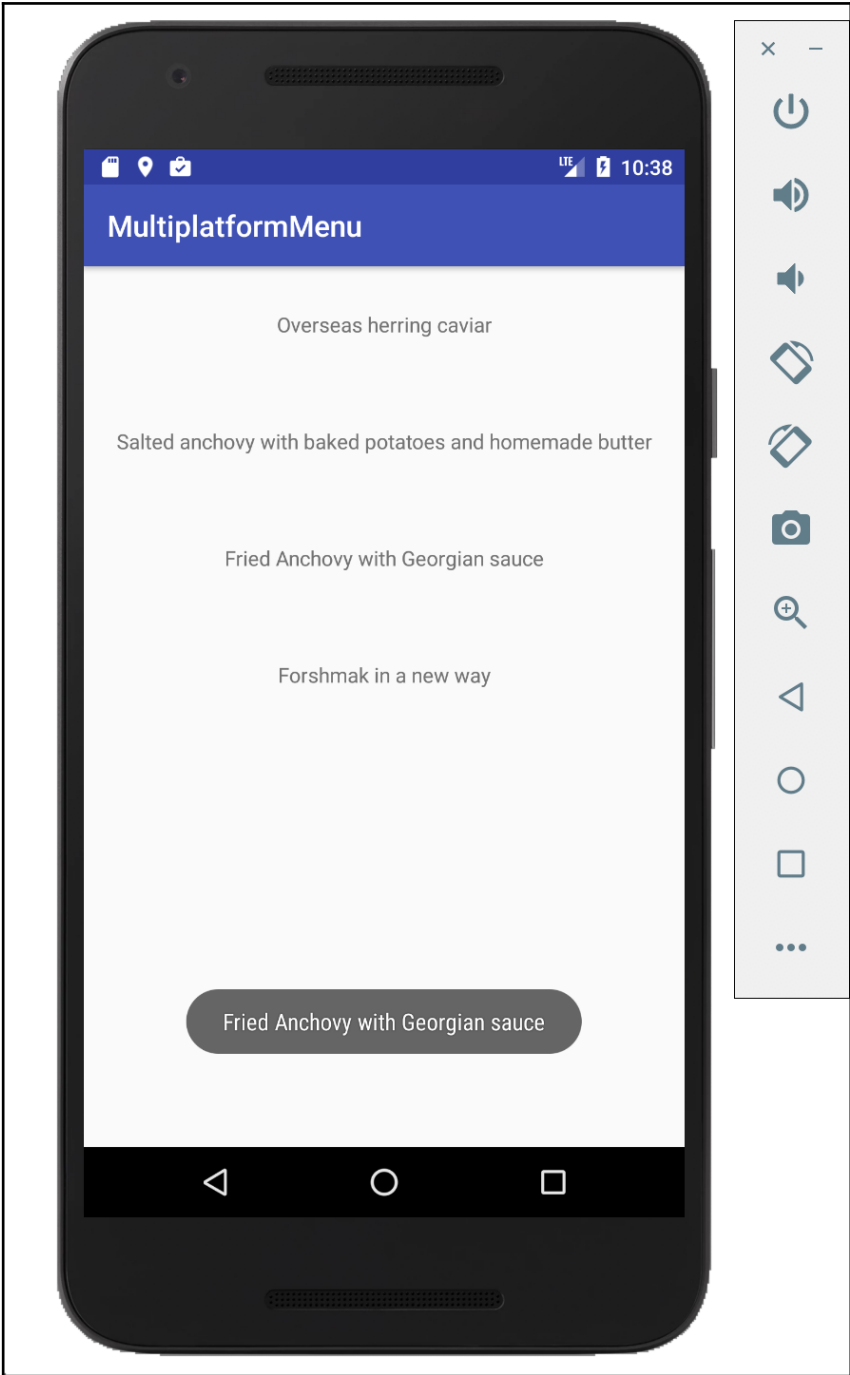
Delegate Methods...

Copyright

Generate JMH benchmark







MultiplatformMenu

Overseas herring caviar

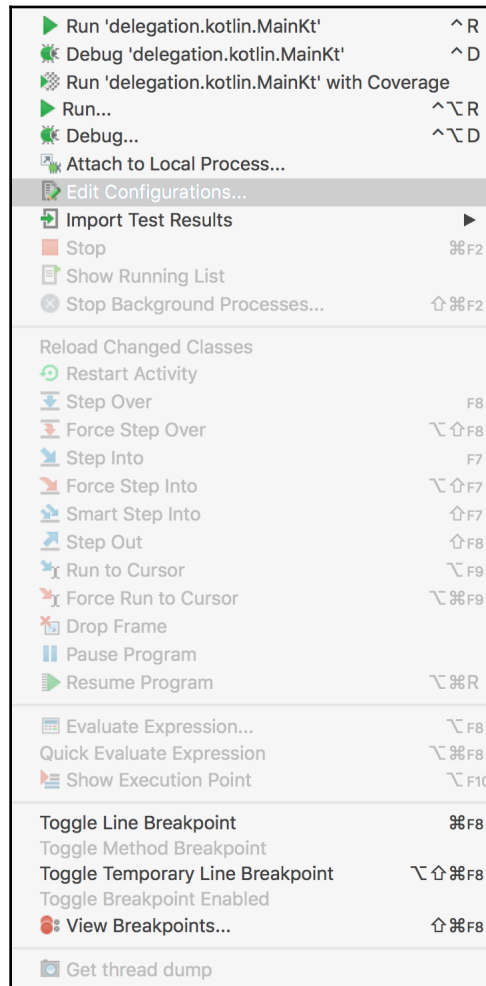
Salted anchovy with baked potatoes and homemade butter

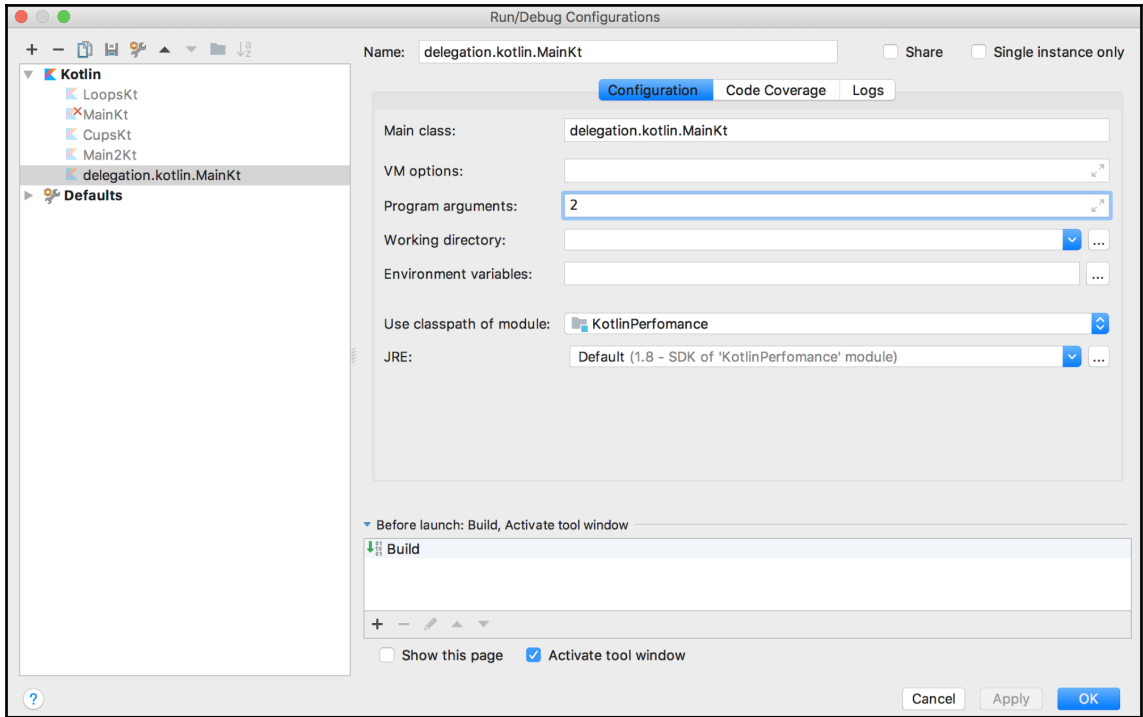
Fried Anchovy with Georgian sauce

Forshmak in a new way

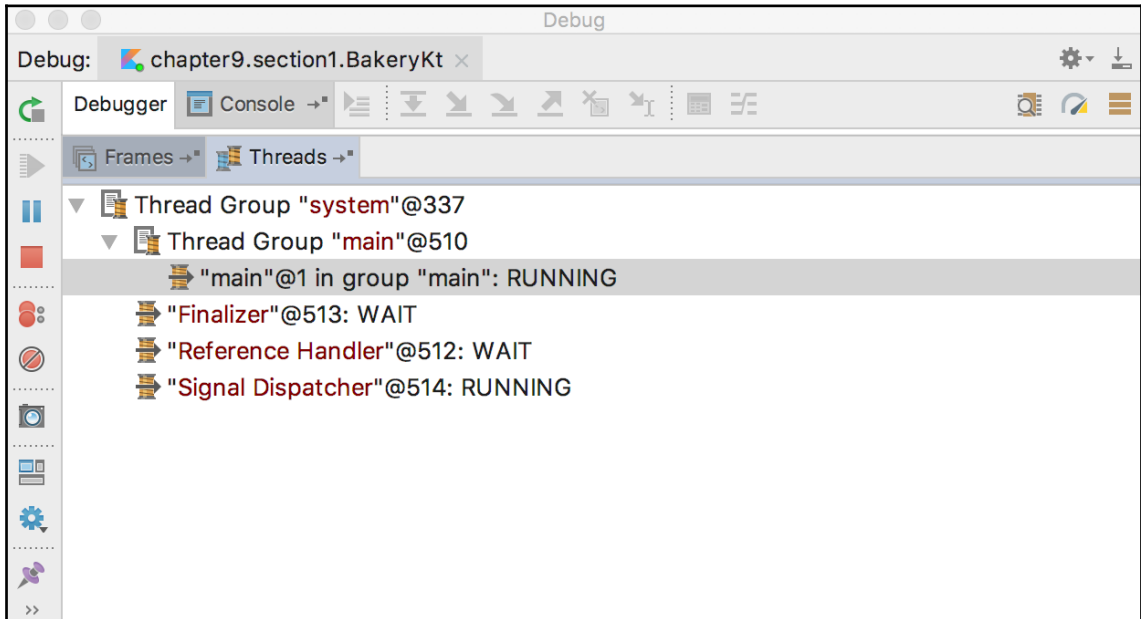
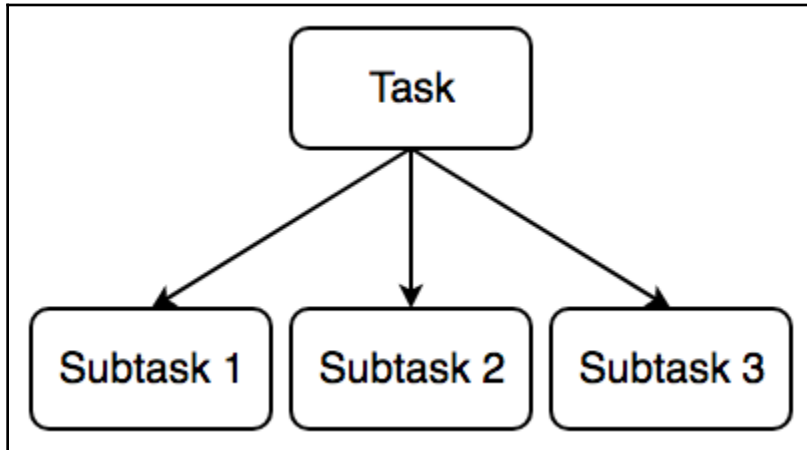
Fried Anchovy with Georgian sauce

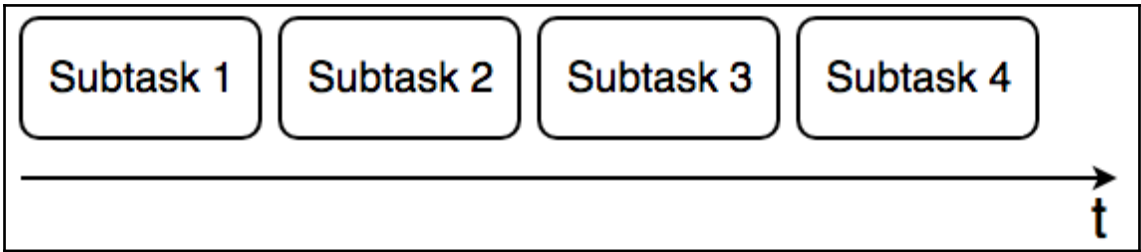
Chapter 8: Ranges and Identifying Performance Issues





Chapter 9: Multithreading and Reactive Programming



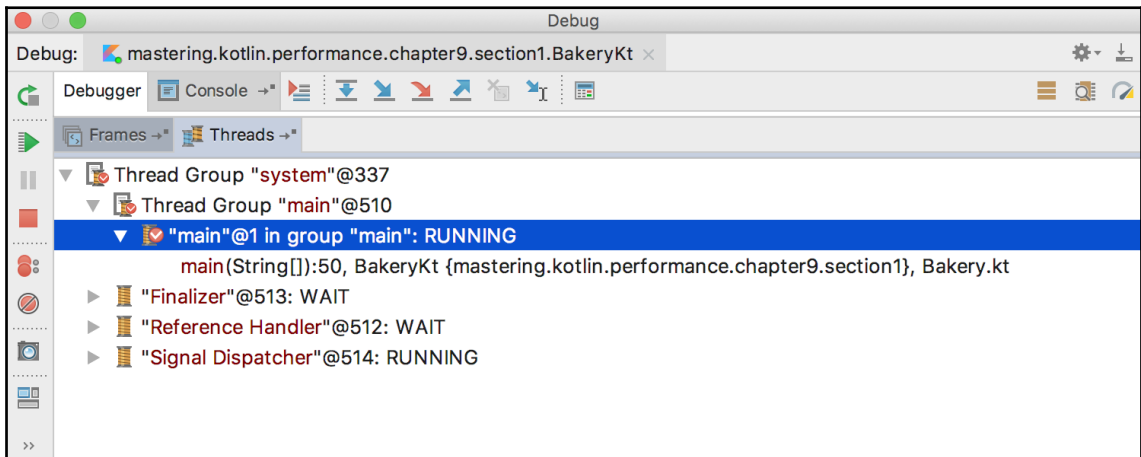
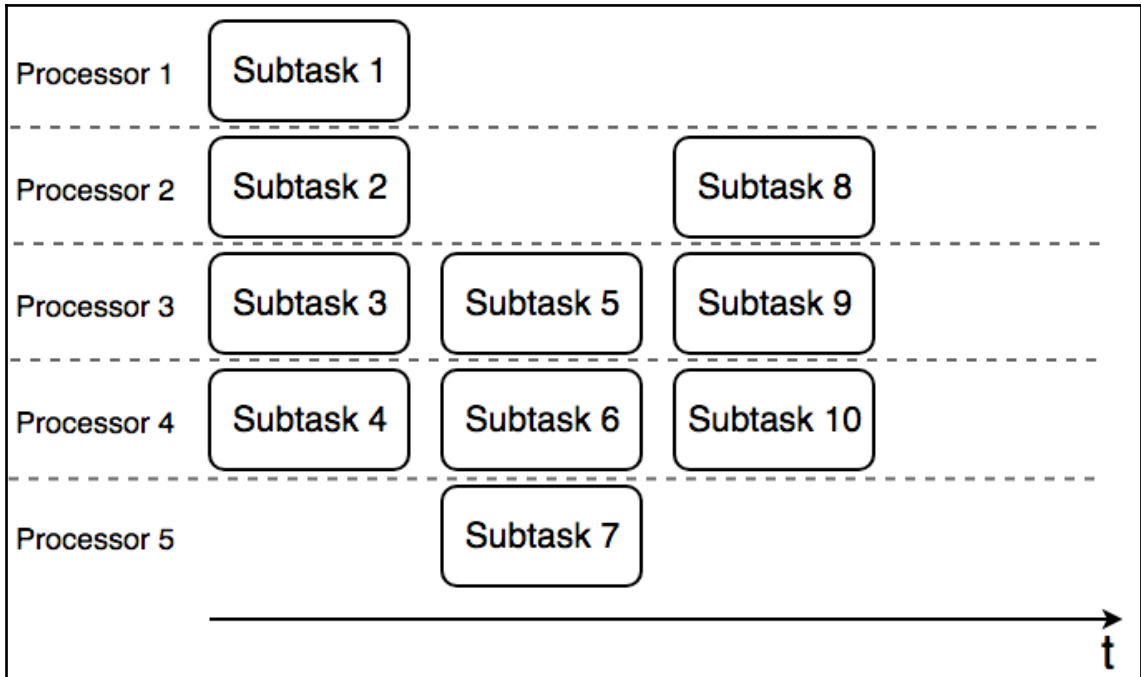


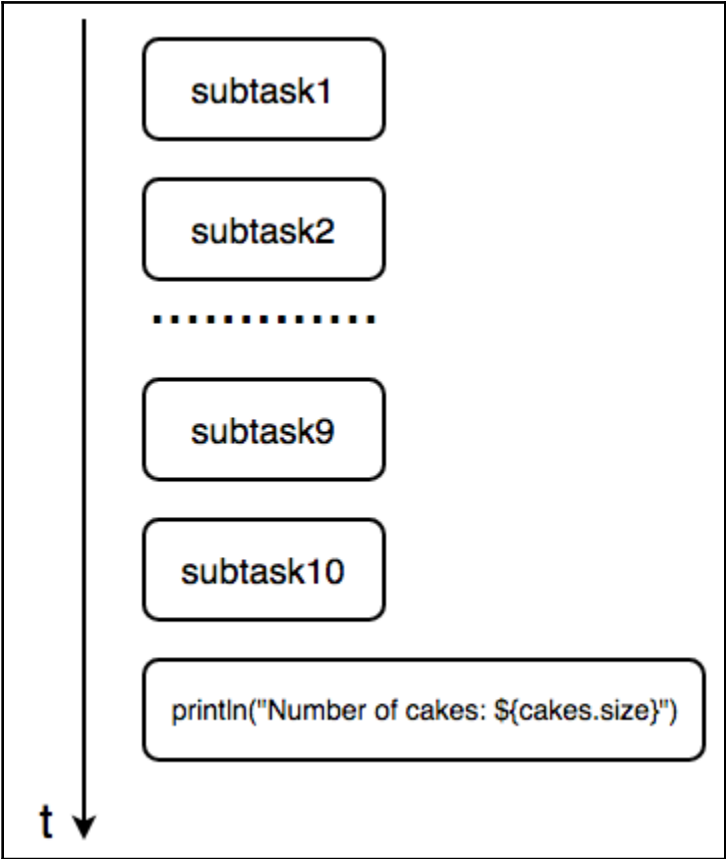
Debug: chapter9.section1.BakeryKt x

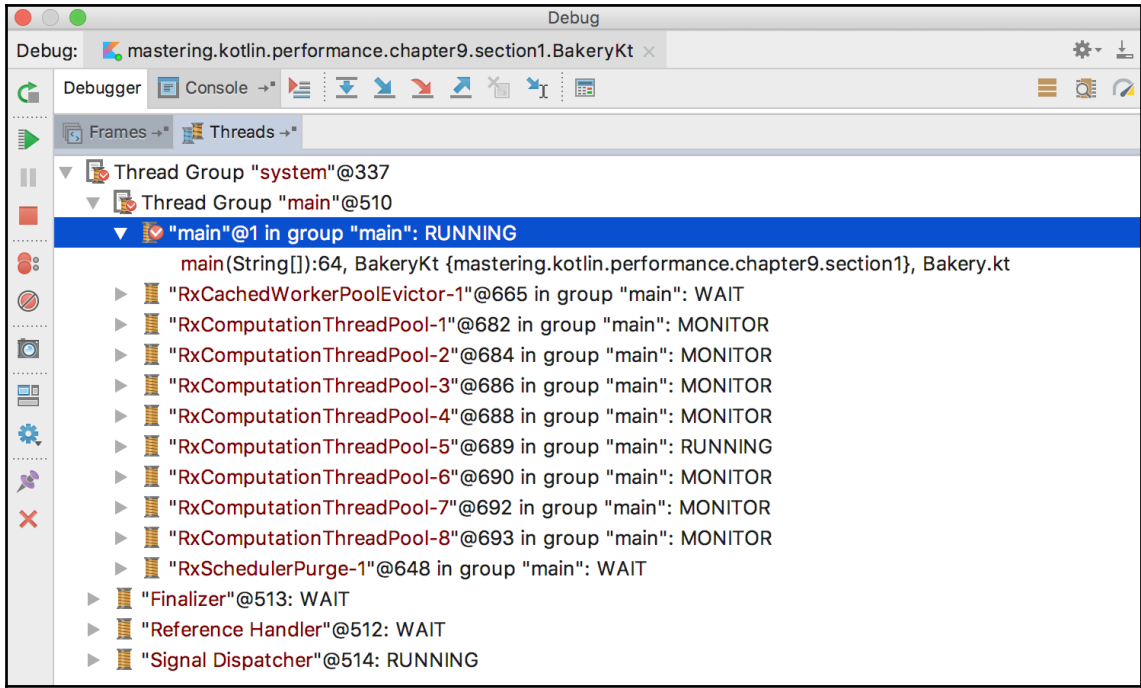
Debugger Console →

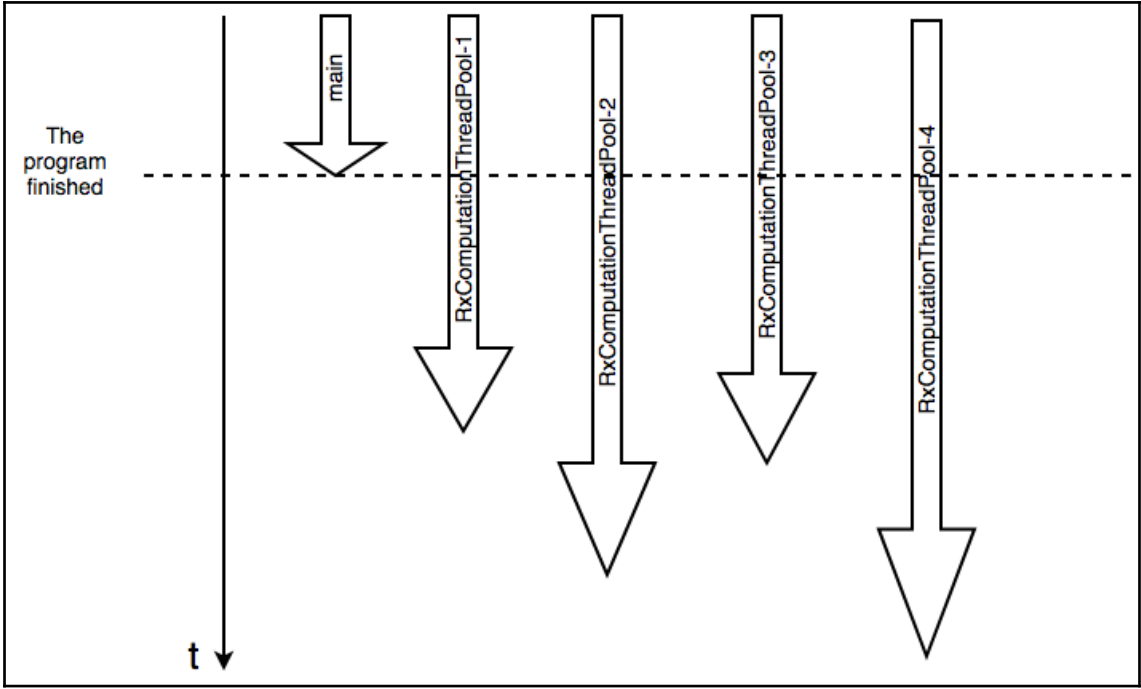
Frames → Threads →

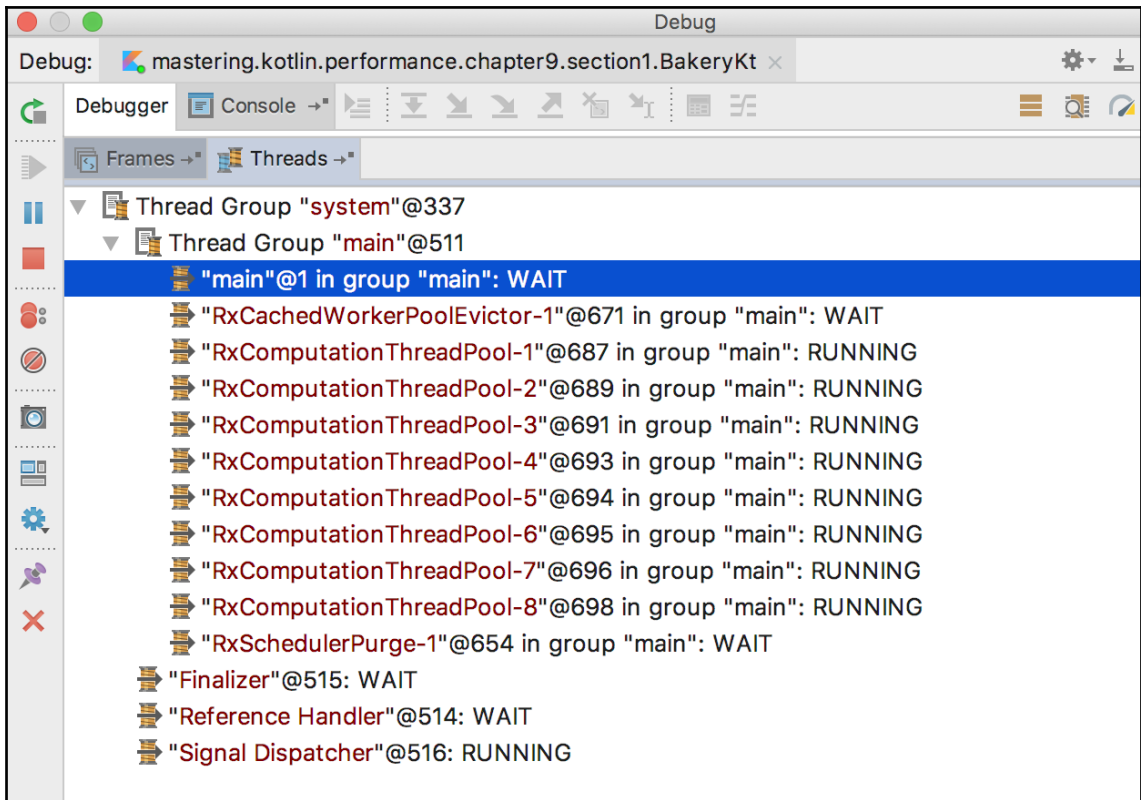
- Thread Group "system"@337
 - Thread Group "main"@510
 - "main"@1 in group "main": RUNNING**
 - main(String[]):38, BakeryKt {chapter9.section1}, Bakery.kt
 - "pool-1-thread-1"@549 in group "main": RUNNING
 - "pool-1-thread-10"@559 in group "main": RUNNING
 - "pool-1-thread-2"@550 in group "main": RUNNING
 - "pool-1-thread-3"@551 in group "main": RUNNING
 - "pool-1-thread-4"@552 in group "main": RUNNING
 - "pool-1-thread-5"@553 in group "main": RUNNING
 - "pool-1-thread-6"@554 in group "main": RUNNING
 - "pool-1-thread-7"@555 in group "main": RUNNING
 - "pool-1-thread-8"@557 in group "main": RUNNING
 - "pool-1-thread-9"@558 in group "main": RUNNING
 - "Finalizer"@513: WAIT
 - "Reference Handler"@512: WAIT
 - "Signal Dispatcher"@514: RUNNING

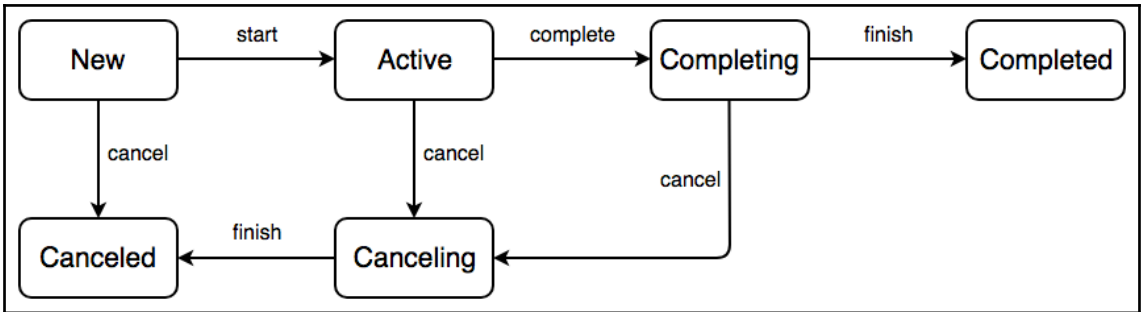
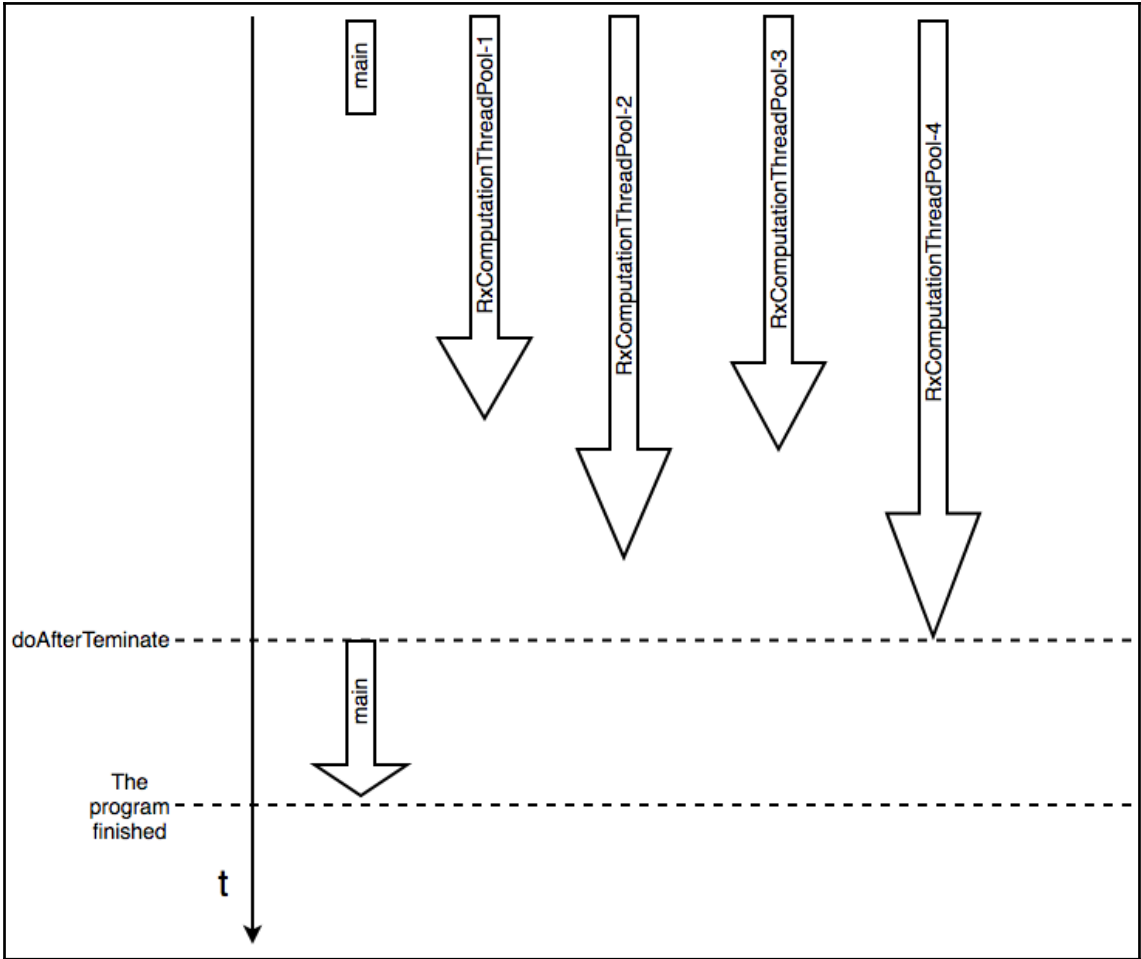


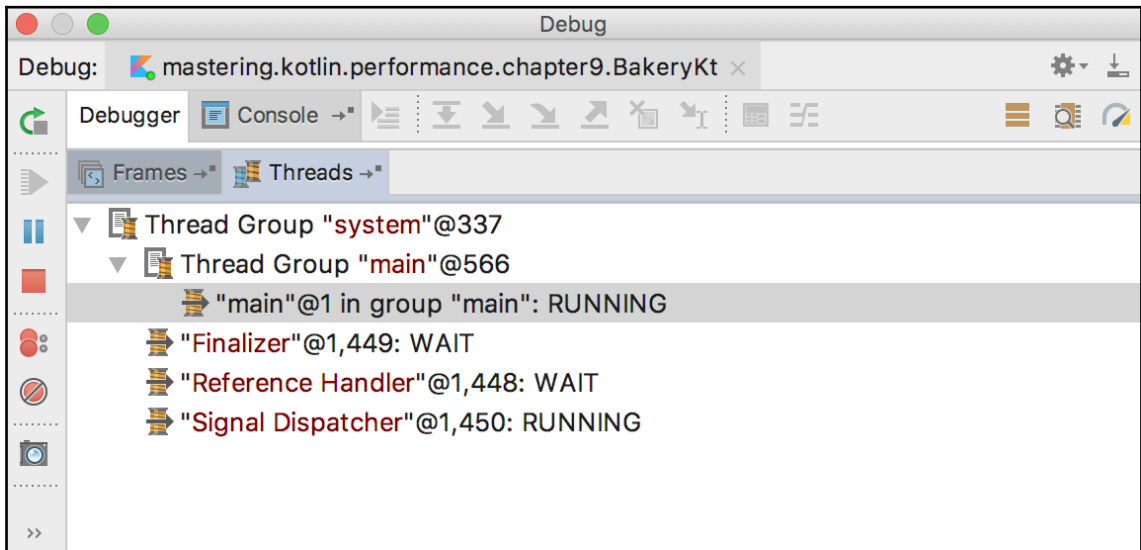
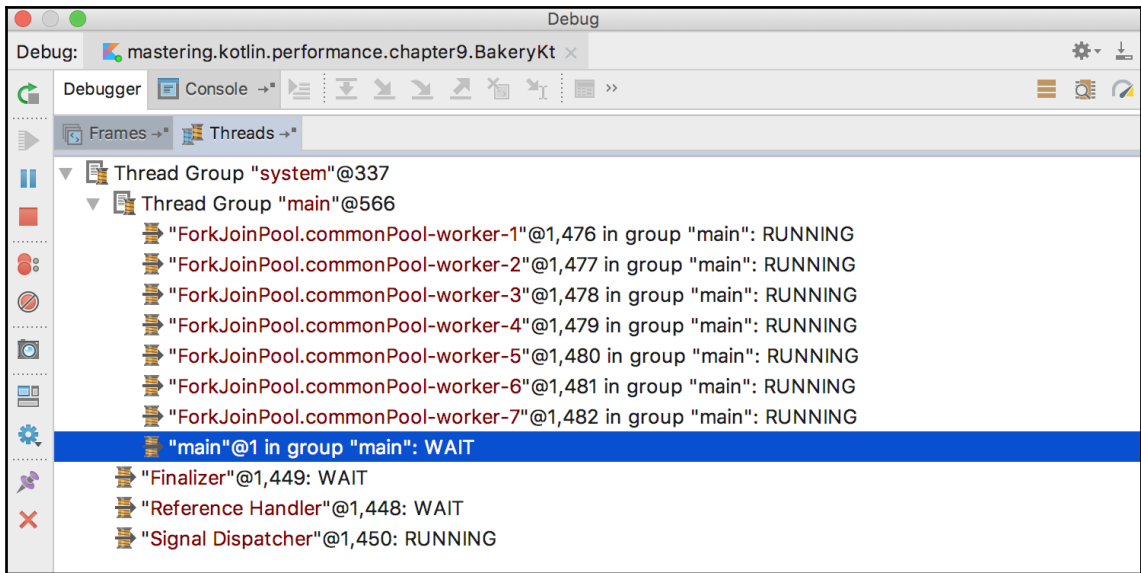


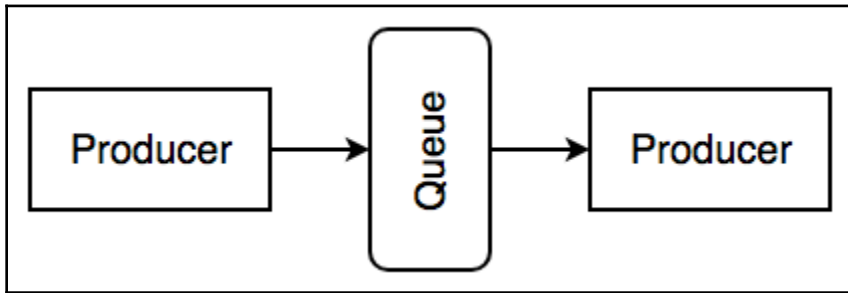
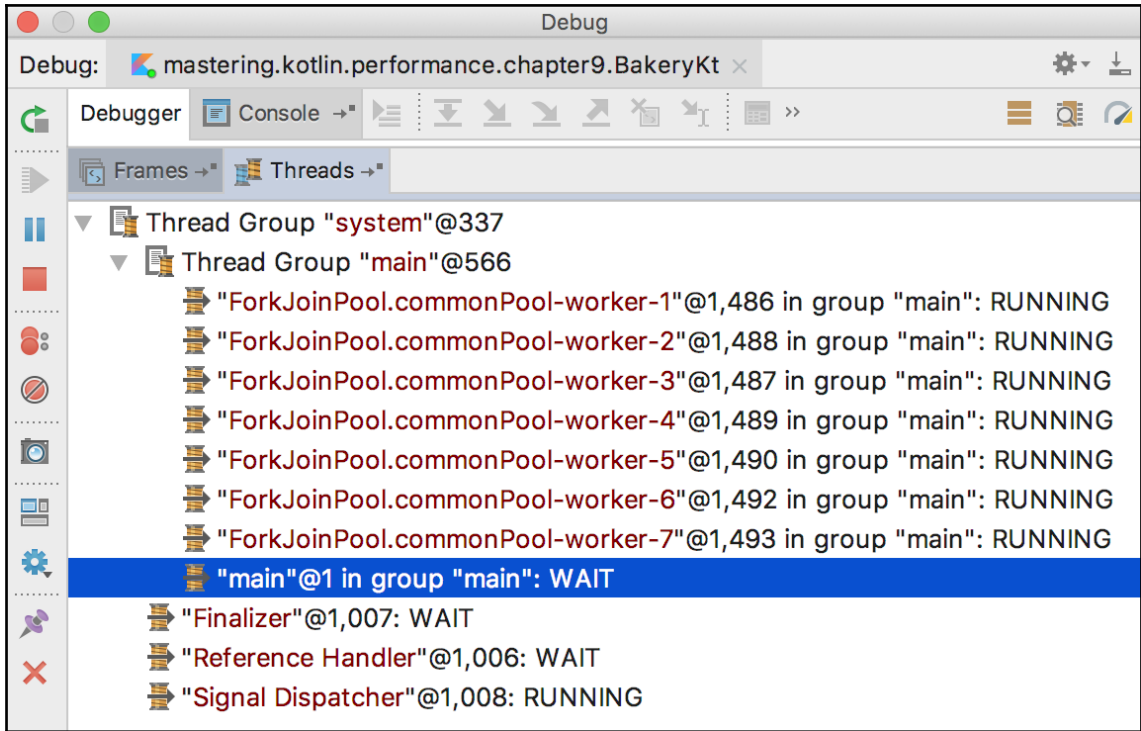


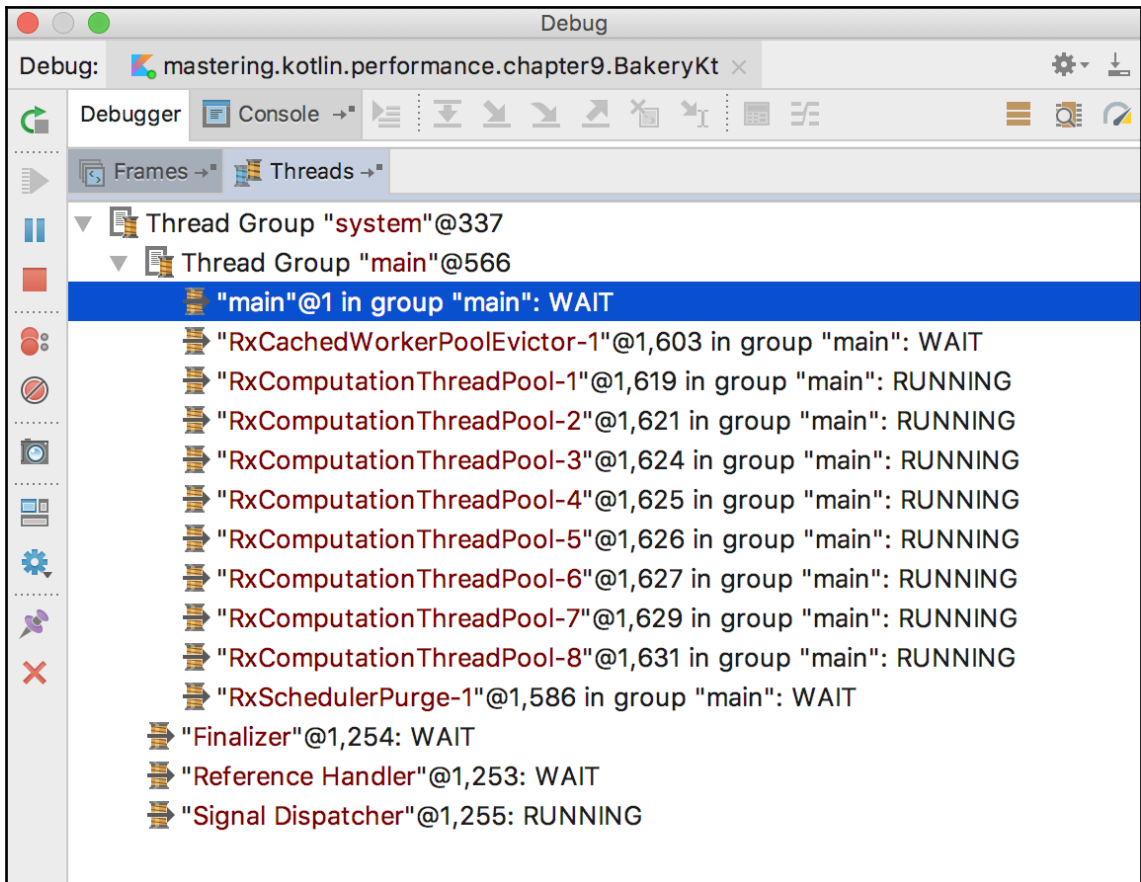












Chapter 10: Best Practices

No images