Obfuscation Fingerprinting in Android Binaries

A Project

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Abstract

There are many way to protect code from reverse engineering. One such way is to obfuscate either the source code, machine code or bytecode. Obfuscating Android applications not only makes it harder to reverse engineer, it can also speed up execution by reducing the size of the application and removing unnecessary code. One method of obfuscation is to do it manually and the other method is to use an obfuscation program. However, it may become necessary to reverse obfuscation, because of the loss of source code or when investigating malware, trojans, or other harmful applications. This process is called deobfuscation. Once an application has been obfuscated performing deobfuscation is a tedious task, and knowing how the application was obfuscated would increase the probability of correctly reversing the obfuscation. By examining four Android application obfuscators I successfully identified distinct fingerprints within each of the obfuscated binaries by building a simple Android application, obfuscating it, and then comparing obfuscated and unobfuscated bytecode. Using these fingerprints I was able to associate each obfuscator with an approximate probability that it was used to perform the obfuscation.

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1   Introduction

The Android smart phone is one of the best selling smart phone platforms in the world [31], with more than 1.5 billion Android smart phones sold between 2010 and 2013 [40]. In addition, the Android smart phone has the largest install base of any mobile or non-mobile operating system, and since 2013 there have been more Android devices sold than Windows, iOS and Mac OS X devices combined [40]. With this many Android devices in use today, security is very important.

There are a multitude of options when it comes to security in Android devices, and most methods include a combination of physical, web, or intellectual processes [10, 31]. However, security begins with the developer. For example, a developer has created an application for the Android platform with an algorithm that will out perform all competitors. The new algorithm may be protected from being reverse engineered by using a method called obfuscation [33]. Obfuscation is a process of making the source code, machine code, or bytecode, difficult for humans to understand, while still being able to run normally. Obfuscated binary code prevents analysis from developing timely, actionable insights by increasing code complexity and reducing the effectiveness of existing tools [5]. While obfuscation is great for hiding the developer's new algorithm, it can also be used by individuals who wish to harm users. For instance, developers of malware, trojans, or viruses, can use obfuscation to make it difficult for computer security professionals to discover what a potentially harmful application is doing [28, 29].

Regardless of the intent of the developer, there are two methods that can perform obfuscation [30]. One method is to use a tool or application that will obfuscate the Android application automatically. The developer only needs to set up the obfuscation settings and run the obfuscator on the original application. The other method is to manually obfuscate the application. While this method is more time consuming and difficult, it does produce a unique application in the end. The process of reversing obfuscation is called deobfuscation. Deobfuscation means taking obfuscated source code, bytecode, or machine code that is difficult to understand, and transforming it back into code that can be understood by humans [30]. Performing deobfuscation is a tedious task, and knowing how the application was obfuscated would increase the probability of correctly reversing the obfuscation [33].

The intent of this project is to address the following research questions related to the obfuscation of Android applications:

- Within each obfuscation, whether it was done manually, or with an obfuscation program, are there any differences between them that could be used as reliable markers to correctly identify how it was obfuscated?

- If such markers are found, would it be possible to generate a distinct fingerprint for each of the obfuscation programs that would correctly identify it?

The objectives of this project were to examine a small subset of the automatic obfuscation programs, each with different methods for performing obfuscation and identify how an application was obfuscated. My goal was to determine if it is possible to identify which obfuscation program was used on any Android application, based on a distinct fingerprint for each obfuscation program.

2   Related Work

Dr. Yiannis Pavlosoglou, researched this same topic but for Java applications. He developed a program called elucidate [25], which is a Java Obfuscator Fingerprinter and Cracking tool. This tool was able to identify the obfuscator, recover known strings within the file, give an estimate of the complexity, and provide a map of the application given a jar or class file. Dr. Pavlosoglou provided me with a set of lecture slides and sources but was unable to recover the original elucidate tool. This tool was only able to look at Java bytecode and not Dalvik bytecode. Most of Dr. Pavlosoglou's research was targeted for Java. While Java and Dalvik are similar, the Dalvik Virtual Machine has completely different set of bytecode instructions. Consequently, obfuscation tools Dr. Pavlosoglou mentioned in his presentation are either not relevant to Android or no longer available.

3   Background Information

3.1   Terminology

3.1.1   Android Application Package (APK)

Android Application Package is the package file format used to distribute and install application software and middleware onto the Android Operating System. It is based on the ZIP file archive structure [38].

3.1.2   Dalvik Virtual Machine

Dalvik Virtual Machine is a process virtual machine on the Android Operating System that executes applications written for Android. Programs are commonly written in Java and compiled into Java bytecode and then translated into Dalvik bytecode [38]. There are several reasons the Dalvik Virtual Machine is used over the Java Virtual Machine for smart phones. One such reason is that the Virtual Machine was slimmed down to use less space. In addition, the Dalvik bytecode instruction set is more suited for register based machines, which lowers the number of total instructions and raises the instruction interpreter speed. Another reason the Dalvik Virtual Machine is used for smart phones is that it has been optimized heavily to work with low memory [34].

3.1.3   Deobfuscation

Deobfuscation is the process of converting a program that is difficult to understand (in other words, a program that has been obfuscated) into one that is simple to understand [20].

3.1.4   dex

Dalvik Executable, otherwise known as dex, is the bytecode to be executed on the Dalvik Virtual Machine [7].

3.1.5   bytecode

Bytecode is a form of instruction set designed for efficient execution by a software interpreter. As long as there is an interpreter, the bytecode can be run on any hardware and operating system configuration.

3.1.6 Fingerprints

Fingerprints are distinct identifiers within the application that can be used to identify various characteristics about the application such as how it was obfuscated, how the application was written or what machine compiled the application [39].

3.1.7 Obfuscation

Obfuscation is the deliberate act of creating obfuscated code, such that the source or machine code is difficult for humans to understand but will still work properly when executed or compiled [20].

3.1.8 Obfuscator

An obfuscation application that will generate an obfuscated version of the target application.

3.1.9 Software Development Kit (SDK)

A Software Development Kit is typically a set of software development tools that allow for the creation of applications for a certain software package, framework, hardware, or operating system [41].

3.2 Android Platform

The Android Platform is an open source operating system designed for mobile, embedded and wearable devices. The operating system is based on the Linux kernel and is currently being developed by Google. The operating system uses the Dalvik Virtual Machine with a Just-In-Time compiler to execute Android applications. Android applications are written in Java and then compiled into the Dalvik bytecode, or dexcode, Figure 1 shows the differences between the steps in which Java and Dalvik bytecode are compiled [6].
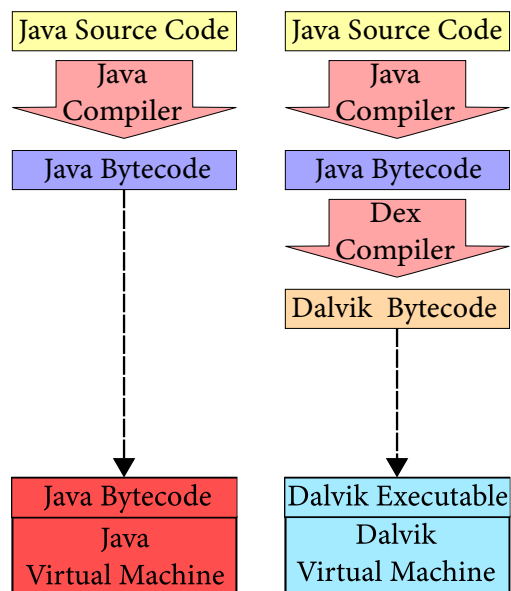
Figure 1: Different Steps Between Compiling Dalvik and Java bytecode.

During the build process the Android applications are encapsulated in an APK archive. The APK is a compressed file, very similar to a compressed Zip archive [31] that contains the class bytecode and all the application resources (icons, sounds, etc), and any binary native files. For each Android application a manifest file is required. The manifest file defines the metadata for the application. The metadata includes the requested permissions or registered services and activities. Activities are screens that allow the user to interact with the program.

3.3 Android Obfuscation

3.3.1 Identifier renaming

Identifier renaming is one of the simplest methods of obfuscation. It operates by changing the names of variables, functions, or methods from their original identifier names to a name that is less meaningful or harder to understand. Figures 2 and 3 show an examples of identifier renaming [21].

```java
public class Base64 {
        public String decode( String input )
        { ... }
        public String encode( String input )
        { ... }
}
```

Figure 2: Java Source Code

```java
public class a {
        public String a( String a  )
        { ... }
        public String b ( String b  )
        { ... }
}
```

Figure 3: Java Source Code with Rewritten Identifiers

3.3.2 Junk Byte Insertion

Inserting junk bytes into the software complicates the analysis of the binary. There are two assumptions that have to be considered. First, the instructions have to be incorrect by using incomplete instructions. This produces a "red herring" for disassemblers. The second assumption is that the incomplete junk byte instructions must never be reached during normal execution. This is achieved by placing an unconditional jump before the inserted junk byte instructions or a conditional jump if the result is known and predictable. Figure 4 shows that the integer 6 is returned, and due to the unconditional branch at address 0x3be (shown in red), the inserted junk bytes (shown in blue) will never be executed.

Figure 5 is the same code as Figure 4, but was analyzed using a linear sweep algorithm. This algorithm fails to disassemble the junk byte code. Linear Sweep starts at the first byte of the binary's text segment and proceeds from there, decoding one instruction at a time. They are prone to errors that result from data embedded in the instruction stream. Thus resulting in errors when trying to decode the junk bytes that were inserted [19].

```
0003bc: 1250                    | 0000: const / 4 v0, #int 5
0003be: 2900 0400               | 0001: goto / 16 0005
0003c2: 0001                    | 0003: <junkbytes>
0003c4: 0000                    | 0004: <junkbytes>
0003c6: d800 0000               | 0005: add-int / lit8 v0, v0, #int 1
0003ca: 0f00                    | 0007: return v0
```

Figure 4: Disassembly with Detection of Junk Bytes

```
0003bc: 1250                    | 0000: const / 4 v0, #int 5
0003be: 2900 0400               | 0001: goto / 16 0005
0003c2: 0001 0000 d800 0001     | 0003: dummy-function
0003ca: 0f00                    | 0007: return v0
```

Figure 5: Linear Sweep with dexdump Fails Due to Junk Bytes.

Figure 6 is the same as Figure 4, but was analyzed using a recursive traversal algorithm, and the conditional branch led to a failure of the disassembler. Recursive traversal works by following the control flow of the program, which makes it possible for the disassembler to skip any junk byte data that had the conditional branch before it. However the control flow cannot always be reconstructed precisely because it can be influenced by external processes such as the run time state or other conditional branches. These external processes are not available to the disassembler during static analysis, and only during run time. When the algorithm cannot determine the jump location statically, for instance in the case of an indirect jump, it fails to analyze parts of the programs code [19].

```
0003bc: 1250                    | 0000: const / 4 v0, #int 5
0003be: 2900 0400               | 0001: if-gtz v0, 0005
0003c2: 0001 0000 d800 0001     | 0003: dummy-function
0003ca: 0f00                    | 0007: return v0
```

Figure 6: Recursive Traversal Fails Due to Conditional Branches.

3.3.3 Obfuscated or Encrypted Strings

The use of encryption renders strings unreadable. The strings are stored as clear text inside the compiled Android application, which makes extraction trivial. To obfuscate strings, the strings are encrypted and stored inside the application. When the strings are needed during run time, they are decoded or decrypted. Once they are decoded they can be used normally inside the application. Figure 7 shows the Java method with unencrypted strings and Figure 8 shows the same method but with encrypted strings [21].

```
public void init() {
        String host = "www.example.com";
        String username = "secretuser";
        String password = "secretpass";
}
```

Figure 7: Java Source with Unencrypted Strings.

```
public void init() {
        String host = decrypt("b4177923565cfbe84eae33e4efdb637a");
        String user = decrypt("a58be63b1602ab2a6ac24d9a4689d278");
        String pass = decrypt("a0133dc939c4f54571faf329a904a3ec");
}
```

Figure 8: Java Source with Encrypted Strings.

3.3.4 Dynamic Loading of Code

When a program is running and during execution, code from a remote location is loaded and executed. The Android specific method of fetching, embedding and if necessary, unpacking or decrypting the remote code parts is simply by using readily available library functions such as the java.net.url and javax.crypto.cipher libraries. Both loading and execution are possible through the standard DexFile class. It is possible to load a dex file into memory of the currently running process [21].

3.3.5 Dynamic Code Modification

Dynamic code modification increases the difficulty of static analysis especially when employing multiple layers of modification. There are two different ways to accomplish dynamic code modification [21].

The first method is to modify the Dalvik byte code itself. The Dalvik byte code has a limited instruction set, meaning that it is not possible to alter the bytecode dynamically without the use of an external helper. Using the Java Native Interface [26], it is possible to execute native code in the context of the currently running process, and therefore the native code can access memory. This native code has to be called and loaded by the Dalvik bytecode, and it produces bytecode that will further be executed by the Dalvik Virtual Machine.

The second method is to execute native code directly by the processor. There are several differences between the instruction sets of Intel x86 and ARM, but dynamic code manipulation is very similar to the well known and much discussed techniques on x86 machines [31]. This technique is not considered for the purposes of this project.

3.3.6 Call Graph Obfuscation

Every Android application begins as a fork of the Android zygote process. This zygote process has a set of libraries and the Android framework preloaded. This obfuscation method works by including classes into the APK that have the same name as one of the preloaded system libraries. The resulting Dalvik bytecode will point to the internal library definition, but during run time it will use the preloaded library [21]. Figure 9 shows how Call Graph Obfuscation works.
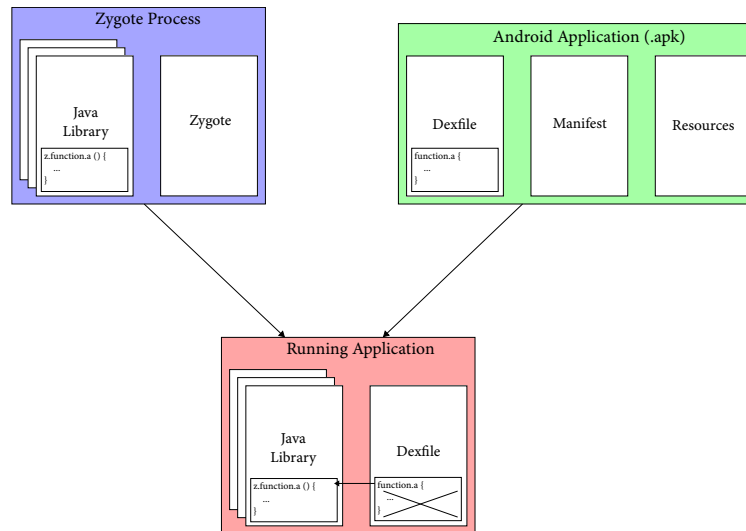
Figure 9: Call Graph Obfuscation.

3.3.7 Manifest Obfuscation

Every android application has a manifest file that defines the application's metadata. This metadata stores information about the requested permissions, registered services, and activities. Activities are an application component that provides a screen that the user interacts with, such as dialing the phone, taking a photo, sending an email or viewing a map. Each activity is given a window that can either fill the screen or be a smaller, floating window on top of other windows. Android itself looks for certain attributes by a numeric identifier instead of a name. However, static analysis tools drop the attribute ID and instead leave the attribute name intact. This can be exploited by including an attribute with an invalid ID (0x00000000) in the application's manifest file [21]. Android will ignore the attribute since it is invalid, but static analysis tools will drop the ID when decoding the Android manifest file, and only consider the attribute name. This means that any entry in the manifest will be ignored by Android at run time, but any static analysis tools will attempt to decode the ID and will fail and report back as either a bad manifest file or corrupted application package.

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
      android:sharedUserId="string"
      android:sharedUserLabel="string resource"
      android:versionCode="integer"
      0x00000000="string"
      . . .
</manifest>
```

Figure 10: Manifest Obfuscation Example.

4   Tools

4.1   Android Obfuscators

4.1.1   Proguard

Proguard [8] is an Open Source Java and Android obfuscation tool that can shrink, optimize, obfuscate and preverify Java classes. It comes with the Android SDK and comes preconfigured for most purposes. It can:

- Detect and remove unused classes, fields, methods and attributes.

- Optimize bytecode and remove unused instructions.

- Rename classes, fields and methods using short meaningless names.

- Preverify the processed code for Java 6 and higher.

4.1.2   Java Archive Grinder

Java Archive Grinder [23] is an Open Source Java optimizer, obfuscator, shrinker, and reducer. It can:

- Remove unused fields, methods, classes and interfaces as well as debug information.

- Rename fields, methods, classes and interfaces.

- Optimize Java bytecode, such as removing NOP instructions and compressing local variable slots.

4.1.3   Zelix KlassMaster

Zelix KlassMaster [42] is a commercial Java and Android bytecode obfuscator. It can:

- Rename methods, fields, and classes.

- Implement flow control, exception, and string obfuscation.

- Integrate with Apache Ant build system to work with Dalvik bytecode obfuscation.

4.1.4   Allatori

Allatori [1] is a commercial Java and Android Obfuscator where it can:

- Do name and flow control obfuscation.

- Obfuscate debug information as well as string encryption.

- Work with the Apache Ant build system to work with Dalvik bytecode obfuscation.

4.2   Android Obfuscators Considered But Not Used

The following obfuscation applications were considered when doing this project, but in the course of examination they were discounted due to one or more factors that made their use impractical for this project. These obfuscators were considered due to their past popularity with Java obfuscation, and their stated ability to work properly when obfuscating Android applications.

4.2.1 ClassEncrypt

ClassEncrypt [37] is an Open Source Java obfuscator that can encrypt class files to prevent malicious users from stealing the source code. This obfuscator was not used because every time it was executed, it produced empty Java class files, and gave no errors, even with different settings applied.

4.2.2 Java ByteCode Obfuscator

The Java ByteCode Obfuscator [3] is Open Source Java bytecode obfuscator based on Soot's advanced typing and flow analysis framework to preform obfuscation. It can:

- Operate on Java class files, producing obfuscated Baf, Jasmin, or class files.

- Add dead-code switch statements, disobey constructor conventions, flow control obfuscation, and package local variables into bitfields.

- Rename class, method, field, or variable names.

This obfuscator was not used because it was not compatible with the Android bytecode, even when it was converted to Java bytecode before running the obfuscator. It required that a Main function be defined in order to properly obfuscate and Android does not use Main to start the application.

4.2.3 Java Optimize and Decompile Environment

The Java Optimize and Decompile Environment [15] is an Open Source Java decompiler and optimizer. It can:

- Rename class, method, field, and local names to shorter, obfuscated or unique names or according to a given translation table.

- Remove debugging information, dead code, and constant fields.

- Optimize local variable allocation.

This obfuscator was not used because every time it was run, it produced different exception errors, even when the same input was given and the same settings were applied.

4.3 Tools Used

4.3.1 Apache Ant

Apache Ant [12] is a software tool for automating the software build process for Java and Android. It uses a set of XML files to describe the build process and its dependencies. Apache Ant was designed to be modular so that changing or adding in new steps in the build process is simple and efficient, usually called Ant Tasks. Several of the obfuscators mentioned, included Ant Tasks to be implemented when building the Android Application with their obfuscator.

4.3.2 dex2jar

The dex2jar tool [27] is a Unix and Windows command line tool that can translate Dalvik bytecode to Java bytecode.

4.3.3 dexdump

The dexdump tool is a Unix command line tool that was bundled along with the Android SDK. The dexdump tool is a static disassembler for Dalvik bytecode. It provides information about the Android application by looking at the classes.dex file inside the APK.

4.3.4 jar2dex

The jar2dex tool [27] is a Unix and Windows command line tool that can translate Java bytecode to Dalvik bytecode.

4.3.5 unzip

The unzip tool [14] is a Unix command line tool that will list, test or extract files from ZIP archives.

4.3.6 xxd

The xxd tool [36] is a Unix command line tool that creates a hex dump of a given file or standard input. It can also convert a hex dump back to its original binary form.

5 Building Android Applications with Obfuscation

The first step in finding obfuscation fingerprints was to look at the differences between an unobfuscated Android application and an obfuscated Android application. To make this comparison easier to achieve, a simple Android application was written. Each time the Android application was compiled and built, a different obfuscator was used. After all of the applications were obfuscated, each application was disassembled and compared against the unobfuscated disassembly.

5.1 Simple Android Application

The Android application that was written included four parts: the main activity, string encryption activity, Fibonacci calculator activity, and get web page activity. Each of the activities attempted to achieve some functionality that could be found in many Android applications. This would result in seeing obfuscation that could be used to identify their correlating fingerprints. Each activity also included extraneous and unused variables and classes that would be affected by each of the obfuscators. The source code for this application is located in Appendix A.

5.1.1 Main Activity

The main activity included three input entry boxes with accompanying send buttons. Input was entered, the *Send* button was pushed, and the corresponding activity was called and executed. The main activity can be seen in Figure 11. The Java code for this activity is located in Appendix A.3 while the activity XML is located in Appendix A.4.

5.1.2 String Encryption Activity

The string encryption activity used the text entered into the main activity and encrypted it. It would then display the encrypted text in a new activity window. The string activity can be seen in Figure 12. The Java code for the string encryption is located in Appendix A.5 and the encryption code is located in Appendix A.6 and the activity XML is located in Appendix A.7.
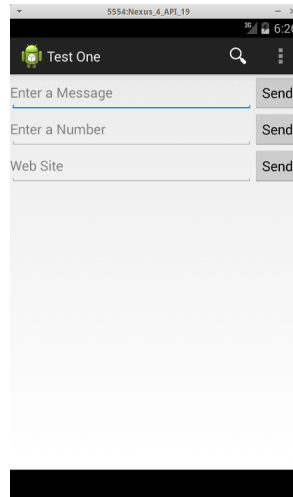
Figure 11: Main Activity Screenshot.
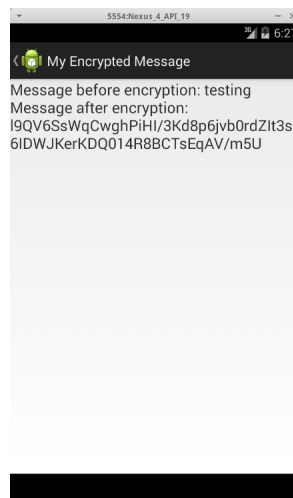
Figure 12: String Encryption Activity Screenshot.

5.1.3 Fibonacci Calculator Activity

The Fibonacci calculator activity takes input from the main activity as an integer and calculated the Fibonacci number up to the given number. Two versions of the Fibonacci Calculator were written. One that correctly handled very large numbers, and one that did not, which causes integer overflow, see Figure 13. The Java code is located in Appendix A.8 and the activity XML is located in Appendix A.9.

(a) With Overflow.　　　(b) Without Overflow.

Figure 13: Fibonacci Calculator with and without Overflow Activity Screenshot.

5.1.4　Web Page Activity

The web page activity used input from the main activity in the form of a URL and displayed the associated web page. This activity was not fully implemented. It was able to make a connection to the specified URL, but it is not able to render the web page correctly. Having full functionality here is not important. The main point of this activity was to implement network activity and not to properly displaying web pages. This activity can be seen in Figure 14. The Java code is located in Appendix A.10 and the activity XML is located in Appendix A.11.
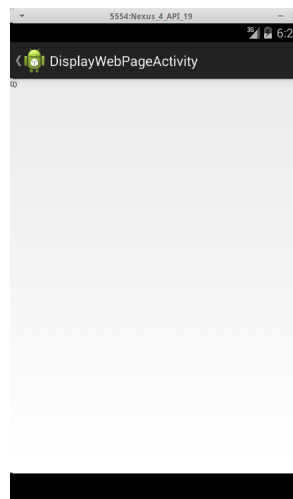
Figure 14: Web Page Activity Screenshot.

5.2　Apache Ant Build Process

Every application was built in release mode, digitally signed, and byte aligned. Release mode directs the build script to build the Android application so that it is ready for distribution to the end-users.

This mode removes some information from the resulting APK and requires that it be signed with a keystore. Therefore, a signed key was generated and included along with each application. After the application had been signed it was properly byte aligned, meaning the APK archive was aligned to ensure that all uncompressed data started with a particular alignment relative to the start of the file. This allowed for the best compression rates as well as efficient and proper use of the APK's.

5.3   Proguard Obfuscation

Since Proguard is the default obfuscator released with the Android SDK, enabling Proguard was a simple task. Most of the Proguard settings enabled by default were acceptable to use when obfuscating. However the following settings were enabled to ensure strict obfuscation settings. For a full list of the settings Proguard used, see Appendices B.1 and B.2.

overloadagressivly
The overloadagressivly setting allows for multiple fields and or methods to use the same name. Any variable in one class could be named the same as a variable in a different class.

flattenpackagehierachy
The flattenpackagehierachy setting will repackage all the generated or included packages into a single parent APK package.

5.4   Java Archive Grinder Obfuscation

The Java Archive Grinder did not function properly as an Ant Task, therefore the resulting obfuscation had to occur after the APK was generated. This task was accomplished by opening the APK archive and finding the Dalvik bytecode, the classes.dex file. The classes.dex file was then converted to Java bytecode using the tool dex2jar. Once the Dalvik bytecode is converted, Java Archive Grinder could then be used. The Java Archive Grinder was set to obfuscate as strictly as possible. Once the obfuscator completed its task, it was converted back into the Dalvik bytecode, using the tool jar2dex, and repackaged into the original APK, replacing the old classes.dex with the obfuscated version.

When attempting to get the Java Archive Grinder to obfuscate as strict as possible it would fail. Java Archive Grinder was failing when attempting bytecode obfuscation. Therefore, the obfuscator was run with the -nobco or no bytecode obfuscation setting. This failure was possibly due to a conversion issue, when it was converted from dexcode to Java bytecode. It may not have correctly converted some of the bytecode. Alternatively, it may have been a problem with the version of the Java bytecode. The Java Archive Grinder obfuscator may have been written using an older version of Java, and could not understand some of the newer bytecode instructions.

5.5   Zelix KlassMaster Obfuscation

The Zelix KlassMaster obfuscator was compatible with the Ant build system. The easiest method of using KlassMaster was to replace the call to the Proguard program, with a call to the KlassMaster program. This would force Ant to use KlassMaster instead of Proguard when obfuscation was enabled. KlassMaster functioned by reading in a script file that has the obfuscation settings defined for the Android application. This settings file was generated with a tool that was provided along with KlassMaster that took the Proguard settings and generated an appropriate script file that KlassMas-

ter could understand. After the script file was generated, additional settings were applied to make the obfuscation as strict as possible. The full script is located in Appendix B.3. The following settings were included into the script.

obfuscateFlow
The obfuscateFlow setting will make slight changes to the bytecode that will obscure the control flow without changing the code functionality at run time.

exceptionObfuscation
The exceptionObfuscation setting is similar to the obfuscateFlow setting. It changes the exception handling of the bytecode.

encryptStringLiterals
The encryptStringLiterals setting encrypts all strings found in the bytecode constant pools. It adds code to the bytecode that will decrypt the strings at run time.

mixedCaseClassNames
The mixedCaseClassNames setting allows for any class to be named with a random set of characters of any case, upper or lower.

agressiveMethodRenaming
The agressiveMethodRenaming setting allows for multiple identifiers to be renamed with the same name.

5.6 Allatori Obfuscation

Allatori worked with Ant by using an Ant Task. The Ant Task replaced the obfuscation call that would have executed the Proguard obfuscation, but instead executed the Allatori obfuscation. Therefore when running Ant it executed Allatori when the obfuscation step was processed. Allatori runs with a script that defined the settings for obfuscation. The full script is located in Appendix B.4. The script was changed to make the obfuscation as strict as possible. The following settings were added to the base script.

string encryption
This setting found all string data and encoded it, and also added in code to allow for the decryption of strings at run time.

control flow obfuscation
This setting changed the standard Java constructions (loops, conditional, and branching instructions) where possible, and altered the commands such that decompilation is more difficult.

line number obfuscation
This setting changed any of the line numbers.

remove toString
This setting removed any call to the toString bytecode instruction.

6 Android Obfuscation Fingerprints

After generating an obfuscated application using each of the obfuscators, the resulting APK's were unpacked to access the Dalvik bytecode file, classes.dex. Once the the classes.dex files were extracted each was opened with dexdump. This provided a static disassembly of the obfuscated dexcode. Each of the resulting dexdump outputs was then compared against the unobfuscated version of the same Android application. All of these dexdump outputs are located in Appendix C. Any difference from the unobfuscated and obfuscated dexdump was considered to be a part of the obfuscator's fingerprint. The following fingerprints were found for each of the obfuscators.

6.1 Proguard Fingerprints

The first difference that was discovered between the obfuscated and unobfuscated files was the removal of the BuildConfig Class. Figure 15 shows that the first class to be found in the obfuscated version was DisplayMathsActivity. No reference to BuildConfig was found in the obfuscated version.

```
                Unobfuscated                                   Obfuscated

Class #0 header:                              Class #0 header:
class_idx            : 16                      class_idx            : 15
access_flags         : 17 (0x0011)            access_flags         : 1 (0x0001)
superclass_idx       : 46                      superclass_idx       : 2
interfaces_off       : 0 (0x000000)           interfaces_off       : 0 (0x000000)
source_file_idx      : 10                      source_file_idx      : -1
annotations_off      : 0 (0x000000)           annotations_off      : 0 (0x000000)
class_data_off       : 11630 (0x002d6e)       class_data_off       : 6515 (0x001973)
static_fields_size   : 1                       static_fields_size   : 1
instance_fields_size: 0                        instance_fields_size: 0
direct_methods_size : 1                        direct_methods_size : 3
virtual_methods_size: 0                        virtual_methods_size: 2

Class #0            -                          Class #0            -
Class descriptor : 'Lcom/uaf/matt/testone/    Class descriptor  : 'Lcom/uaf/matt/testone/
                    BuildConfig;'                                  DisplayMathsActivity;'
Access flags    : 0x0011 (PUBLIC FINAL)        Access flags     : 0x0001 (PUBLIC)
Superclass      : 'Ljava/lang/Object;'         Superclass       : 'Landroid/app/Activity;'
Interfaces      -                              Interfaces       -
Static fields   -                              Static fields    -
```

Figure 15: Comparison Between dexdump Output Showing the Class #0.

Secondly, the source_file_idx value was set to an invalid ID, and all annotation information was removed. The source_file_idx normally holds the index into the string_ids list that would hold the name of the source file. An invalid ID is set to -1 [4]. If annotations have been removed from the file, the annotations_off value would be set to 0. Otherwise there is no file offset to the location of where the annotations for that class occur. In addition, I discovered that Proguard renamed each of the variables. Proguard renamed each of the variables to a lower case letter in the alphabet. At the start of each class, Proguard restarted the variable names to the beginning of the alphabet. Figure 16 shows a comparison between the obfuscated and unobfuscated application.

The final difference between the obfuscated and unobfuscated files was that any reference to positions or locals was removed from the obfuscated version. Most of this information was to aid in

debugging so its removal did not affect the application. Figure 17 shows the difference between the unobfuscated and obfuscated outputs of the DisplayMathsActivity class.

```
                  Unobfuscated                                      Obfuscated
Class #1 header:                                 Class #0 header:
class_ids            : 17                        class_idx            : 15
access_flags         : 1 (0x0001)                access_flags         : 1 (0x0001)
superclass_idx       : 3                         superclass_idx       : 2
interfaces_off       : 0 (0x000000)              interfaces_off       : 0 (0x000000)
source_file_idx      : 13                        source_file_idx      : -1
annotations_off      : 6296 (0x001898)           annotations_off      : 0 (0x000000)

Class #1             -                           Class #0             -
Class descriptor  : 'Lcom/uaf/matt/testone/      Class descriptor  : 'Lcom/uaf/matt/testone/
                     DisplayMathsActivity;'                           DisplayMathsActivity;'
Access flags      : 0x0001 (PUBLIC)              Access flags      : 0x0001 (PUBLIC)
Superclass        : 'Landroid/app/Activity;'     Superclass        : 'Landroid/app/Activity;'
Interfaces        -                              Interfaces        -
Static fields     -                              Static fields     -
#0              : (in Lcom/uaf/matt/testone/     #0              : (in Lcom/uaf/matt/testone/
                   DisplayMathsActivity;)                            DisplayMathsActivity;)
name            : 'fibCache'                      name            : 'a'
type            : 'Ljava/util/ArrayList;'        type            : 'Ljava/util/ArrayList;'
access          : 0x000a (PRIVATE STATIC)        access          : 0x000a (PRIVATE STATIC)
Instance fields   -                              Instance fields   -
```

Figure 16: Comparison Between dexdump Outputs Showing source_file_idx, annotations_off, and Variable Renaming.

```
                  Unobfuscated                                      Obfuscated
catches       : (none)                           catches     : (none)
positions     :                                  positions   :
0x0000 line=47                                   locals      :
0x0003 line=48
0x0008 line=50
0x000c line=51
0x0013 line=53
0x0018 line=54
0x001d line=55
0x0037 line=57
0x003a line=58
locals        :
0x000c - 0x003b reg=0 intent Landroid/content/Intent;
0x0013 - 0x003b reg=1 number I
0x0018 - 0x003b reg=2 textView Landroid/widget/TextView;
0x0000 - 0x003b reg=5 this Lcom/uaf/matt/testone/DisplayMathsActivity;
0x0000 - 0x003b reg=6 savedInstanceState Landroid/os/Bundle;
```

Figure 17: Comparison Between dexdump Outputs Showing the Removal of Positions and Locals Information.

In summary, no BuildConfig Class was found, and all references to the source_file_idx were set to an invalid ID. The annotation_off value was set to zero indicating that for every class, all the annotation information was removed. No positions or locals were defined for any of the classes, and every variable was renamed. The full dexdump of the Proguard obfuscation is located in Appendix C.2.

6.2 Java Archive Grinder Fingerprints

The first set of differences between the obfuscated and unobfuscated files was that the source_file_idx value was set to an invalid ID, and that all annotation information was removed. In addition, variables were renamed. Java Archive Grinder renamed each of the variables to a lower case letter in the alphabet. At the start of each class it restated the variable names to the beginning of the alphabet. Figure 18 shows a comparison between the obfuscated and unobfuscated applications.

```
                Unobfuscated                                    Obfuscated
Class #1 header:                              Class #0 header:
class_idx          : 17                       class_idx          : 16
access_flags       : 1 (0x0001)              access_flags       : 1 (0x0001)
superclass_idx     : 3                        superclass_idx     : 2
interfaces_off     : 0 (0x000000)            interfaces_off     : 0 (0x000000)
source_file_idx    : 13                       source_file_idx    : -1
annotations_off    : 6296 (0x001898)         annotations_off    : 0 (0x000000)

Class #1            -                         Class #0            -
Class descriptor  : 'Lcom/uaf/matt/testone/  Class descriptor  : 'Lcom/uaf/matt/testone/
                     DisplayMathsActivity;'                        DisplayMathsActivity;'
Access flags       : 0x0001 (PUBLIC)         Access flags       : 0x0001 (PUBLIC)
Superclass         : 'Landroid/app/Activity;' Superclass        : 'Landroid/app/Activity;'
Interfaces         -                          Interfaces         -
Static fields      -                          Static fields      -
#0              : (in Lcom/uaf/matt/testone/  #0              : (in Lcom/uaf/matt/testone/
                   DisplayMathsActivity;)                        DisplayMathsActivity;)
name            : 'fibCache'                   name            : 'a'
type            : 'Ljava/util/ArrayList;'     type            : 'Ljava/util/ArrayList;'
access          : 0x000a (PRIVATE STATIC)     access          : 0x000a (PRIVATE STATIC)
Instance fields    -                          Instance fields    -
```

Figure 18: Comparison Between dexdump Outputs Showing source_file_idx, annotations_off, Variable Renaming.

Finally any reference to positions or locals was removed from the obfuscated version. Figure 19 shows the difference between the unobfuscated and obfuscated outputs of the DisplayMathsActivity class.

```
                Unobfuscated                                    Obfuscated
catches        : (none)                        catches      : (none)
positions      :                               positions    :
0x0000 line=47                                 locals       :
0x0003 line=48
0x0008 line=50
0x000c line=51
0x0013 line=53
0x0018 line=54
locals         :
0x000c - 0x003b reg=0 intent Landroid/content/Intent;
0x0013 - 0x003b reg=1 number I
0x0018 - 0x003b reg=2 textView Landroid/widget/TextView;
0x0000 - 0x003b reg=5 this Lcom/uaf/matt/testone/DisplayMathsActivity;
0x0000 - 0x003b reg=6 savedInstanceState Landroid/os/Bundle;
```

Figure 19: Comparison Between dexdump Outputs Showing the Removal of Positions and Locals Information.

In summary, all references to the source_file_idx were set to an invalid ID. The annotation_off value was set to zero indicating that, for every class, all the annotation information was removed. No positions or locals were defined for any of the classes and every variable was renamed. The full dexdump of the Java Archive Grinder obfuscation is located in Appendix C.3.

6.3 Zelix KlassMaster Fingerprints

The first difference between the obfuscated and unobfuscated files was that there was no reference to the BuildConfig Class. Figure 20 shows that the first class that was found in the obfuscated version, was 'La'. No reference to BuildConfig was found in the obfuscated version, possibly due to class renaming. Either way, BuildConfig was not found in the obfuscated version.

```
              Unobfuscated                                  Obfuscated
Class #0 header:                            Class #0 header:
class_idx             : 16                  class_idx             : 2
access_flags          : 17 (0x0011)         access_flags          : 0 (0x0000)
superclass_idx        : 46                  superclass_idx        : 6
interfaces_off        : 0 (0x000000)        interfaces_off        : 0 (0x000000)
source_file_idx       : 10                  source_file_idx       : -1
annotations_off       : 0 (0x000000)        annotations_off       : 0 (0x000000)
class_data_off        : 11630 (0x002d6e)    class_data_off        : 9619 (0x002593)
static_fields_size  : 1                     static_fields_size  : 0
instance_fields_size: 0                     instance_fields_size: 0
direct_methods_size : 1                     direct_methods_size : 1
virtual_methods_size: 0                     virtual_methods_size: 2

Class #0            -                        Class #0            -
Class descriptor : 'Lcom/uaf/matt/testone/  Class descriptor  : 'La;'
                    BuildConfig;'
```

Figure 20: Comparison Between dexdump Outputs for Class #0.

Secondly, the source_file_idx value was set to an invalid ID and that all annotation information was removed. In addition, each of the variables were renamed to a lower case letter in the alphabet. At the start of each class it restarted the variable names to the beginning of the alphabet. Figure 21 shows the obfuscated version. Because of how it was obfuscated, it was impossible to find its unobfuscated counterpart. Additionally, any reference to positions or locals was removed from the obfuscated version.

The next difference between the obfuscated and unobfuscated files was that control flow obfuscation was implemented on some of the classes. The example in Figure 22 shows that a group of goto instructions were added to the end of the class.

Finally, every string in the obfuscated version was encrypted, and there was a call to a function that would decrypt the string when it was going to be used. Figure 23 shows the instructions for creating a new string, setting that new string to some encrypted set of characters, and then calling the function to decrypt the string.

```
Class #1 header:
class_idx          : 16
access_flags       : 1 (0x0001)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 9637 (0x0025a5)
static_fields_size : 2
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2

Class #1            -
  Class descriptor  : 'Lb;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
    #0              : (in Lb;)
      name          : 'a'
      type          : 'I'
      access        : 0x0009 (PUBLIC STATIC)
    #1              : (in Lb;)
      name          : 'z'
      type          : '[Ljava/lang/String;'
      access        : 0x001a (PRIVATE STATIC FINAL)
```

Figure 21: Obfuscated dexdump Output Showing Class and Variable Renaming, source_file_idx and Annotation Obfuscation.

```
000c10: 0e00                                    |0070: return-void
000c12: 0176                                    |0071: move v6, v7
000c14: 28b0                                    |0072: goto 0022 // -0050
000c16: 1306 7d00                               |0073: const/16 v6, #int 125 // #7d
000c1a: 28ad                                    |0075: goto 0022 // -0053
000c1c: 0186                                    |0076: move v6, v8
000c1e: 28ab                                    |0077: goto 0022 // -0055
000c20: 1306 6d00                               |0078: const/16 v6, #int 109 // #6d
000c24: 28a8                                    |007a: goto 0022 // -0058
000c26: 0175                                    |007b: move v5, v7
000c28: 28d7                                    |007c: goto 0053 // -0029
000c2a: 1305 7d00                               |007d: const/16 v5, #int 125 // #7d
000c2e: 28d4                                    |007f: goto 0053 // -002c
000c30: 0185                                    |0080: move v5, v8
000c32: 28d2                                    |0081: goto 0053 // -002e
000c34: 1305 6d00                               |0082: const/16 v5, #int 109 // #6d
000c38: 28cf                                    |0084: goto 0053 // -0031
000c3a: 0132                                    |0085: move v2, v3
000c3c: 28aa                                    |0086: goto 0030 // -0056
000c3e: 0000                                    |0087: nop // spacer
000c40: 0001 0400 0000 0000 5300 0000 5500 ... |0088: packed-switch-data (12 units)
000c58: 0001 0400 0000 0000 2c00 0000 2e00 ... |0094: packed-switch-data (12 units)
```

Figure 22: Obfuscated dexdump Output Showing Flow Control Obfuscation.

In summary, no reference to BuildConfig Class was found and all references to the source_file_idx were set to an invalid ID. The annotation_off value was set to zero indicating that for every class all the annotation information was removed. No positions or locals were defined for any of the classes

and every variable and class was renamed. Lastly, every string was encrypted. The full dexdump of the KlassMaster obfuscation is located in Appendix C.4.

```
000b3c: 121c              |0006: const/4 v12, #int 1 // #1
000b3e: 1203              |0007: const/4 v3, #int 0 // #0
000b40: 1220              |0008: const/4 v0, #int 2 // #2
000b42: 230a 3300         |0009: new-array v10, v0, [Ljava/lang/String; // type@0033
000b46: 1a00 4c00         |000b: const-string v0, "[      D5RGx_h_'^RCnAXR~" // string@004c
000b4a: 6e10 4800 0000    |000d: invoke-virtual {v0}, Ljava/lang/String;.toCharArray:()[C
000b50: 0c00              |0010: move-result-object v0
000b52: 2101              |0011: array-length v1, v0
000b54: 36c1 7300         |0012: if-gt v1, v12, 0085 // +0073
```

Figure 23: Obfuscated dexdump Output Showing String Encryption.

6.4   Allatori Fingerprints

Allatori is a commercial product, and the version that was used to obfuscate the Android application was a trial version. Therefore, throughout the dexdump output some, but not all variable names would be set to ALLATORIxDEMO. This would not happen if the Android application was obfuscated with a licensed version of Allatori. Because of this, any identifier that is named ALLA-TORIxDEMO was not considered as part of the fingerprint.

The first set of differences between the obfuscated and unobfuscated versions was the source_file_idx value was set to 140, a value not in the string_ids array. All annotation information was also set to a value where no annotation information was located. In addition, the variables and classes were renamed. Allatori renamed each of the variables to a capital letter in the alphabet. Each class name started with 'Lcom/package/' followed by a capital letter. At the start of each class it restated the variable names to the beginning of the alphabet. In addition, all of the variable access types changed to become a synthetic of that type. Figure 24 shows the obfuscated application.

```
Class #1 header:
class_idx         : 17
access_flags      : 17 (0x0011)
superclass_idx    : 45
interfaces_off    : 0 (0x000000)
source_file_idx   : 140
annotations_off   : 6548 (0x001994)

Class #1           -
  Class descriptor : 'Lcom/package/G;'
    Access flags      : 0x0011 (PUBLIC FINAL)
    Superclass        : 'Ljava/lang/Object;'
    Interfaces        -
    Static fields     -
    #0                : (in Lcom/package/G;)
    name              : 'ALLATORIxDEMO'
    type              : 'I'
    access            : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1                : (in Lcom/package/G;)
    name              : 'H'
    type              : 'I'
    access            : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
```

Figure 24: Obfuscated dexdump Output Showing source_file_idx, annotation_off, Variable and Class Name Obfuscation.

Secondly, every string in the obfuscated version was encrypted, and there was a call to a function that would decrypt the string when it was going to be used. Figure 25 shows the instructions for creating a new string, setting that new string to some encrypted set of characters, and then calling the function to decrypt the string.

```
000f8a: 1a01 0a00      |0001: const-string v1, "Bq" // string@000a
000f8e: 7110 2000 0100 |0003: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/
                                String;)Ljava/lang/String; // method@0020
000f94: 0c01           |0006: move-result-object v1
000f96: 7110 6b00 0100 |0007: invoke-static {v1}, Ljava/security/MessageDigest;
                                .getInstance:(Ljava/lang/String;)
                                Ljava/security/MessageDigest; // method@006b
```

Figure 25: Obfuscated dexdump Output Showing String Encryption.

Finally, any reference to positions or locals was changed to different numbers, that no longer followed the bytecode specification, in the obfuscated version. Changing the numbers does not change how the application runs. In the unobfuscated version, the position line numbers were incremented by one, or some small amount, but always incrementing. Figure 26 shows the difference between the unobfuscated and obfuscated outputs.

```
          Unobfuscated                             Obfuscated
catches        : 1                      catches        : 1
0x0000 - 0x0038                         0x0000 - 0x0038
    Ljava/io/IOException; -> 0x0039         Ljava/io/IOException; -> 0x0039
positions      :                        positions      :
0x0000 line=19                          0x0000 line=182
0x0008 line=20                          0x0008 line=92
0x000c line=21                          0x000c line=42
0x001a line=22                          0x001a line=188
0x001c line=23                          0x001c line=70
0x0022 line=24                          0x0022 line=44
0x0039 line=26                          0x0039 line=28
0x003a line=27                          0x003a line=104
0x003d line=29                          0x003d line=122
locals         :                        locals         :
0x000c - 0x0039 reg=0 conn              0x0000 - 0x003f reg=5 this
                Ljava/net/URLConnection;                Lcom/package/
0x001c - 0x0039 reg=2                   0x0000 - 0x003f reg=6 arg0
                inputLine Ljava/lang/String;            [Ljava/lang/String;
0x001a - 0x0039 reg=3
                reader Ljava/io/BufferedReader;
0x0008 - 0x0039 reg=4 url Ljava/net/URL;
0x003a - 0x003d reg=1 e Ljava/io/IOException;
0x0000 - 0x003f reg=8 this Lcom/uaf/matt/testone/getURLData;
0x0000 - 0x003f reg=9 urls [Ljava/lang/String;
```

Figure 26: Comparison Between dexdump Outputs Showing Positions Obfuscation and the Removal of Locals.

In summary, all references to the source_file_idx was obfuscated. The annotation_off value was obfuscated. Every variable and class were renamed, the variable access types were changed to become synthetic, and all line numbers were obfuscated. Lastly, every string was encrypted. The full dexdump of the Allatori obfuscation is located in Appendix C.5.

7 Android Obfuscation Fingerprinting Tool

In order to automate the process of finding which obfuscator was used on the Android application, a Python program was developed. This program, titled aof.py [35], can be seen in Appendix D. The aof.py tool takes a valid APK and checks for a valid classes.dex file. Depending on what settings the user applies, the aof.py tool will look though the classes.dex file looking for the following obfuscations:

Source File IDX Obfuscation
Looks in the class header definitions for the source_file_idx field and checks to see if it was set to an invalid ID.

Removal of the BuildConfig Class
Looks in the strings section of the classes.dex file for any reference to BuildConfig.

Removal of Annotations
Looks in the class header definitions for the annotations_off field and checks to see if it was set to zero.

Removal of Debug Information
Looks in each class header definitions for any debug information.

Class Name Obfuscation
Looks in the strings section of the classes.dex file for any strings that match any of these patterns, 'Lcom/package/[A-Z]', 'L[a-z]' or 'L[A-Z]'.

Variable Name Obfuscation
Looks in the strings section of the classed.dex file for any strings that match any of these patterns, '[a-z]' or '[A-Z]'.

Removal of Positions and Locals
Looks in every method for the offset to the location of the positions and locals information, if set to zero then no positions or locals for that method were defined.

String Encryption
Looks in the strings section of the classes.dex file and for every string it will count the non-printable characters, and compare it to the total string size. If there are more that 20% of non-printable characters it is assumed that the string has been encrypted.

The aof.py tool checks these obfuscations to develop an educated guess on which obfuscator (Proguard, Java Archive Grinder, Zelix KlassMaster, or Allatori) was most likely used. This guess is displayed as a percentage of how many of the obfuscations matched to those that were discovered. While developing the aof.py tool, it was tested against the simple Android application that was developed and several Android applications that were downloaded from the Google Play store. Table 1 shows the resulting output of the aof.py tool examining the simple Android application that was written. The full results is located in Appendix E.1.

	Proguard	JARG	KlassMaster	Allatori
proguard.apk	**99.99%**	87.49%	62.49%	24.99%
jarg.apk	87.49%	**99.99%**	49.99%	12.49%
klassmaster.apk	74.99%	62.49%	**99.99%**	37.49%
allatori.apk	24.99%	12.49%	37.49%	**99.99%**

Table 1: Summary of Results From the aof.py Tool When Ran Against the Simple Android Application

From aof.py it shows that for every one of the obfuscated Android applications, that they matched to their corresponding obfuscator 99.99%. In addition the obfuscated applications matched to the other obfuscators due to the overlapping fingerprints. Meaning that some of the obfuscators will match to the same obfuscation in the application, but not all of them. It is important to note that since several obfuscation methods can be done by hand, the aof.py tool will not report a 100% match to any of the obfuscators, it will always be 99.99%. Table 2 shows results from running the aof.py tool against Android applications from the Google Play Store. The full results is located in Appendix E.2.

	Proguard	JARG	KlassMaster	Allatori
Google Chrome	37.49%	24.99%	37.49%	**74.99%**
Calculator	49.99%	37.49%	49.99%	**62.49%**
Facebook	37.49%	24.99%	37.49%	**74.99%**
LED Flashlight	**62.49%**	49.99%	**62.49%**	**62.49%**
Amazon Kindle	24.99%	12.49%	37.49%	**87.49%**
Google My Business	27.49%	24.99%	37.49%	**87.49%**
Instagram	37.49%	24.99%	24.99%	**74.99%**
Netlfix	37.49%	24.99%	24.99%	**74.99%**
Pandora Radio	37.49%	24.99%	37.49%	**87.49%**
Clash of Clans	**62.49%**	49.99%	49.99%	49.99%

Table 2: Summary of Results from the aof.py Tool When Ran Against the Android Applications from Google Play Store.

The Google Chrome, Digitalchemy Calculator, Facebook, Amazon Kindle, Google My Business, Instagram, Netflix, and Pandora Radio applications all matched to the Allatori Obfuscator, the LED Flashlight application matched to every obfuscator except Java Archive Grinder, and the Clash of Clans application matched to only Proguard. This result was expected because out of all of the obfuscators, Allatori is the most developed and widely used. It is also important to note that none of the applications matched any of the obfuscators completely. This result was also expected. While it is not known at this point how any of the applications were obfuscated, it is assumed that all of them were. The obfuscation program used in each application can be predicted by the evidence of the obfuscation in the applications.

8   Conclusion

Using a simple Android application and building the application with each of the four obfuscation programs, Proguard, Java Archive Grinder, Zelix KlassMaster, and Allatori, it was possible to find distinct fingerprints for each obfuscator. I found that each of these obfuscators had similar obfuscation rules that ended with similar results. The fingerprints for each obfuscator are summarized here:

Proguard's fingerprint included removing the BuildConfig Class, setting source_file_idx values to an invalid ID, removing annotations, positions, and locals, and renaming variables to lower case letters.

Java Archive Grinder's fingerprint included setting source_file_idx values to an invalid ID, and removing annotations, positions, and locals from each of the classes.

Zelix KlassMaster's fingerprint included removing the BuildConfig class, positions, and locals, renaming classes and variables to lower case letters, and encrypting all string literals.

Allatori's fingerprint included changing the access type of classes, fields, and methods to a synthetic version, renaming classes, and variables with upper case letters. In addition, Allatori was able to change the source_file_idx, annotations_off, positions, and locals to values that no longer correlate to the Dalvik bytecode standard.

Proguard, Java Archive Grinder, and Zelix KlassMaster had similar results for a few of the obfuscations. For instance, they all renamed every variable to a lower case letter starting at the beginning of the alphabet. All three programs managed to remove all information from the locals and positions for each class. Even though there are similarities between each of the obfuscators, there was enough of a difference to be able to identify which obfuscator was used.

When running the aof.py tool against Android applications from the Google Play Store, it was found that Google Chrome, Digitalchemy Calculator, Facebook, Amazon Kindle, Google My Business, Instagram, Netflix, and Pandora Radio all matched to the Allatori Obfuscator while the LED Flashlight matched to every obfuscator except Java Archive Grinder, and Clash of Clans matched to Proguard. These results show that most of the Android applications used obfuscation that is similar to what Allatori can do.

The obfuscator fingerprints that were discovered could have been manually implemented instead of using one of the obfuscator programs. When a fingerprint was found, there was a chance that it was written by hand and would result in a false positive. This means that the Android Obfuscation Fingerprint Tool, will always return the best educated guess, or whatever obfuscator fingerprint was the most similar.

9   Further Research

The results of this project showed that the four obfuscators examined have overlapping fingerprints. However there are many other obfuscators that need to be examined. Further studies could show that there are other obfuscators that have the same or unique fingerprints. This project would benefit from more testing with a broader range of obfuscators.

Most of the fingerprint identifiers were located in the class headers. While this discovery gives an indication of what obfuscator was used, looking more in depth at the bytecode could provide more detailed information about what obfuscator was used. This could possibly include what string decryption method was called or if any of the obfuscators used different instructions to accomplish the same thing. Either way, looking more in depth at the bytecode would provide more details for identifying obfuscator fingerprints.

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A Custom Android Application

A.1 manifest.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
            package="com.uaf.matt.testone">
    <uses-sdk android:minSdkVersion="11" />
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"
                    android:maxSdkVersion="18" />
    <uses-permission android:name="android.permission.READ_PHONE_STATE" />
    <uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"
                            android:maxSdkVersion="18" />
    <uses-permission android:name="android.permission.INTERNET" />

        <application
            android:allowBackup="true"
            android:icon="@drawable/ic_launcher"
            android:label="@string/app_name"
            android:theme="@style/AppTheme" >

            <activity
                android:name="com.uaf.matt.testone.TestOneActivity"
                android:label="@string/app_name" >
                    <intent-filter>
                        <action android:name="android.intent.action.MAIN" />
                        <category android:name="android.intent.category.LAUNCHER" />
                    </intent-filter>
            </activity>

            <activity
                android:name="com.uaf.matt.testone.DisplayMessageActivity"
                android:label="@string/title_activity_display_message"
                android:parentActivityName="com.uaf.matt.testone.TestOneActivity" >
                    <meta-data
                        android:name="android.support.PARENT_ACTIVITY"
                        android:value="com.uaf.matt.testone.TestOneActivity" />
            </activity>

            <activity
                android:name="com.uaf.matt.testone.DisplayMathsActivity"
                android:label="@string/title_activity_display_maths"
                android:parentActivityName="com.uaf.matt.testone.TestOneActivity" >
                <meta-data
                    android:name="android.support.PARENT_ACTIVITY"
                    android:value="com.uaf.matt.testone.TestOneActivity" />
            </activity>

            <activity
                android:name="com.uaf.matt.testone.DisplayWebPageActivity"
                android:label="@string/title_activity_display_web_page"
                android:parentActivityName="com.uaf.matt.testone.TestOneActivity" >
                    <meta-data
                        android:name="android.support.PARENT_ACTIVITY"
                        android:value="com.uaf.matt.testone.TestOneActivity" />
            </activity>
        </application>
</manifest>
```

A.2 strings.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string name="app_name">Test One</string>
    <string name="encrypt_string">Enter a Message</string>
    <string name="do_some_maths">Enter a Number</string>
```

```xml
    <string name="pull_web_page">Web Site</string>
    <string name="button_send">Send</string>
    <string name="action_settings">Settings</string>
    <string name="action_search">Settings</string>
    <string name="title_activity_main">TestOneActivity</string>
    <string name="title_activity_display_message">My Encrypted Message</string>
    <string name="title_activity_display_maths">DisplayMathsActivity</string>
    <string name="title_activity_display_web_page">DisplayWebPageActivity</string>
</resources>
```

A.3   TestOneActivity.java

```java
package com.uaf.matt.testone;

import com.uaf.matt.testone.R;
import android.app.Activity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.content.Intent;
import android.view.View;
import android.widget.EditText;

public class TestOneActivity extends Activity {
    public final static String EXTRA_MESSAGE = "com.uaf.matt.testone.MESSAGE";

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

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        MenuInflater inflater = getMenuInflater();
        inflater.inflate(R.menu.main_activity_actions, menu);
        return super.onCreateOptionsMenu(menu);
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        switch (item.getItemId()) {
            case R.id.action_search:
                openSearch();
                return true;
            case R.id.action_settings:
                openSettings();
                return true;
            default:
                return super.onOptionsItemSelected(item);
                }
        }

    /*Called when someone hits the send button*/
    public void encryptMessage(View view) {
        Intent intent = new Intent(this, DisplayMessageActivity.class);
        EditText editText = (EditText) findViewById(R.id.encrypt_string);
        String message = editText.getText().toString();
        intent.putExtra(EXTRA_MESSAGE, message);
        startActivity(intent);
    }
```

```java
        /*Called when someone hits the send button*/
        public void doMaths(View view) {
            Intent intent = new Intent(this, DisplayMathsActivity.class);
            EditText editText = (EditText) findViewById(R.id.do_some_maths);
            int number = Integer.parseInt(editText.getText().toString());
            intent.putExtra(EXTRA_MESSAGE, number);
            startActivity(intent);
        }

        /*Called when someone hits the send button*/
        public void getWebPage(View view) {
            Intent intent = new Intent(this, DisplayWebPageActivity.class);
            EditText editText = (EditText) findViewById(R.id.pull_web_page);
            String url = editText.getText().toString();
            intent.putExtra(EXTRA_MESSAGE, url);
            startActivity(intent);
        }
}
```

A.4   activity_test_one.xml

```xml
<GridLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".TestOneActivity"
    android:columnCount="2"
    android:rowCount="4"
    android:paddingBottom="375dp"
    android:orientation="vertical">

    <EditText
        android:id="@+id/encrypt_string"
        android:layout_width="170dp"
        android:singleLine="true"
        android:lines="1"
        android:maxLines="1"
        android:scrollHorizontally="true"
        android:ellipsize="end"
        android:layout_height="wrap_content"
        android:hint="@string/encrypt_string"
        android:layout_gravity="fill"
        android:layout_row="0"
        android:layout_column="0"
        android:paddingRight="170dp"
        android:paddingEnd="170dp"
        android:paddingStart="0dp"
        android:paddingLeft="0dp"/>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/button_send"
        android:onClick="encryptMessage"
        android:layout_row="0"
        android:layout_column="1" />

    <EditText
        android:id="@+id/do_some_maths"
        android:layout_width="170dp"
        android:singleLine="true"
        android:lines="1"
        android:maxLines="1"
        android:scrollHorizontally="true"
        android:ellipsize="end"
        android:layout_height="wrap_content"
        android:inputType="numberDecimal"
```

```
        android:hint="@string/do_some_maths"
        android:layout_row="1"
        android:layout_column="0"
        android:layout_gravity="fill"
        android:paddingRight="170dp"
        android:paddingEnd="170dp"
        android:paddingStart="0dp"
        android:paddingLeft="0dp" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/button_send"
        android:onClick="doMaths"
        android:layout_row="1"
        android:layout_column="1" />

    <EditText
        android:id="@+id/pull_web_page"
        android:layout_width="170dp"
        android:singleLine="true"
        android:lines="1"
        android:maxLines="1"
        android:scrollHorizontally="true"
        android:ellipsize="end"
        android:layout_height="wrap_content"
        android:hint="@string/pull_web_page"
        android:layout_row="3"
        android:layout_column="0"
        android:layout_gravity="fill"
        android:paddingRight="240dp"
        android:paddingEnd="240dp"
        android:paddingStart="0dp"
        android:paddingLeft="0dp"/>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/button_send"
        android:onClick="getWebPage"
        android:layout_row="3"
        android:layout_column="1" />
</GridLayout>
```

A.5 DisplayMessageActivity.java

```
package com.uaf.matt.testone;

import com.uaf.matt.testone.R;
import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.MenuItem;
import android.widget.TextView;

public class DisplayMessageActivity extends Activity {
    private static void helloMessage() {
        int zero = 0;
        int one = 1;
        int two = 2;
        double threepointtwo = 3.2;
        double fourpointfour = 4.4;
        String hello = "Hello String";
    }

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```java
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_display_message);

        Intent intent = getIntent();
        String message = intent.getStringExtra(TestOneActivity.EXTRA_MESSAGE);
        String password = "Super-Secret-Password";

        TextView textView = new TextView(this);
        textView.setTextSize(20);
        String hash = SimpleCrypto.md5(message);
        String crypto = SimpleCrypto.encrypt(password, hash);
        textView.setText("Message before encryption: " +
                        "\nMessage after encryption: " + crypto);
        setContentView(textView);
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();

        //noinspection SimplifiableIfStatement
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

A.6   SimpleCrypto.java

```java
package com.uaf.matt.testone;

import java.security.MessageDigest;
import java.security.SecureRandom;
import javax.crypto.Cipher;
import javax.crypto.KeyGenerator;
import javax.crypto.SecretKey;
import javax.crypto.spec.SecretKeySpec;
import android.util.Base64;

public class SimpleCrypto {
    public static String encrypt(String seed, String cleartext) {
        try {
            byte[] rawKey = getRawKey(seed.getBytes());
            byte[] result = encrypt(rawKey, cleartext.getBytes());
            return Base64.encodeToString(result, Base64.DEFAULT);
        }
        catch(Exception e) {
            e.printStackTrace();
        }
        return "error";
    }

    public static String decrypt(String seed, String encrypted) {
        try {
            byte[] rawKey = getRawKey(seed.getBytes());
            byte[] enc = Base64.decode(encrypted, Base64.DEFAULT);
            byte[] result = decrypt(rawKey, enc);
            return new String(result);
        }
        catch(Exception e) {
            e.printStackTrace();
        }
        return "error";
```

```java
    }

    private static byte[] getRawKey(byte[] seed) throws Exception {
        KeyGenerator kgen = KeyGenerator.getInstance("AES");
        SecureRandom sr = SecureRandom.getInstance("SHA1PRNG");
        sr.setSeed(seed);
        kgen.init(128, sr);
        SecretKey skey = kgen.generateKey();
        byte[] raw = skey.getEncoded();
        return raw;
    }

    private static byte[] encrypt(byte[] raw, byte[] clear) throws Exception {
        SecretKeySpec skeySpec = new SecretKeySpec(raw, "AES");
        Cipher cipher = Cipher.getInstance("AES");
        cipher.init(Cipher.ENCRYPT_MODE, skeySpec);
        byte[] encrypted = cipher.doFinal(clear);
        return encrypted;
    }

    private static byte[] decrypt(byte[] raw, byte[] encrypted) throws Exception {
        SecretKeySpec skeySpec = new SecretKeySpec(raw, "AES");
        Cipher cipher = Cipher.getInstance("AES");
        cipher.init(Cipher.DECRYPT_MODE, skeySpec);
        byte[] decrypted = cipher.doFinal(encrypted);
        return decrypted;
    }

    public static final String md5(final String s) {
        try {
            MessageDigest digest = java.security.MessageDigest.getInstance("MD5");
            digest.update(s.getBytes());
            byte messageDigest[] = digest.digest();
            StringBuffer hexString = new StringBuffer();
            for(int i=0; i<messageDigest.length; i++) {
                String h = Integer.toHexString(0xFF & messageDigest[i]);
                while(h.length()<2) {
                    h="0"+h;
                }
                hexString.append(h);
            }
            return hexString.toString();
        }
        catch(Exception e) {
            e.printStackTrace();
        }
        return "error";
    }
}
```

A.7   activity_display_message.xml

```xml
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context="com.uaf.matt.testone.DisplayMessageActivity">
</RelativeLayout>
```

A.8   DisplayMathsActivity.java

```java
package com.uaf.matt.testone;
```

```java
import java.math.BigInteger;
import java.util.ArrayList;
import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.MenuItem;
import android.widget.TextView;

public class DisplayMathsActivity extends Activity {
    private static void helloMath() {
        int zero = 0;
        int one = 1;
        int two = 2;
        double threepointtwo = 3.2;
        double fourpointfour = 4.4;
        String hello = "Hello String";
    }

    private static ArrayList<BigInteger> fibCache = new ArrayList<BigInteger>();
        static {
            fibCache.add(BigInteger.ZERO);
            fibCache.add(BigInteger.ONE);
        }
        public static BigInteger fib(int n) {
            if (n >= fibCache.size()) {
            fibCache.add(n, fib(n-1).add(fib(n-2)));
        }
        return fibCache.get(n);
    }

    public static int fib2(int n) {
        int prev1=0, prev2=1;
        for(int i=0; i<n; i++) {
            int savePrev1 = prev1;
            prev1 = prev2;
            prev2 = savePrev1 + prev2;
        }
        return prev1;
    }

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

        Intent intent = getIntent();
        int number = intent.getIntExtra(TestOneActivity.EXTRA_MESSAGE, 0);

        TextView textView = new TextView(this);
        textView.setTextSize(40);
        textView.setText("" + fib(number));

        setContentView(textView);
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        //noinspection SimplifiableIfStatement
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
```

```
}
```

A.9   activity_display_maths.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context="com.uaf.matt.testone.DisplayMathsActivity">
</RelativeLayout>
```

A.10   DisplayWebActivity.java

```
package com.uaf.matt.testone;

import android.app.Activity;
import android.content.Intent;
import android.os.AsyncTask;
import android.os.Bundle;
import android.view.MenuItem;
import android.widget.TextView;
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.net.URL;
import java.net.URLConnection;
import com.uaf.matt.testone.R;

class getURLData extends AsyncTask<String, String, Void> {
    public Void doInBackground(String... urls) {
        try {
            URL url = new URL(urls[0]);
            URLConnection conn = url.openConnection();
            BufferedReader reader = new BufferedReader(new InputStreamReader
                                                     (conn.getInputStream()));
            String inputLine = "";
            while ((inputLine = reader.readLine()) != null) {
                urls[1] += inputLine;
            }
        }
        catch (IOException e) {
            e.printStackTrace();
        }
        return null;
    }
}

public class DisplayWebPageActivity extends Activity {
    private static void helloWebPage() {
        int zero = 0;
        int one = 1;
        int two = 2;
        double threepointtwo = 3.2;
        double fourpointfour = 4.4;
        String hello = "Hello String";
    }

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_display_web_page);
        Intent intent = getIntent();
```

```java
        TextView textView = new TextView(this);
        textView.setTextSize(10);
        String item = intent.getStringExtra(TestOneActivity.EXTRA_MESSAGE);
        String data = "0";
        new getURLData().execute(item, data);
        textView.setText(data);
        setContentView(textView);
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        //noinspection SimplifiableIfStatement
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

A.11   activity_display_web_page.xml

```xml
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context="com.uaf.matt.testone.DisplayWebPageActivity">
</RelativeLayout>
```

B Obfuscator Settings

B.1 proguard-project.txt

```
# To enable ProGuard in your project, edit project.properties
# to define the proguard.config property as described in that file.
#
# Add project specific ProGuard rules here.
# By default, the flags in this file are appended to flags specified
# in ${sdk.dir}/tools/proguard/proguard-android.txt
# You can edit the include path and order by changing the ProGuard
# include property in project.properties.
#
# For more details, see
#   http://developer.android.com/guide/developing/tools/proguard.html

# Add any project specific keep options here:

# If your project uses WebView with JS, uncomment the following
# and specify the fully qualified class name to the JavaScript interface
# class:
#-keepclassmembers class fqcn.of.javascript.interface.for.webview {
#   public *;
#}

-overloadaggressively
-flattenpackagehierarchy
```

B.2 proguard-android.txt

```
# This is a configuration file for ProGuard.
# http://proguard.sourceforge.net/index.html#manual/usage.html

-dontusemixedcaseclassnames
-dontskipnonpubliclibraryclasses
-verbose

# Optimization is turned off by default. Dex does not like code run
# through the ProGuard optimize and preverify steps (and performs some
# of these optimizations on its own).
-dontoptimize
-dontpreverify
# Note that if you want to enable optimization, you cannot just
# include optimization flags in your own project configuration file;
# instead you will need to point to the
# "proguard-android-optimize.txt" file instead of this one from your
# project.properties file.

-keepattributes *Annotation*
-keep public class com.google.vending.licensing.ILicensingService
-keep public class com.android.vending.licensing.ILicensingService\

# For native methods, see http://proguard.sourceforge.net/manual/examples.html#native
-keepclasseswithmembernames class * {
    native <methods>;
}

# keep setters in Views so that animations can still work.
# see http://proguard.sourceforge.net/manual/examples.html#beans
-keepclassmembers public class * extends android.view.View {
    void set*(***);
    *** get*();
}

# We want to keep methods in Activity that could be used in the XML attribute onClick
-keepclassmembers class * extends android.app.Activity {
```

```
        public void *(android.view.View);
}

# For enumeration classes, see http://proguard.sourceforge.net/manual/examples.html#enumerations
-keepclassmembers enum * {
        public static **[] values();
        public static ** valueOf(java.lang.String);
}

-keep class * implements android.os.Parcelable {
        public static final android.os.Parcelable$Creator *;
}

-keepclassmembers class **.R$* {
        public static <fields>;
}

# The support library contains references to newer platform versions.
# Don't warn about those in case this app is linking against an older
# platform version.  We know about them, and they are safe.
-dontwarn android.support.**
```

B.3   ZKMScript.txt

```
/**********************************************************************************/
/* Generated by Zelix KlassMaster 6.1.8 ProGuardInputTranslator 2014.12.30 14:45:17 */
/**********************************************************************************/


/**********************************************************************************/
/*              Some ProGuard options must appear as Zelix KlassMaster            */
/*              command line options as shown below.                              */
/*                                                                                */
/*              java -jar ZKM.jar -v MyZKMScript.txt                              */
/**********************************************************************************/

classpath  "/home/matt/workspace/TestOne/";

trimExclude     public com.google.vending.licensing.ILicensingServiceˆ and
                public com.android.vending.licensing.ILicensingServiceˆ and
                public *.* extends android.view.View set*(?) and
                public *.* extends android.view.View get*() and
                *.* extends android.app.Activity public *(android.view.View) and
                enum *.* public static values() and
                enum *.* public static valueOf(java.lang.String) and
                \*.R$* public static * and
                *.TestOneActivity;

trim    deleteDeprecatedAttributes=true
        deleteSourceFileAttributes=true
        deleteAnnotationAttributes=true
        deleteExceptionAttributes=true
        deleteUnknownAttributes=true;

exclude     public com.google.vending.licensing.ˆILicensingServiceˆ and
            public com.android.vending.licensing.ˆILicensingServiceˆ and
            *.ˆ*ˆ containing {native *(*)} native *(*) and
            public *.* extends android.view.View set*(?) and
            public *.* extends android.view.View get*() and
            *.* extends android.app.Activity public *(android.view.View) and
            enum *.* public static values() and
            enum *.* public static valueOf(java.lang.String) and
            *.R$* public static *;

obfuscate   changeLogFileIn=""
            changeLogFileOut="ChangeLog.txt"
            keepGenericsInfo=false
            obfuscateFlow=aggressive
```

```
            exceptionObfuscation=heavy
            encryptStringLiterals=flowObfuscate
            mixedCaseClassNames=ifInArchive
            aggressiveMethodRenaming=true
            randomize=true
            collapsePackagesWithDefault=""
            localVariables=delete
            lineNumbers=delete
            autoReflectionHandling=normal;
```

B.4   allatori.xml

```xml
<config>
    <jars>
        <dir in="${out.classes.absolute.dir}"
            out="${out.classes.absolute.dir}-obfuscated"/>
    </jars>

    <classpath>
        <jar name="${android.jar}"/>
        <jar name="${project.target.android.jar}"/>
    </classpath>

    <keep-names>
        <class template="public class * instanceof android.app.Activity">
            <method template="public void *(android.view.View)"/>
        </class>
        <class template="public class * instanceof android.app.Application"/>
        <class template="public class * instanceof android.app.Service"/>
        <class template="public class * instanceof android.view.View">
            <method template="public void set*(**)"/>
        </class>
        <class template="public class * instanceof
                        android.content.BroadcastReceiver"/>
        <class template="public class * instanceof android.content.ContentProvider"/>
        <class template="public class * instanceof
                        android.app.backup.BackupAgentHelper"/>
        <class template="public class * instanceof android.preference.Preference"/>
        <class template="public class
                        com.android.vending.licensing.ILicensingService"/>
        <class template="class * implements android.os.Parcelable">
            <field template="public static final android.os.Parcelable$Creator *"/>
        </class>
    </keep-names>

    <property name="log-file" value="log.xml"/>

    <!-- String encryption -->
    <property name="string-encryption" value="enable"/>
    <property name="string-encryption-type" value="strong"/>
    <property name="string-encryption-version" value="v4"/>

    <!-- Control flow obfuscation -->
    <property name="control-flow-obfuscation" value="enable"/>
    <property name="extensive-flow-obfuscation" value="maximum"/>

    <!-- Renaming -->
    <property name="default-package" value="com.package"/>
    <property name="force-default-package" value="enable"/>
    <property name="classes-naming" value="compact"/>
    <property name="methods-naming" value="compact"/>
    <property name="fields-naming" value="compact"/>
    <property name="local-variables-naming" value="optimize"/>

    <!-- Other -->
    <property name="line-numbers" value="obfuscate"/>
    <property name="generics" value="remove"/>
```

```xml
    <property name="member-reorder" value="enable"/>
    <property name="finalize" value="enable"/>
    <property name="synthetize-methods" value="all"/>
    <property name="synthetize-fields" value="all"/>
    <property name="remove-toString" value="enable"/>
</config>
```

C dexdump Outputs

C.1 Unobfuscated

```
Processing 'classes.dex'...
Opened 'classes.dex', DEX version '035'
DEX file header:
magic             : 'dex\n035\0'
checksum          : 4afbaef1
signature         : 9ec5...9586
file_size         : 12172
header_size       : 112
link_size         : 0
link_off          : 0 (0x000000)
string_ids_size   : 245
string_ids_off    : 112 (0x000070)
type_ids_size     : 67
type_ids_off      : 1092 (0x000444)
proto_ids_size    : 55
proto_ids_off     : 1360 (0x000550)
field_ids_size    : 36
field_ids_off     : 2020 (0x0007e4)
method_ids_size   : 114
method_ids_off    : 2308 (0x000904)
class_defs_size   : 16
class_defs_off    : 3220 (0x000c94)
data_size         : 8440
data_off          : 3732 (0x000e94)

Class #0 header:
class_idx         : 16
access_flags      : 17 (0x0011)
superclass_idx    : 46
interfaces_off    : 0 (0x000000)
source_file_idx   : 10
annotations_off   : 0 (0x000000)
class_data_off    : 11630 (0x002d6e)
static_fields_size : 1
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #0            -
  Class descriptor : 'Lcom/uaf/matt/testone/BuildConfig;'
  Access flags     : 0x0011 (PUBLIC FINAL)
  Superclass       : 'Ljava/lang/Object;'
  Interfaces       -
  Static fields    -
    #0             : (in Lcom/uaf/matt/testone/BuildConfig;)
      name         : 'DEBUG'
      type         : 'Z'
      access       : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields  -
  Direct methods   -
    #0             : (in Lcom/uaf/matt/testone/BuildConfig;)
      name         : '<init>'
      type         : '()V'
      access       : 0x10001 (PUBLIC CONSTRUCTOR)
      code         -
      registers    : 1
      ins          : 1
      outs         : 1
      insns size   : 4 16-bit code units
000f14:                   |[000f14] com.uaf.matt.testone.BuildConfig.<init>:()V
000f24: 7010 5000 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
000f2a: 0e00              |0003: return-void
      catches        : (none)
```

```
        positions      :
          0x0000 line=4
        locals         :
          0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/BuildConfig;

    Virtual methods    -
    source_file_idx    : 10 (BuildConfig.java)

Class #1 header:
class_idx            : 17
access_flags         : 1 (0x0001)
superclass_idx       : 3
interfaces_off       : 0 (0x000000)
source_file_idx      : 13
annotations_off      : 6296 (0x001898)
class_data_off       : 11642 (0x002d7a)
static_fields_size   : 1
instance_fields_size: 0
direct_methods_size : 4
virtual_methods_size: 2

Class #1              -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMathsActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'fibCache'
      type          : 'Ljava/util/ArrayList;'
      access        : 0x000a (PRIVATE STATIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : '<clinit>'
      type          : '()V'
      access        : 0x10008 (STATIC CONSTRUCTOR)
      code          -
      registers     : 2
      ins           : 0
      outs          : 2
      insns size    : 22 16-bit code units
000f2c:                   |[000f2c] com.uaf.matt.testone.DisplayMathsActivity.<clinit>:()V
000f3c: 2200 3900         |0000: new-instance v0, Ljava/util/ArrayList; // type@0039
000f40: 7010 6500 0000 |0002: invoke-direct {v0}, Ljava/util/ArrayList;.<init>:()V // method@0065
000f46: 6900 0100         |0005: sput-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                   .fibCache:Ljava/util/ArrayList; // field@0001
000f4a: 6200 0100         |0007: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                   .fibCache:Ljava/util/ArrayList; // field@0001
000f4e: 6201 2300         |0009: sget-object v1, Ljava/math/BigInteger;
                                   .ZERO:Ljava/math/BigInteger; // field@0023
000f52: 6e20 6700 1000 |000b: invoke-virtual {v0, v1}, Ljava/util/ArrayList;
                                   .add:(Ljava/lang/Object;)Z // method@0067
000f58: 6200 0100         |000e: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                   .fibCache:Ljava/util/ArrayList; // field@0001
000f5c: 6201 2200         |0010: sget-object v1, Ljava/math/BigInteger;
                                   .ONE:Ljava/math/BigInteger; // field@0022
000f60: 6e20 6700 1000 |0012: invoke-virtual {v0, v1}, Ljava/util/ArrayList;
                                   .add:(Ljava/lang/Object;)Z // method@0067
000f66: 0e00             |0015: return-void
      catches       : (none)
      positions     :
        0x0000 line=23
        0x0007 line=25
        0x000e line=26
        0x0015 line=27
      locals        :
```

```
    #1              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000f68:               |[000f68] com.uaf.matt.testone.DisplayMathsActivity.<init>:()V
000f78:7010 0000 0000 |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V // method@0000
000f7e:0e00           |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=12
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayMathsActivity;

    #2              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'fib'
      type          : '(I)Ljava/math/BigInteger;'
      access        : 0x0009 (PUBLIC STATIC)
      code          -
      registers     : 4
      ins           : 1
      outs          : 3
      insns size    : 38 16-bit code units
000f80:               |[000f80] com.uaf.matt.testone.DisplayMathsActivity.fib:
                                 (I)Ljava/math/BigInteger;
000f90: 6200 0100     |0000: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                              .fibCache:Ljava/util/ArrayList; // field@0001
000f94: 6e10 6900 0000 |0002: invoke-virtual {v0}, Ljava/util/ArrayList;.size:()I // method@0069
000f9a: 0a00          |0005: move-result v0
000f9c: 3403 1700     |0006: if-lt v3, v0, 001d // +0017
000fa0: 6200 0100     |0008: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                              .fibCache:Ljava/util/ArrayList; // field@0001
000fa4: d801 03ff     |000a: add-int/lit8 v1, v3, #int -1 // #ff
000fa8: 7110 1500 0100 |000c: invoke-static {v1}, Lcom/uaf/matt/testone/DisplayMathsActivity;
                              .fib:(I)Ljava/math/BigInteger; // method@0015
000fae: 0c01          |000f: move-result-object v1
000fb0: d802 03fe     |0010: add-int/lit8 v2, v3, #int -2 // #fe
000fb4: 7110 1500 0200 |0012: invoke-static {v2}, Lcom/uaf/matt/testone/DisplayMathsActivity;
                              .fib:(I)Ljava/math/BigInteger; // method@0015
000fba: 0c02          |0015: move-result-object v2
000fbc: 6e20 5c00 2100 |0016: invoke-virtual {v1, v2}, Ljava/math/BigInteger;
                              .add:(Ljava/math/BigInteger;)Ljava/math/BigInteger;
                              // method@005c
000fc2: 0c01          |0019: move-result-object v1
000fc4: 6e30 6600 3001 |001a: invoke-virtual {v0, v3, v1}, Ljava/util/ArrayList;
                              .add:(ILjava/lang/Object;)V // method@0066
000fca: 6200 0100     |001d: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                              .fibCache:Ljava/util/ArrayList; // field@0001
000fce: 6e20 6800 3000 |001f: invoke-virtual {v0, v3}, Ljava/util/ArrayList;
                              .get:(I)Ljava/lang/Object; // method@0068
000fd4: 0c00          |0022: move-result-object v0
000fd6: 1f00 3300     |0023: check-cast v0, Ljava/math/BigInteger; // type@0033
000fda: 1100          |0025: return-object v0
      catches       : (none)
      positions     :
        0x0000 line=29
        0x0008 line=30
        0x001d line=32
      locals        :
        0x0000 - 0x0026 reg=3 n I

    #3              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'helloMath'
      type          : '()V'
```

```
      access         : 0x000a (PRIVATE STATIC)
      code           -
      registers      : 8
      ins            : 0
      outs           : 0
      insns size     : 16 16-bit code units
000fdc:                                      |[000fdc] com.uaf.matt.testone.DisplayMathsActivity
                                             .helloMath:()V
000fec: 1207                                 |0000: const/4 v7, #int 0 // #0
000fee: 1213                                 |0001: const/4 v3, #int 1 // #1
000ff0: 1226                                 |0002: const/4 v6, #int 2 // #2
000ff2: 1804 9a99 9999 9999 0940            |0003: const-wide v4, #double 3.20 // #400999999999999a
000ffc: 1800 9a99 9999 9999 1140            |0008: const-wide v0, #double 4.40 // #401199999999999a
001006: 1a02 1200                           |000d: const-string v2, "Hello String" // string@0012
00100a: 0e00                                |000f: return-void
      catches        : (none)
      positions      :
        0x0000 line=15
        0x0001 line=16
        0x0002 line=17
        0x0003 line=18
        0x0008 line=19
        0x000d line=20
        0x000f line=21
      locals         :
        0x000d - 0x0010 reg=0 fourpointfour D
        0x000f - 0x0010 reg=2 hello Ljava/lang/String;
        0x0002 - 0x0010 reg=3 one I
        0x0008 - 0x0010 reg=4 threepointtwo D
        0x0003 - 0x0010 reg=6 two I
        0x0001 - 0x0010 reg=7 zero I

  Virtual methods    -
    #0               : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name           : 'onCreate'
      type           : '(Landroid/os/Bundle;)V'
      access         : 0x0004 (PROTECTED)
      code           -
      registers      : 7
      ins            : 2
      outs           : 3
      insns size     : 59 16-bit code units
00100c:                  |[00100c] com.uaf.matt.testone.DisplayMathsActivity.onCreate
                                  :(Landroid/os/Bundle;)V
00101c: 6f20 0100 6500   |0000: invoke-super {v5, v6}, Landroid/app/Activity;
                                  .onCreate:(Landroid/os/Bundle;)V // method@0001
001022: 1503 037f        |0003: const/high16 v3, #int 2130903040 // #7f03
001026: 6e20 1a00 3500   |0005: invoke-virtual {v5, v3}, Lcom/uaf/matt/testone/
                                  DisplayMathsActivity;.setContentView:(I)V // method@001a
00102c: 6e10 1600 0500   |0008: invoke-virtual {v5}, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                  .getIntent:()Landroid/content/Intent; // method@0016
001032: 0c00            |000b: move-result-object v0
001034: 1a03 7d00        |000c: const-string v3, "com.uaf.matt.testone.MESSAGE" // string@007d
001038: 1204            |000e: const/4 v4, #int 0 // #0
00103a: 6e30 0500 3004   |000f: invoke-virtual {v0, v3, v4}, Landroid/content/Intent;
                                  .getIntExtra:(Ljava/lang/String;I)I // method@0005
001040: 0a01            |0012: move-result v1
001042: 2202 0f00        |0013: new-instance v2, Landroid/widget/TextView; // type@000f
001046: 7020 0f00 5200   |0015: invoke-direct {v2, v5}, Landroid/widget/TextView;
                                  ./<init>:(Landroid/content/Context;)V // method@000f
00104c: 1503 2042        |0018: const/high16 v3, #int 1109393408 // #4220
001050: 6e20 1100 3200   |001a: invoke-virtual {v2, v3}, Landroid/widget/TextView;
                                  .setTextSize:(F)V // method@0011
001056: 2203 3100        |001d: new-instance v3, Ljava/lang/StringBuilder; // type@0031
00105a: 7010 5800 0300   |001f: invoke-direct {v3}, Ljava/lang/StringBuilder;
                                  .<init>:()V // method@0058
001060: 1a04 0000        |0022: const-string v4, "" // string@0000
001064: 6e20 5a00 4300   |0024: invoke-virtual {v3, v4}, Ljava/lang/StringBuilder;.append:
```

```
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@005a
00106a: 0c03              |0027: move-result-object v3
00106c: 7110 1500 0100    |0028: invoke-static {v1}, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                        .fib:(I)Ljava/math/BigInteger; // method@0015
001072: 0c04              |002b: move-result-object v4
001074: 6e20 5900 4300    |002c: invoke-virtual {v3, v4}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/Object;)Ljava/lang/StringBuilder; // method@0059
00107a: 0c03              |002f: move-result-object v3
00107c: 6e10 5b00 0300    |0030: invoke-virtual {v3}, Ljava/lang/StringBuilder;
                                        .toString:()Ljava/lang/String; // method@005b
001082: 0c03              |0033: move-result-object v3
001084: 6e20 1000 3200    |0034: invoke-virtual {v2, v3}, Landroid/widget/TextView;
                                        .setText:(Ljava/lang/CharSequence;)V // method@0010
00108a: 6e20 1b00 2500    |0037: invoke-virtual {v5, v2}, Lcom/uaf/matt/testone/DisplayMaths
                                        Activity;.setContentView:(Landroid/view/View;)V // method@001b
001090: 0e00              |003a: return-void
      catches       : (none)
      positions     :
        0x0000 line=47
        0x0003 line=48
        0x0008 line=50
        0x000c line=51
        0x0013 line=53
        0x0018 line=54
        0x001d line=55
        0x0037 line=57
        0x003a line=58
      locals        :
        0x000c - 0x003b reg=0 intent Landroid/content/Intent;
        0x0013 - 0x003b reg=1 number I
        0x0018 - 0x003b reg=2 textView Landroid/widget/TextView;
        0x0000 - 0x003b reg=5 this Lcom/uaf/matt/testone/DisplayMathsActivity;
        0x0000 - 0x003b reg=6 savedInstanceState Landroid/os/Bundle;

    #1                : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
001094:               |[001094] com.uaf.matt.testone.DisplayMathsActivity.
                                        onOptionsItemSelected:(Landroid/view/MenuItem;)Z
0010a4: 7210 0d00 0300    |0000: invoke-interface {v3}, Landroid/view/MenuItem;
                                        .getItemId:()I // method@000d
0010aa: 0a00              |0003: move-result v0
0010ac: 1401 0400 087f    |0004: const v1, #float 180775088556386973321599455987132006400.000000
0010b2: 3310 0400         |0007: if-ne v0, v1, 000b // +0004
0010b6: 1211              |0009: const/4 v1, #int 1 // #1
0010b8: 0f01              |000a: return v1
0010ba: 6f20 0300 3200    |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                        .onOptionsItemSelected:(Landroid/view/MenuItem;)Z // method@0003
0010c0: 0a01              |000e: move-result v1
0010c2: 28fb              |000f: goto 000a // -0005
      catches       : (none)
      positions     :
        0x0000 line=65
        0x0004 line=68
        0x0009 line=69
        0x000a line=72
      locals        :
        0x0004 - 0x0010 reg=0 id I
        0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayMathsActivity;
        0x0000 - 0x0010 reg=3 item Landroid/view/MenuItem;

  source_file_idx   : 13 (DisplayMathsActivity.java)
```

```
Class #2 header:
class_idx          : 18
access_flags       : 1 (0x0001)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : 14
annotations_off    : 0 (0x000000)
class_data_off     : 11676 (0x002d9c)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2

Class #2            -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMessageActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0010c4:             |[0010c4] com.uaf.matt.testone.DisplayMessageActivity.<init>:()V
0010d4:7010 0000 0000 |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V // method@0000
0010da:0e00          |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=10
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayMessageActivity;

    #1              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'helloMessage'
      type          : '()V'
      access        : 0x000a (PRIVATE STATIC)
      code          -
      registers     : 8
      ins           : 0
      outs          : 0
      insns size    : 16 16-bit code units




0010dc:                              |[0010dc] com.uaf.matt.testone.DisplayMessageActivity
                                     .helloMessage:()V
0010ec: 1207                         |0000: const/4 v7, #int 0 // #0
0010ee: 1213                         |0001: const/4 v3, #int 1 // #1
0010f0: 1226                         |0002: const/4 v6, #int 2 // #2
0010f2: 1804 9a99 9999 9999 0940     |0003: const-wide v4, #double 3.200000 // #400999999999999a
0010fc: 1800 9a99 9999 9999 1140     |0008: const-wide v0, #double 4.400000 // #401199999999999a
001106: 1a02 1200                    |000d: const-string v2, "Hello String" // string@0012
00110a: 0e00                         |000f: return-void
      catches       : (none)
      positions     :
        0x0000 line=13
        0x0001 line=14
        0x0002 line=15
```

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```
            0x0003 line=16
            0x0008 line=17
            0x000d line=18
            0x000f line=19
          locals        :
            0x000d - 0x0010 reg=0 fourpointfour D
            0x000f - 0x0010 reg=2 hello Ljava/lang/String;
            0x0002 - 0x0010 reg=3 one I
            0x0008 - 0x0010 reg=4 threepointtwo D
            0x0003 - 0x0010 reg=6 two I
            0x0001 - 0x0010 reg=7 zero I

    Virtual methods   -
      #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
        name          : 'onCreate'
        type          : '(Landroid/os/Bundle;)V'
        access        : 0x0004 (PROTECTED)
        code          -
        registers     : 10
        ins           : 2
        outs          : 2
        insns size    : 75 16-bit code units
00110c:                         |[00110c] com.uaf.matt.testone.DisplayMessageActivity.onCreate:
                                    (Landroid/os/Bundle;)V
00111c: 6f20 0100 9800     |0000: invoke-super {v8, v9}, Landroid/app/Activity;.onCreate:
                                    (Landroid/os/Bundle;)V // method@0001
001122: 1406 0100 037f     |0003: const v6, #float 1741288877302335830020691488439764254 72.000000
001128: 6e20 2100 6800     |0006: invoke-virtual {v8, v6}, Lcom/uaf/matt/testone/DisplayMessage
                                    Activity;.setContentView:(I)V // method@0021
00112e: 6e10 1d00 0800     |0009: invoke-virtual {v8}, Lcom/uaf/matt/testone/DisplayMessage
                                    Activity;.getIntent:()Landroid/content/Intent; // method@001d
001134: 0c02               |000c: move-result-object v2
001136: 1a06 7d00          |000d: const-string v6, "com.uaf.matt.testone.MESSAGE" // string@007d
00113a: 6e20 0600 6200     |000f: invoke-virtual {v2, v6}, Landroid/content/Intent;.getString
                                    Extra:(Ljava/lang/String;)Ljava/lang/String; // method@0006
001140: 0c03               |0012: move-result-object v3
001142: 1a04 5e00          |0013: const-string v4, "Super-Secret-Password" // string@005e
001146: 2205 0f00          |0015: new-instance v5, Landroid/widget/TextView; // type@000f
00114a: 7020 0f00 8500     |0017: invoke-direct {v5, v8}, Landroid/widget/TextView;.<init>:
                                    (Landroid/content/Context;)V // method@000f
001150: 1506 a041          |001a: const/high16 v6, #int 1101004800 // #41a0
001154: 6e20 1100 6500     |001c: invoke-virtual {v5, v6}, Landroid/widget/TextView;.setTextSize:
                                    (F)V // method@0011
00115a: 7110 3900 0300     |001f: invoke-static {v3}, Lcom/uaf/matt/testone/SimpleCrypto;.md5:
                                    (Ljava/lang/String;)Ljava/lang/String; // method@0039
001160: 0c01               |0022: move-result-object v1
001162: 7120 3600 1400     |0023: invoke-static {v4, v1}, Lcom/uaf/matt/testone/SimpleCrypto;
                                    .encrypt:(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/
                                    String; // method@0036
001168: 0c00               |0026: move-result-object v0
00116a: 2206 3100          |0027: new-instance v6, Ljava/lang/StringBuilder; // type@0031
00116e: 7010 5800 0600     |0029: invoke-direct {v6}, Ljava/lang/StringBuilder;
                                    .<init>:()V // method@0058
001174: 1a07 5900          |002c: const-string v7, "Message before encryption: " // string@0059
001178: 6e20 5a00 7600     |002e: invoke-virtual {v6, v7}, Ljava/lang/StringBuilder;.append:
                                    (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@005a
00117e: 0c06               |0031: move-result-object v6
001180: 6e20 5a00 3600     |0032: invoke-virtual {v6, v3}, Ljava/lang/StringBuilder;.append:
                                    (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@005a
001186: 0c06               |0035: move-result-object v6
001188: 1a07 0100          |0036: const-string v7, "Message after encryption: " // string@0001
00118c: 6e20 5a00 7600     |0038: invoke-virtual {v6, v7}, Ljava/lang/StringBuilder;.append:
                                    (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@005a
001192: 0c06               |003b: move-result-object v6
001194: 6e20 5a00 0600     |003c: invoke-virtual {v6, v0}, Ljava/lang/StringBuilder;.append:
                                    (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@005a
00119a: 0c06               |003f: move-result-object v6
00119c: 6e10 5b00 0600     |0040: invoke-virtual {v6}, Ljava/lang/StringBuilder;.toString:()Ljava/
```

```
                                        lang/String; // method@005b
0011a2: 0c06               |0043: move-result-object v6
0011a4: 6e20 1000 6500     |0044: invoke-virtual {v5, v6}, Landroid/widget/TextView;.setText:
                                        (Ljava/lang/CharSequence;)V // method@0010
0011aa: 6e20 2200 5800     |0047: invoke-virtual {v8, v5}, Lcom/uaf/matt/testone/DisplayMessage
                                        Activity;.setContentView:(Landroid/view/View;)V // method@0022
0011b0: 0e00               |004a: return-void
      catches       : (none)
      positions     :
        0x0000 line=23
        0x0003 line=24
        0x0009 line=26
        0x000d line=27
        0x0013 line=28
        0x0015 line=30
        0x001a line=31
        0x001f line=32
        0x0023 line=33
        0x0027 line=34
        0x0047 line=35
        0x004a line=36
      locals        :
        0x0027 - 0x004b reg=0 crypto Ljava/lang/String;
        0x0023 - 0x004b reg=1 hash Ljava/lang/String;
        0x000d - 0x004b reg=2 intent Landroid/content/Intent;
        0x0013 - 0x004b reg=3 message Ljava/lang/String;
        0x0015 - 0x004b reg=4 password Ljava/lang/String;
        0x001a - 0x004b reg=5 textView Landroid/widget/TextView;
        0x0000 - 0x004b reg=8 this Lcom/uaf/matt/testone/DisplayMessageActivity;
        0x0000 - 0x004b reg=9 savedInstanceState Landroid/os/Bundle;

    #1                : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
0011b4:                    |[0011b4] com.uaf.matt.testone.DisplayMessageActivity.onOptionsItem
                                        Selected:(Landroid/view/MenuItem;)Z
0011c4: 7210 0d00 0300     |0000: invoke-interface {v3}, Landroid/view/MenuItem;
                                        .getItemId:()I // method@000d
0011ca: 0a00               |0003: move-result v0
0011cc: 1401 0400 087f     |0004: const v1, #float 18077508855638697332159945598713200640.000000
0011d2: 3310 0400          |0007: if-ne v0, v1, 000b // +0004
0011d6: 1211               |0009: const/4 v1, #int 1 // #1
0011d8: 0f01               |000a: return v1
0011da: 6f20 0300 3200     |000b: invoke-super {v2, v3}, Landroid/app/Activity;.onOptionsItem
                                        Selected:(Landroid/view/MenuItem;)Z // method@0003
0011e0: 0a01               |000e: move-result v1
0011e2: 28fb               |000f: goto 000a // -0005
      catches       : (none)
      positions     :
        0x0000 line=43
        0x0004 line=46
        0x0009 line=47
        0x000a line=50
      locals        :
        0x0004 - 0x0010 reg=0 id I
        0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayMessageActivity;
        0x0000 - 0x0010 reg=3 item Landroid/view/MenuItem;

  source_file_idx   : 14 (DisplayMessageActivity.java)

Class #3 header:
class_idx           : 19
```

```
access_flags       : 1 (0x0001)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : 15
annotations_off    : 0 (0x000000)
class_data_off     : 11698 (0x002db2)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2


Class #3             -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayWebPageActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0011e4:                    |[0011e4] com.uaf.matt.testone.DisplayWebPageActivity.<init>:()V
0011f4: 7010 0000 0000 |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V //method@0000
0011fa: 0e00           |0003: return-void
      catches         : (none)
      positions       :
        0x0000 line=34
      locals          :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayWebPageActivity;

    #1              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : 'helloWebPage'
      type          : '()V'
      access        : 0x000a (PRIVATE STATIC)
      code          -
      registers     : 8
      ins           : 0
      outs          : 0
      insns size    : 16 16-bit code units
0011fc:                                |[0011fc] com.uaf.matt.testone.DisplayWebPageActivity.
                                                  helloWebPage:()V
00120c: 1207                           |0000: const/4 v7, #int 0 // #0
00120e: 1213                           |0001: const/4 v3, #int 1 // #1
001210: 1226                           |0002: const/4 v6, #int 2 // #2
001212: 1804 9a99 9999 9999 0940      |0003: const-wide v4, #double 3.200000 // #400999999999999a
00121c: 1800 9a99 9999 9999 1140      |0008: const-wide v0, #double 4.400000 // #401199999999999a
001226: 1a02 1200                      |000d: const-string v2, "Hello String" // string@0012
00122a: 0e00                           |000f: return-void
      catches         : (none)
      positions       :
        0x0000 line=37
        0x0001 line=38
        0x0002 line=39
        0x0003 line=40
        0x0008 line=41
        0x000d line=42
        0x000f line=43
      locals          :
        0x000d - 0x0010 reg=0 fourpointfour D
        0x000f - 0x0010 reg=2 hello Ljava/lang/String;
        0x0002 - 0x0010 reg=3 one I
```

```
        0x0008 - 0x0010 reg=4 threepointtwo D
        0x0003 - 0x0010 reg=6 two I
        0x0001 - 0x0010 reg=7 zero I

  Virtual methods    -
    #0               : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name           : 'onCreate'
      type           : '(Landroid/os/Bundle;)V'
      access         : 0x0004 (PROTECTED)
      code           -
      registers      : 11
      ins            : 2
      outs           : 2
      insns size     : 74 16-bit code units
00122c:                        |[00122c] com.uaf.matt.testone.DisplayWebPageActivity
                                   .onCreate:(Landroid/os/Bundle;)V
00123c: 6f20 0100 a900         |0000: invoke-super {v9, v10}, Landroid/app/Activity;
                                   .onCreate:(Landroid/os/Bundle;)V // method@0001
001242: 1404 0200 037f         |0003: const v4, #float 1741289080126431866537395572791227711488.0000
                                   // #7f030002
001248: 6e20 2800 4900         |0006: invoke-virtual {v9, v4}, Lcom/uaf/matt/testone/
                                   DisplayWebPageActivity;.setContentView:(I)V // method@0028
00124e: 6e10 2400 0900         |0009: invoke-virtual {v9}, Lcom/uaf/matt/testone/
                                   DisplayWebPageActivity;.getIntent:()Landroid/content/Intent;
                                   // method@0024
001254: 0c01                   |000c: move-result-object v1
001256: 2203 0f00              |000d: new-instance v3, Landroid/widget/TextView; // type@000f
00125a: 7020 0f00 9300         |000f: invoke-direct {v3, v9}, Landroid/widget/TextView;.<init>:
                                   (Landroid/content/Context;)V // method@000f
001260: 1504 2041              |0012: const/high16 v4, #int 1092616192 // #4120
001264: 6e20 1100 4300         |0014: invoke-virtual {v3, v4}, Landroid/widget/TextView;
                                   .setTextSize:(F)V // method@0011
00126a: 1a04 7d00              |0017: const-string v4, "com.uaf.matt.testone.MESSAGE" // string@007d
00126e: 6e20 0600 4100         |0019: invoke-virtual {v1, v4}, Landroid/content/Intent;
                                   .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                   // method@0006
001274: 0c02                   |001c: move-result-object v2
001276: 1a00 0200              |001d: const-string v0, "0" // string@0002
00127a: 2204 1f00              |001f: new-instance v4, Lcom/uaf/matt/testone/getURLData; // type@001f
00127e: 7010 4500 0400         |0021: invoke-direct {v4}, Lcom/uaf/matt/testone/getURLData;
                                   .<init>:()V // method@0045
001284: 1225                   |0024: const/4 v5, #int 2 // #2



001286: 2355 4200              |0025: new-array v5, v5, [Ljava/lang/String; // type@0042
00128a: 1206                   |0027: const/4 v6, #int 0 // #0
00128c: 2207 3100              |0028: new-instance v7, Ljava/lang/StringBuilder; // type@0031
001290: 7010 5800 0700         |002a: invoke-direct {v7}, Ljava/lang/StringBuilder;
                                   .<init>:()V // method@0058
001296: 1a08 ae00              |002d: const-string v8, "" // string@00ae
00129a: 6e20 5a00 8700         |002f: invoke-virtual {v7, v8}, Ljava/lang/StringBuilder;
                                   .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                   // method@005a
0012a0: 0c07                   |0032: move-result-object v7
0012a2: 6e20 5a00 2700         |0033: invoke-virtual {v7, v2}, Ljava/lang/StringBuilder;
                                   .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                   // method@005a
0012a8: 0c07                   |0036: move-result-object v7
0012aa: 6e10 5b00 0700         |0037: invoke-virtual {v7}, Ljava/lang/StringBuilder;.toString:
                                   ()Ljava/lang/String; // method@005b
0012b0: 0c07                   |003a: move-result-object v7
0012b2: 4d07 0506              |003b: aput-object v7, v5, v6
0012b6: 1216                   |003d: const/4 v6, #int 1 // #1
0012b8: 4d00 0506              |003e: aput-object v0, v5, v6
0012bc: 6e20 4800 5400         |0040: invoke-virtual {v4, v5}, Lcom/uaf/matt/testone/getURLData;
                                   .execute:([Ljava/lang/Object;)Landroid/os/AsyncTask;
                                   // method@0048
```

```
0012c2: 6e20 1000 0300    |0043: invoke-virtual {v3, v0}, Landroid/widget/TextView;.setText:
                                         (Ljava/lang/CharSequence;)V // method@0010
0012c8: 6e20 2900 3900    |0046: invoke-virtual {v9, v3}, Lcom/uaf/matt/testone/
                                         DisplayWebPageActivity;.setContentView:(Landroid/view/View;)V
                                         // method@0029
0012ce: 0e00             |0049: return-void
      catches       : (none)
      positions     :
        0x0000 line=47
        0x0003 line=48
        0x0009 line=49
        0x000d line=50
        0x0012 line=51
        0x0017 line=52
        0x001d line=53
        0x001f line=54
        0x0043 line=55
        0x0046 line=56
        0x0049 line=57
      locals        :
        0x001f - 0x004a reg=0 data Ljava/lang/String;
        0x000d - 0x004a reg=1 intent Landroid/content/Intent;
        0x001d - 0x004a reg=2 item Ljava/lang/String;
        0x0012 - 0x004a reg=3 textView Landroid/widget/TextView;
        0x0000 - 0x004a reg=9 this Lcom/uaf/matt/testone/DisplayWebPageActivity;
        0x0000 - 0x004a reg=10 savedInstanceState Landroid/os/Bundle;

    #1             : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name         : 'onOptionsItemSelected'
      type         : '(Landroid/view/MenuItem;)Z'
      access       : 0x0001 (PUBLIC)
      code         -
      registers    : 4
      ins          : 2
      outs         : 2
      insns size   : 16 16-bit code units
0012d0:                  |[0012d0] com.uaf.matt.testone.DisplayWebPageActivity.
                                      onOptionsItemSelected:(Landroid/view/MenuItem;)Z
0012e0: 7210 0d00 0300    |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:()I
                                      // method@000d
0012e6: 0a00             |0003: move-result v0
0012e8: 1401 0400 087f    |0004: const v1, #float 180775088556386973321599455987132006400.00000
                                      // #7f080004
0012ee: 3310 0400        |0007: if-ne v0, v1, 000b // +0004
0012f2: 1211             |0009: const/4 v1, #int 1 // #1
0012f4: 0f01             |000a: return v1
0012f6: 6f20 0300 3200    |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                      .onOptionsItemSelected:(Landroid/view/MenuItem;)Z // method@0003
0012fc: 0a01             |000e: move-result v1
0012fe: 28fb             |000f: goto 000a // -0005
      catches       : (none)
      positions     :
        0x0000 line=64
        0x0004 line=67
        0x0009 line=68
        0x000a line=71
      locals        :
        0x0004 - 0x0010 reg=0 id I
        0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayWebPageActivity;
        0x0000 - 0x0010 reg=3 item Landroid/view/MenuItem;

  source_file_idx   : 15 (DisplayWebPageActivity.java)

Class #4 header:
class_idx         : 20
access_flags      : 17 (0x0011)
superclass_idx    : 46
interfaces_off    : 0 (0x000000)
```

```
      source_file_idx    : 91
      annotations_off    : 6320 (0x0018b0)
      class_data_off     : 11720 (0x002dc8)
      static_fields_size : 0
      instance_fields_size: 0
      direct_methods_size : 1
      virtual_methods_size: 0

Class #4             -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$attr;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$attr;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001300:                        |[001300] com.uaf.matt.testone.R.attr.<init>:()V
001310: 7010 5000 0000         |0000: invoke-direct {v0}, Ljava/lang/Object;
                                          .<init>:()V // method@0050
001316: 0e00                   |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=11
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$attr;

  Virtual methods   -
  source_file_idx   : 91 (R.java)

Class #5 header:
class_idx            : 21
access_flags         : 17 (0x0011)
superclass_idx       : 46
interfaces_off       : 0 (0x000000)
source_file_idx      : 91
annotations_off      : 6336 (0x0018c0)
class_data_off       : 11730 (0x002dd2)
static_fields_size   : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #5             -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$dimen;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$dimen;)
      name          : 'activity_horizontal_margin'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$dimen;)
      name          : 'activity_vertical_margin'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$dimen;)
```

```
       name            : '<init>'
       type            : '()V'
       access          : 0x10001 (PUBLIC CONSTRUCTOR)
       code            -
       registers       : 1
       ins             : 1
       outs            : 1
       insns size      : 4 16-bit code units
001318:                       |[001318] com.uaf.matt.testone.R.dimen.<init>:()V
001328: 7010 5000 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
00132e: 0e00              |0003: return-void
       catches         : (none)
       positions       :
         0x0000 line=13
       locals          :
         0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$dimen;

  Virtual methods   -
  source_file_idx   : 91 (R.java)

Class #6 header:
class_idx           : 22
access_flags        : 17 (0x0011)
superclass_idx      : 46
interfaces_off      : 0 (0x000000)
source_file_idx     : 91
annotations_off     : 6352 (0x0018d0)
class_data_off      : 11744 (0x002de0)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #6             -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$drawable;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$drawable;)
      name          : 'ic_action_search'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$drawable;)
      name          : 'ic_launcher'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$drawable;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001330:                       |[001330] com.uaf.matt.testone.R.drawable.<init>:()V
001340: 7010 5000 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
001346: 0e00              |0003: return-void
       catches         : (none)
       positions       :
         0x0000 line=19
       locals          :
         0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$drawable;

  Virtual methods   -
```

```
       source_file_idx   : 91 (R.java)

Class #7 header:
class_idx          : 23
access_flags       : 17 (0x0011)
superclass_idx     : 46
interfaces_off     : 0 (0x000000)
source_file_idx    : 91
annotations_off    : 6368 (0x0018e0)
class_data_off     : 11758 (0x002dee)
static_fields_size : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #7            -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$id;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'action_search'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'action_settings'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #2              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'do_some_maths'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #3              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'encrypt_string'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #4              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'pull_web_page'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$id;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001348:                     |[001348] com.uaf.matt.testone.R.id.<init>:()V
001358: 7010 5000 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
00135e: 0e00                |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=23
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$id;

  Virtual methods   -
  source_file_idx   : 91 (R.java)

Class #8 header:
class_idx          : 24
access_flags       : 17 (0x0011)
superclass_idx     : 46
```

```
interfaces_off      : 0 (0x000000)
source_file_idx     : 91
annotations_off     : 6384 (0x0018f0)
class_data_off      : 11778 (0x002e02)
static_fields_size  : 4
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #8            -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$layout;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces         -
  Static fields      -
    #0              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_display_maths'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_display_message'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #2              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_display_web_page'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #3              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_test_one'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields    -
  Direct methods     -
    #0              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001360:                     |[001360] com.uaf.matt.testone.R.layout.<init>:()V
001370: 7010 5000 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
001376: 0e00                |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=30
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$layout;

  Virtual methods    -
  source_file_idx   : 91 (R.java)

Class #9 header:
class_idx           : 25
access_flags        : 17 (0x0011)
superclass_idx      : 46
interfaces_off      : 0 (0x000000)
source_file_idx     : 91
annotations_off     : 6400 (0x001900)
class_data_off      : 11796 (0x002e14)
static_fields_size  : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #9            -
```

```
   Class descriptor   : 'Lcom/uaf/matt/testone/R$menu;'
   Access flags       : 0x0011 (PUBLIC FINAL)
   Superclass         : 'Ljava/lang/Object;'
   Interfaces         -
   Static fields      -
     #0               : (in Lcom/uaf/matt/testone/R$menu;)
       name           : 'main_activity_actions'
       type           : 'I'
       access         : 0x0019 (PUBLIC STATIC FINAL)
     #1               : (in Lcom/uaf/matt/testone/R$menu;)
       name           : 'menu_display_maths'
       type           : 'I'
       access         : 0x0019 (PUBLIC STATIC FINAL)
     #2               : (in Lcom/uaf/matt/testone/R$menu;)
       name           : 'menu_display_message'
       type           : 'I'
       access         : 0x0019 (PUBLIC STATIC FINAL)
     #3               : (in Lcom/uaf/matt/testone/R$menu;)
       name           : 'menu_display_web_page'
       type           : 'I'
       access         : 0x0019 (PUBLIC STATIC FINAL)
     #4               : (in Lcom/uaf/matt/testone/R$menu;)
       name           : 'menu_test_one'
       type           : 'I'
       access         : 0x0019 (PUBLIC STATIC FINAL)
   Instance fields    -
   Direct methods     -
     #0               : (in Lcom/uaf/matt/testone/R$menu;)
       name           : '<init>'
       type           : '()V'
       access         : 0x10001 (PUBLIC CONSTRUCTOR)
       code           -
       registers      : 1
       ins            : 1
       outs           : 1
       insns size     : 4 16-bit code units
001378:                    |[001378] com.uaf.matt.testone.R.menu.<init>:()V
001388: 7010 5000 0000     |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
00138e: 0e00               |0003: return-void
       catches        : (none)
       positions      :
         0x0000 line=36
       locals         :
         0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$menu;

   Virtual methods    -
   source_file_idx    : 91 (R.java)

Class #10 header:
class_idx           : 26
access_flags        : 17 (0x0011)
superclass_idx      : 46
interfaces_off      : 0 (0x000000)
source_file_idx     : 91
annotations_off     : 6416 (0x001910)
class_data_off      : 11816 (0x002e28)
static_fields_size  : 11
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #10           -
  Class descriptor   : 'Lcom/uaf/matt/testone/R$string;'
  Access flags       : 0x0011 (PUBLIC FINAL)
  Superclass         : 'Ljava/lang/Object;'
  Interfaces         -
  Static fields      -
    #0               : (in Lcom/uaf/matt/testone/R$string;)
```

```
       name          : 'action_search'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #1              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'action_settings'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #2              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'app_name'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #3              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'button_send'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #4              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'do_some_maths'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #5              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'encrypt_string'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #6              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'pull_web_page'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #7              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'title_activity_display_maths'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #8              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'title_activity_display_message'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #9              : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'title_activity_display_web_page'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
     #10             : (in Lcom/uaf/matt/testone/R$string;)
       name          : 'title_activity_main'
       type          : 'I'
       access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields    -
  Direct methods     -
     #0              : (in Lcom/uaf/matt/testone/R$string;)
       name          : '<init>'
       type          : '()V'
       access        : 0x10001 (PUBLIC CONSTRUCTOR)
       code          -
       registers     : 1
       ins           : 1
       outs          : 1
       insns size    : 4 16-bit code units
001390:                        |[001390] com.uaf.matt.testone.R.string.<init>:()V
0013a0: 7010 5000 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
0013a6: 0e00              |0003: return-void
       catches       : (none)
       positions     :
         0x0000 line=43
       locals        :
         0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$string;

  Virtual methods    -
  source_file_idx    : 91 (R.java)

Class #11 header:
class_idx             : 27
```

```
access_flags      : 17 (0x0011)
superclass_idx    : 46
interfaces_off    : 0 (0x000000)
source_file_idx   : 91
annotations_off   : 6432 (0x001920)
class_data_off    : 11848 (0x002e48)
static_fields_size : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #11            -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$style;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$style;)
      name          : 'AppBaseTheme'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$style;)
      name          : 'AppTheme'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$style;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0013a8:                    |[0013a8] com.uaf.matt.testone.R.style.<init>:()V
0013b8: 7010 5000 0000     |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
0013be: 0e00               |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=56
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R$style;

  Virtual methods   -
  source_file_idx   : 91 (R.java)

Class #12 header:
class_idx         : 28
access_flags      : 17 (0x0011)
superclass_idx    : 46
interfaces_off    : 0 (0x000000)
source_file_idx   : 91
annotations_off   : 6448 (0x001930)
class_data_off    : 11862 (0x002e56)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #12            -
  Class descriptor  : 'Lcom/uaf/matt/testone/R;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
```

```
  Direct methods     -
    #0              : (in Lcom/uaf/matt/testone/R;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0013c0:                     |[0013c0] com.uaf.matt.testone.R.<init>:()V
0013d0: 7010 5000 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
0013d6: 0e00                |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=10
        0x0003 line=56
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/R;

  Virtual methods    -
  source_file_idx   : 91 (R.java)

Class #13 header:
class_idx            : 29
access_flags         : 1 (0x0001)
superclass_idx       : 46
interfaces_off       : 0 (0x000000)
source_file_idx      : 93
annotations_off      : 6464 (0x001940)
class_data_off       : 11872 (0x002e60)
static_fields_size   : 0
instance_fields_size : 0
direct_methods_size  : 7
virtual_methods_size : 0

Class #13            -
  Class descriptor  : 'Lcom/uaf/matt/testone/SimpleCrypto;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces         -
  Static fields      -
  Instance fields    -
  Direct methods     -
    #0              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0013d8:                     |[0013d8] com.uaf.matt.testone.SimpleCrypto.<init>:()V
0013e8: 7010 5000 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0050
0013ee: 0e00                |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=11
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/SimpleCrypto;

    #1              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : 'decrypt'
      type          : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x0009 (PUBLIC STATIC)
      code          -
      registers     : 7
```

```
      ins           : 2
      outs          : 2
      insns size    : 30 16-bit code units
0013f0:                               |[0013f0] com.uaf.matt.testone.SimpleCrypto.decrypt:
                                            (Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;
001400: 6e10 5300 0500                |0000: invoke-virtual {v5}, Ljava/lang/String;.getBytes:()[B
                                            // method@0053
001406: 0c04                          |0003: move-result-object v4
001408: 7110 3800 0400                |0004: invoke-static {v4}, Lcom/uaf/matt/testone/SimpleCrypto;
                                            .getRawKey:([B)[B // method@0038
00140e: 0c02                          |0007: move-result-object v2
001410: 1204                          |0008: const/4 v4, #int 0 // #0
001412: 7120 0a00 4600                |0009: invoke-static {v6, v4}, Landroid/util/Base64;.decode:
                                            (Ljava/lang/String;I)[B // method@000a
001418: 0c01                          |000c: move-result-object v1
00141a: 7120 3500 1200                |000d: invoke-static {v2, v1}, Lcom/uaf/matt/testone/
                                            SimpleCrypto;.decrypt:([B[B)[B // method@0035
001420: 0c03                          |0010: move-result-object v3
001422: 2204 2f00                     |0011: new-instance v4, Ljava/lang/String; // type@002f
001426: 7020 5200 3400                |0013: invoke-direct {v4, v3}, Ljava/lang/String;.<init>:([B)V
                                            // method@0052
00142c: 1104                          |0016: return-object v4
00142e: 0d00                          |0017: move-exception v0
001430: 6e10 4d00 0000                |0018: invoke-virtual {v0}, Ljava/lang/Exception;
                                            .printStackTrace:()V // method@004d
001436: 1a04 9300                     |001b: const-string v4, "error" // string@0093
00143a: 28f9                          |001d: goto 0016 // -0007
      catches       : 1
        0x0000 - 0x0016
          Ljava/lang/Exception; -> 0x0017
      positions     :
        0x0000 line=32
        0x0008 line=33
        0x000d line=34
        0x0011 line=35
        0x0016 line=41
        0x0017 line=37
        0x0018 line=39
        0x001b line=41
      locals        :
        0x000d - 0x0016 reg=1 enc [B
        0x0008 - 0x0016 reg=2 rawKey [B
        0x0011 - 0x0016 reg=3 result [B
        0x0018 - 0x001e reg=0 e Ljava/lang/Exception;
        0x0000 - 0x001e reg=5 seed Ljava/lang/String;
        0x0000 - 0x001e reg=6 encrypted Ljava/lang/String;

    #2                : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : 'decrypt'
      type          : '([B[B)[B'
      access        : 0x000a (PRIVATE STATIC)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 22 16-bit code units
001448:                               |[001448] com.uaf.matt.testone.SimpleCrypto.decrypt:([B[B)[B
001458: 2202 3d00                     |0000: new-instance v2, Ljavax/crypto/spec/SecretKeySpec; // type@003d
00145c: 1a03 0700                     |0002: const-string v3, "AES" // string@0007
001460: 7030 7100 4203                |0004: invoke-direct {v2, v4, v3}, Ljavax/crypto/spec/SecretKeySpec;
                                            .<init>:([BLjava/lang/String;)V // method@0071
001466: 1a03 0700                     |0007: const-string v3, "AES" // string@0007
00146a: 7110 6b00 0300                |0009: invoke-static {v3}, Ljavax/crypto/Cipher;.getInstance:(Ljava/
                                            lang/String;)Ljavax/crypto/Cipher; // method@006b
001470: 0c00                          |000c: move-result-object v0
001472: 1223                          |000d: const/4 v3, #int 2 // #2
001474: 6e30 6c00 3002                |000e: invoke-virtual {v0, v3, v2}, Ljavax/crypto/Cipher;.init:
                                            (ILjava/security/Key;)V // method@006c
```

```
00147a: 6e20 6a00 5000     |0011: invoke-virtual {v0, v5}, Ljavax/crypto/Cipher;.doFinal:
                                     ([B)[B // method@006a
001480: 0c01               |0014: move-result-object v1
001482: 1101               |0015: return-object v1
        catches        : (none)
        positions      :
          0x0000 line=66
          0x0007 line=67
          0x000d line=68
          0x0011 line=69
          0x0015 line=70
        locals         :
          0x000d - 0x0016 reg=0 cipher Ljavax/crypto/Cipher;
          0x0015 - 0x0016 reg=1 decrypted [B
          0x0007 - 0x0016 reg=2 skeySpec Ljavax/crypto/spec/SecretKeySpec;
          0x0000 - 0x0016 reg=4 raw [B
          0x0000 - 0x0016 reg=5 encrypted [B

    #3                 : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name             : 'encrypt'
      type             : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access           : 0x0009 (PUBLIC STATIC)
      code             -
      registers        : 6
      ins              : 2
      outs             : 2
      insns size       : 29 16-bit code units
001484:                    |[001484] com.uaf.matt.testone.SimpleCrypto.encrypt:(Ljava/lang/
                                     String;Ljava/lang/String;)Ljava/lang/String;
001494: 6e10 5300 0400     |0000: invoke-virtual {v4}, Ljava/lang/String;.getBytes:()[B
                                     // method@0053
00149a: 0c03               |0003: move-result-object v3
00149c: 7110 3800 0300     |0004: invoke-static {v3}, Lcom/uaf/matt/testone/SimpleCrypto;
                                     .getRawKey:([B)[B // method@0038
0014a2: 0c01               |0007: move-result-object v1
0014a4: 6e10 5300 0500     |0008: invoke-virtual {v5}, Ljava/lang/String;.getBytes:()[B
                                     // method@0053
0014aa: 0c03               |000b: move-result-object v3
0014ac: 7120 3700 3100     |000c: invoke-static {v1, v3}, Lcom/uaf/matt/testone/SimpleCrypto;
                                     .encrypt:([B[B)[B // method@0037



0014b2: 0c02               |000f: move-result-object v2
0014b4: 1203               |0010: const/4 v3, #int 0 // #0
0014b6: 7120 0b00 3200     |0011: invoke-static {v2, v3}, Landroid/util/Base64;.encodeToString:
                                     ([BI)Ljava/lang/String; // method@000b
0014bc: 0c03               |0014: move-result-object v3
0014be: 1103               |0015: return-object v3
0014c0: 0d00               |0016: move-exception v0
0014c2: 6e10 4d00 0000     |0017: invoke-virtual {v0}, Ljava/lang/Exception;
                                     .printStackTrace:()V // method@004d
0014c8: 1a03 9300          |001a: const-string v3, "error" // string@0093
0014cc: 28f9               |001c: goto 0015 // -0007
        catches        : 1
          0x0000 - 0x0014
            Ljava/lang/Exception; -> 0x0016
        positions      :
          0x0000 line=17
          0x0008 line=18
          0x0010 line=19
          0x0015 line=25
          0x0016 line=21
          0x0017 line=23
          0x001a line=25
        locals         :
          0x0008 - 0x0015 reg=1 rawKey [B
          0x0010 - 0x0015 reg=2 result [B
```

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```
         0x0017 - 0x001d reg=0 e Ljava/lang/Exception;
         0x0000 - 0x001d reg=4 seed Ljava/lang/String;
         0x0000 - 0x001d reg=5 cleartext Ljava/lang/String;

    #4              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : 'encrypt'
      type          : '([B[B)[B'
      access        : 0x000a (PRIVATE STATIC)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 22 16-bit code units
0014dc:                         |[0014dc] com.uaf.matt.testone.SimpleCrypto.encrypt:([B[B)[B
0014ec: 2202 3d00               |0000: new-instance v2, Ljavax/crypto/spec/SecretKeySpec; // type@003d
0014f0: 1a03 0700               |0002: const-string v3, "AES" // string@0007
0014f4: 7030 7100 4203          |0004: invoke-direct {v2, v4, v3}, Ljavax/crypto/spec/SecretKeySpec;
                                         .<init>:([BLjava/lang/String;)V // method@0071
0014fa: 1a03 0700               |0007: const-string v3, "AES" // string@0007
0014fe: 7110 6b00 0300          |0009: invoke-static {v3}, Ljavax/crypto/Cipher;.getInstance:
                                         (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@006b
001504: 0c00                    |000c: move-result-object v0
001506: 1213                    |000d: const/4 v3, #int 1 // #1
001508: 6e30 6c00 3002          |000e: invoke-virtual {v0, v3, v2}, Ljavax/crypto/Cipher;.init:
                                         (ILjava/security/Key;)V // method@006c
00150e: 6e20 6a00 5000          |0011: invoke-virtual {v0, v5}, Ljavax/crypto/Cipher;.doFinal:
                                         ([B)[B // method@006a
001514: 0c01                    |0014: move-result-object v1
001516: 1101                    |0015: return-object v1
      catches       : (none)
      positions     :
        0x0000 line=57
        0x0007 line=58
        0x000d line=59
        0x0011 line=60
        0x0015 line=61
      locals        :
        0x000d - 0x0016 reg=0 cipher Ljavax/crypto/Cipher;
        0x0015 - 0x0016 reg=1 encrypted [B
        0x0007 - 0x0016 reg=2 skeySpec Ljavax/crypto/spec/SecretKeySpec;
        0x0000 - 0x0016 reg=4 raw [B
        0x0000 - 0x0016 reg=5 clear [B

    #5              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : 'getRawKey'
      type          : '([B)[B'
      access        : 0x000a (PRIVATE STATIC)
      code          -
      registers     : 6
      ins           : 1
      outs          : 3
      insns size    : 29 16-bit code units
001518:                         |[001518] com.uaf.matt.testone.SimpleCrypto.getRawKey:([B)[B
001528: 1a04 0700               |0000: const-string v4, "AES" // string@0007
00152c: 7110 6e00 0400          |0002: invoke-static {v4}, Ljavax/crypto/KeyGenerator;.getInstance:
                                         (Ljava/lang/String;)Ljavax/crypto/KeyGenerator; // method@006e
001532: 0c00                    |0005: move-result-object v0
001534: 1a04 5c00               |0006: const-string v4, "SHA1PRNG" // string@005c
001538: 7110 6300 0400          |0008: invoke-static {v4}, Ljava/security/SecureRandom;.getInstance:
                                         (Ljava/lang/String;)Ljava/security/SecureRandom; // method@0063
00153e: 0c03                    |000b: move-result-object v3
001540: 6e20 6400 5300          |000c: invoke-virtual {v3, v5}, Ljava/security/SecureRandom;.setSeed:
                                         ([B)V // method@0064
001546: 1304 8000               |000f: const/16 v4, #int 128 // #80
00154a: 6e30 6f00 4003          |0011: invoke-virtual {v0, v4, v3}, Ljavax/crypto/KeyGenerator;.init:
                                         (ILjava/security/SecureRandom;)V // method@006f
001550: 6e10 6d00 0000          |0014: invoke-virtual {v0}, Ljavax/crypto/KeyGenerator;.generateKey:
                                         ()Ljavax/crypto/SecretKey; // method@006d
```

```
001556: 0c02                 |0017: move-result-object v2
001558: 7210 7000 0200       |0018: invoke-interface {v2}, Ljavax/crypto/SecretKey;.getEncoded:
                                    ()[B // method@0070
00155e: 0c01                 |001b: move-result-object v1
001560: 1101                 |001c: return-object v1
      catches       : (none)
      positions     :
        0x0000 line=46
        0x0006 line=47
        0x000c line=48
        0x000f line=49
        0x0014 line=50
        0x0018 line=51
        0x001c line=52
      locals        :
        0x0006 - 0x001d reg=0 kgen Ljavax/crypto/KeyGenerator;
        0x001c - 0x001d reg=1 raw [B
        0x0018 - 0x001d reg=2 skey Ljavax/crypto/SecretKey;
        0x000c - 0x001d reg=3 sr Ljava/security/SecureRandom;
        0x0000 - 0x001d reg=5 seed [B

    #6              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : 'md5'
      type          : '(Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x0019 (PUBLIC STATIC FINAL)
      code          -
      registers     : 9
      ins           : 1
      outs          : 2
      insns size    : 79 16-bit code units
001564:                          |[001564] com.uaf.matt.testone.SimpleCrypto.md5:
                                        (Ljava/lang/String;)Ljava/lang/String;
001574: 1a06 5800            |0000: const-string v6, "MD5" // string@0058
001578: 7110 6100 0600       |0002: invoke-static {v6}, Ljava/security/MessageDigest;
                                    .getInstance:(Ljava/lang/String;)Ljava/security/
                                    MessageDigest; // method@0061
00157e: 0c00                 |0005: move-result-object v0
001580: 6e10 5300 0800       |0006: invoke-virtual {v8}, Ljava/lang/String;.getBytes:()[B
                                    // method@0053
001586: 0c06                 |0009: move-result-object v6
001588: 6e20 6200 6000       |000a: invoke-virtual {v0, v6}, Ljava/security/MessageDigest;
                                    .update:([B)V // method@0062
00158e: 6e10 6000 0000       |000d: invoke-virtual {v0}, Ljava/security/MessageDigest;.digest:
                                    ()[B // method@0060
001594: 0c05                 |0010: move-result-object v5
001596: 2203 3000            |0011: new-instance v3, Ljava/lang/StringBuffer; // type@0030
00159a: 7010 5500 0300       |0013: invoke-direct {v3}, Ljava/lang/StringBuffer;.<init>:()V
                                    // method@0055
0015a0: 1204                 |0016: const/4 v4, #int 0 // #0
0015a2: 2156                 |0017: array-length v6, v5
0015a4: 3564 2b00            |0018: if-ge v4, v6, 0043 // +002b
0015a8: 4806 0504            |001a: aget-byte v6, v5, v4
0015ac: d566 ff00            |001c: and-int/lit16 v6, v6, #int 255 // #00ff
0015b0: 7110 4f00 0600       |001e: invoke-static {v6}, Ljava/lang/Integer;.toHexString:
                                    (I)Ljava/lang/String; // method@004f
0015b6: 0c02                 |0021: move-result-object v2
0015b8: 6e10 5400 0200       |0022: invoke-virtual {v2}, Ljava/lang/String;.length:()I
                                    // method@0054
0015be: 0a06                 |0025: move-result v6
0015c0: 1227                 |0026: const/4 v7, #int 2 // #2
0015c2: 3576 1600            |0027: if-ge v6, v7, 003d // +0016
0015c6: 2206 3100            |0029: new-instance v6, Ljava/lang/StringBuilder; // type@0031
0015ca: 7010 5800 0600       |002b: invoke-direct {v6}, Ljava/lang/StringBuilder;
                                    .<init>:()V // method@0058
0015d0: 1a07 0200            |002e: const-string v7, "0" // string@0002
0015d4: 6e20 5a00 7600       |0030: invoke-virtual {v6, v7}, Ljava/lang/StringBuilder;.append:
                                    (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@005a
0015da: 0c06                 |0033: move-result-object v6
```

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0015dc: 6e20 5a00 2600          |0034: invoke-virtual {v6, v2}, Ljava/lang/StringBuilder;.append:
                                         (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@005a
0015e2: 0c06                     |0037: move-result-object v6
0015e4: 6e10 5b00 0600          |0038: invoke-virtual {v6}, Ljava/lang/StringBuilder;.toString:
                                         ()Ljava/lang/String; // method@005b
0015ea: 0c02                     |003b: move-result-object v2
0015ec: 28e6                     |003c: goto 0022 // -001a
0015ee: 6e20 5600 2300          |003d: invoke-virtual {v3, v2}, Ljava/lang/StringBuffer;.append:
                                         (Ljava/lang/String;)Ljava/lang/StringBuffer; // method@0056
0015f4: d804 0401               |0040: add-int/lit8 v4, v4, #int 1 // #01
0015f8: 28d5                     |0042: goto 0017 // -002b
0015fa: 6e10 5700 0300          |0043: invoke-virtual {v3}, Ljava/lang/StringBuffer;.toString:
                                         ()Ljava/lang/String; // method@0057
001600: 0c06                     |0046: move-result-object v6
001602: 1106                     |0047: return-object v6
001604: 0d01                     |0048: move-exception v1
001606: 6e10 4d00 0100          |0049: invoke-virtual {v1}, Ljava/lang/Exception;.printStackTrace:
                                         ()V // method@004d
00160c: 1a06 9300               |004c: const-string v6, "error" // string@0093
001610: 28f9                     |004e: goto 0047 // -0007
        catches       : 1
          0x0000 - 0x0046
            Ljava/lang/Exception; -> 0x0048
        positions     :
          0x0000 line=77
          0x0006 line=78
          0x000d line=79
          0x0011 line=81
          0x0016 line=82
          0x001a line=84
          0x0022 line=85
          0x0029 line=87
          0x003d line=89
          0x0040 line=82
          0x0043 line=91
          0x0047 line=97
          0x0048 line=93
          0x0049 line=95
          0x004c line=97
        locals        :
          0x0022 - 0x0043 reg=2 h Ljava/lang/String;
          0x0006 - 0x0047 reg=0 digest Ljava/security/MessageDigest;
          0x0016 - 0x0047 reg=3 hexString Ljava/lang/StringBuffer;
          0x0017 - 0x0047 reg=4 i I
          0x0011 - 0x0047 reg=5 messageDigest [B
          0x0049 - 0x004f reg=1 e Ljava/lang/Exception;
          0x0000 - 0x004f reg=8 s Ljava/lang/String;

  Virtual methods   -
  source_file_idx   : 93 (SimpleCrypto.java)

Class #14 header:
class_idx          : 30
access_flags       : 1 (0x0001)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : 95
annotations_off    : 0 (0x000000)
class_data_off     : 11906 (0x002e82)
static_fields_size : 1
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 6

Class #14           -
  Class descriptor  : 'Lcom/uaf/matt/testone/TestOneActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
```

```
    Interfaces       -
    Static fields    -
      #0             : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name         : 'EXTRA_MESSAGE'
        type         : 'Ljava/lang/String;'
        access       : 0x0019 (PUBLIC STATIC FINAL)
    Instance fields  -
    Direct methods   -
      #0             : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name         : '<init>'
        type         : '()V'
        access       : 0x10001 (PUBLIC CONSTRUCTOR)
        code         -
        registers    : 1
        ins          : 1
        outs         : 1
        insns size   : 4 16-bit code units
001620:                               |[001620] com.uaf.matt.testone.TestOneActivity.<init>:()V
001630: 7010 0000 0000               |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                              // method@0000
001636: 0e00                         |0003: return-void
        catches      : (none)
        positions    :
          0x0000 line=14
        locals       :
          0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/TestOneActivity;

    Virtual methods  -
      #0             : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name         : 'doMaths'
        type         : '(Landroid/view/View;)V'
        access       : 0x0001 (PUBLIC)
        code         -
        registers    : 6
        ins          : 2
        outs         : 3
        insns size   : 37 16-bit code units
001638:                               |[001638] com.uaf.matt.testone.TestOneActivity.doMaths:
                                              (Landroid/view/View;)V
001648: 2201 0500                    |0000: new-instance v1, Landroid/content/Intent; // type@0005
00164c: 1c03 1100                    |0002: const-class v3, Lcom/uaf/matt/testone/
                                              DisplayMathsActivity; // type@0011
001650: 7030 0400 4103               |0004: invoke-direct {v1, v4, v3}, Landroid/content/Intent;
                                              .<init>:(Landroid/content/Context;Ljava/lang/Class;)V
                                              // method@0004
001656: 1403 0100 087f               |0007: const v3, #float 180775027709158162366588184145378148352.0
                                              // #7f080001
00165c: 6e20 3d00 3400               |000a: invoke-virtual {v4, v3}, Lcom/uaf/matt/testone/
                                              TestOneActivity;.findViewById:(I)Landroid/view/View;
                                              // method@003d
001662: 0c00                         |000d: move-result-object v0
001664: 1f00 0e00                    |000e: check-cast v0, Landroid/widget/EditText; // type@000e
001668: 6e10 0e00 0000               |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                              ()Landroid/text/Editable; // method@000e
00166e: 0c03                         |0013: move-result-object v3
001670: 6e10 5100 0300               |0014: invoke-virtual {v3}, Ljava/lang/Object;.toString:
                                              ()Ljava/lang/String; // method@0051
001676: 0c03                         |0017: move-result-object v3
001678: 7110 4e00 0300               |0018: invoke-static {v3}, Ljava/lang/Integer;.parseInt:
                                              (Ljava/lang/String;)I // method@004e
00167e: 0a02                         |001b: move-result v2
001680: 1a03 7d00                    |001c: const-string v3, "com.uaf.matt.testone.MESSAGE"
                                              // string@007d
001684: 6e30 0700 3102               |001e: invoke-virtual {v1, v3, v2}, Landroid/content/Intent;
                                              .putExtra:(Ljava/lang/String;I)Landroid/content/Intent;
                                              // method@0007
00168a: 6e20 4400 1400               |0021: invoke-virtual {v4, v1}, Lcom/uaf/matt/testone/
                                              TestOneActivity;.startActivity:(Landroid/content/Intent;)V
```

```
                                              // method@0044
001690: 0e00                         |0024: return-void
        catches        : (none)
        positions      :
          0x0000 line=61
          0x0007 line=62
          0x0010 line=63
          0x001c line=64
          0x0021 line=65
          0x0024 line=66
        locals         :
          0x0010 - 0x0025 reg=0 editText Landroid/widget/EditText;
          0x0007 - 0x0025 reg=1 intent Landroid/content/Intent;
          0x001c - 0x0025 reg=2 number I
          0x0000 - 0x0025 reg=4 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x0025 reg=5 view Landroid/view/View;

    #1              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'encryptMessage'
      type          : '(Landroid/view/View;)V'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 32 16-bit code units


001694:                             |[001694] com.uaf.matt.testone.TestOneActivity.encryptMessage:
                                            (Landroid/view/View;)V
0016a4: 2201 0500                   |0000: new-instance v1, Landroid/content/Intent; // type@0005
0016a8: 1c03 1200                   |0002: const-class v3, Lcom/uaf/matt/testone/DisplayMessageActivity;
                                            // type@0012
0016ac: 7030 0400 4103              |0004: invoke-direct {v1, v4, v3}, Landroid/content/Intent;.<init>:
                                            (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
0016b2: 1503 087f                   |0007: const/high16 v3, #int 2131230720 // #7f08
0016b6: 6e20 3d00 3400              |0009: invoke-virtual {v4, v3}, Lcom/uaf/matt/testone/
                                            TestOneActivity;.findViewById:(I)Landroid/view/View;
                                            // method@003d
0016bc: 0c00                        |000c: move-result-object v0
0016be: 1f00 0e00                   |000d: check-cast v0, Landroid/widget/EditText; // type@000e
0016c2: 6e10 0e00 0000              |000f: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                            ()Landroid/text/Editable; // method@000e
0016c8: 0c03                        |0012: move-result-object v3
0016ca: 6e10 5100 0300              |0013: invoke-virtual {v3}, Ljava/lang/Object;.toString:
                                            ()Ljava/lang/String; // method@0051
0016d0: 0c02                        |0016: move-result-object v2
0016d2: 1a03 7d00                   |0017: const-string v3, "com.uaf.matt.testone.MESSAGE"
                                            // string@007d
0016d6: 6e30 0800 3102              |0019: invoke-virtual {v1, v3, v2}, Landroid/content/Intent;
                                            .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                            Landroid/content/Intent; // method@0008
0016dc: 6e20 4400 1400              |001c: invoke-virtual {v4, v1}, Lcom/uaf/matt/testone/
                                            TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                            // method@0044
0016e2: 0e00                        |001f: return-void
        catches        : (none)
        positions      :
          0x0000 line=52
          0x0007 line=53
          0x000f line=54
          0x0017 line=55
          0x001c line=56
          0x001f line=57
        locals         :
          0x000f - 0x0020 reg=0 editText Landroid/widget/EditText;
          0x0007 - 0x0020 reg=1 intent Landroid/content/Intent;
```

```
          0x0017 - 0x0020 reg=2 message Ljava/lang/String;
          0x0000 - 0x0020 reg=4 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x0020 reg=5 view Landroid/view/View;

    #2              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'getWebPage'
      type          : '(Landroid/view/View;)V'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 33 16-bit code units
0016e4:                         |[0016e4] com.uaf.matt.testone.TestOneActivity.getWebPage:
                                        (Landroid/view/View;)V
0016f4: 2201 0500               |0000: new-instance v1, Landroid/content/Intent; // type@0005
0016f8: 1c03 1300               |0002: const-class v3, Lcom/uaf/matt/testone/
                                        DisplayWebPageActivity; // type@0013
0016fc: 7030 0400 4103          |0004: invoke-direct {v1, v4, v3}, Landroid/content/Intent;.<init>:
                                        (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
001702: 1403 0200 087f          |0007: const v3, #float 18077504799156776601825860809262943436.00000
                                        // #7f080002




001708: 6e20 3d00 3400          |000a: invoke-virtual {v4, v3}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.findViewById:(I)Landroid/view/View;
                                        // method@003d
00170e: 0c00                    |000d: move-result-object v0
001710: 1f00 0e00               |000e: check-cast v0, Landroid/widget/EditText; // type@000e
001714: 6e10 0e00 0000          |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                        ()Landroid/text/Editable; // method@000e
00171a: 0c03                    |0013: move-result-object v3
00171c: 6e10 5100 0300          |0014: invoke-virtual {v3}, Ljava/lang/Object;.toString:
                                        ()Ljava/lang/String; // method@0051
001722: 0c02                    |0017: move-result-object v2
001724: 1a03 7d00               |0018: const-string v3, "com.uaf.matt.testone.MESSAGE" // string@007d
001728: 6e30 0800 3102          |001a: invoke-virtual {v1, v3, v2}, Landroid/content/Intent;
                                        .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                        Landroid/content/Intent; // method@0008
00172e: 6e20 4400 1400          |001d: invoke-virtual {v4, v1}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                        // method@0044
001734: 0e00                    |0020: return-void
      catches       : (none)
      positions     :
        0x0000 line=70
        0x0007 line=71
        0x0010 line=72
        0x0018 line=73
        0x001d line=74
        0x0020 line=75
      locals        :
        0x0010 - 0x0021 reg=0 editText Landroid/widget/EditText;
        0x0007 - 0x0021 reg=1 intent Landroid/content/Intent;
        0x0018 - 0x0021 reg=2 url Ljava/lang/String;
        0x0000 - 0x0021 reg=4 this Lcom/uaf/matt/testone/TestOneActivity;
        0x0000 - 0x0021 reg=5 view Landroid/view/View;

    #3              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 3
      ins           : 2
```

```
        outs          : 2
        insns size    : 10 16-bit code units
001738:                          |[001738] com.uaf.matt.testone.TestOneActivity.onCreate:
                                     (Landroid/os/Bundle;)V
001748: 6f20 0100 2100            |0000: invoke-super {v1, v2}, Landroid/app/Activity;.onCreate:
                                     (Landroid/os/Bundle;)V // method@0001
00174e: 1400 0300 037f            |0003: const v0, #float 174128928295052790305409996738478997504.0000
                                     // #7f030003
001754: 6e20 4300 0100            |0006: invoke-virtual {v1, v0}, Lcom/uaf/matt/testone/
                                     TestOneActivity;.setContentView:(I)V // method@0043
00175a: 0e00                      |0009: return-void
        catches       : (none)
        positions     :
          0x0000 line=20
          0x0003 line=21
          0x0009 line=22
        locals        :
          0x0000 - 0x000a reg=1 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x000a reg=2 savedInstanceState Landroid/os/Bundle;

    #4              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'onCreateOptionsMenu'
      type          : '(Landroid/view/Menu;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 3
      insns size    : 14 16-bit code units
00175c:                          |[00175c] com.uaf.matt.testone.TestOneActivity.onCreateOptionsMenu:
                                     (Landroid/view/Menu;)Z
00176c: 6e10 3e00 0200            |0000: invoke-virtual {v2}, Lcom/uaf/matt/testone/TestOneActivity;
                                     .getMenuInflater:()Landroid/view/MenuInflater;
                                     // method@003e
001772: 0c00                      |0003: move-result-object v0
001774: 1501 077f                 |0004: const/high16 v1, #int 2131165184 // #7f07
001778: 6e30 0c00 1003            |0006: invoke-virtual {v0, v1, v3}, Landroid/view/MenuInflater;
                                     .inflate:(ILandroid/view/Menu;)V // method@000c
00177e: 6f20 0200 3200            |0009: invoke-super {v2, v3}, Landroid/app/Activity;
                                     .onCreateOptionsMenu:(Landroid/view/Menu;)Z // method@0002
001784: 0a01                      |000c: move-result v1
001786: 0f01                      |000d: return v1
        catches       : (none)
        positions     :
          0x0000 line=28
          0x0004 line=29
          0x0009 line=30
        locals        :
          0x0004 - 0x000e reg=0 inflater Landroid/view/MenuInflater;
          0x0000 - 0x000e reg=2 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x000e reg=3 menu Landroid/view/Menu;

    #5              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 22 16-bit code units
001788:                          |[001788] com.uaf.matt.testone.TestOneActivity.onOptionsItemSelected:
                                     (Landroid/view/MenuItem;)Z
001798: 1210                      |0000: const/4 v0, #int 1 // #1
00179a: 7210 0d00 0300            |0001: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                     ()I // method@000d
0017a0: 0a01                      |0004: move-result v1
0017a2: 2b01 0900 0000            |0005: packed-switch v1, 0000000e // +00000009
```

```
0017a8: 6f20 0300 3200        |0008: invoke-super {v2, v3}, Landroid/app/Activity;
                                       .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                       // method@0003
0017ae: 0a00                   |000b: move-result v0
0017b0: 0f00                   |000c: return v0
0017b2: 0000                   |000d: nop // spacer
0017b4: 0001 0200 0300 087f 0700 0000 0700 ... |000e: packed-switch-data (8 units)
      catches       : (none)
      positions     :
        0x0001 line=38
        0x0008 line=46
        0x000d line=38
      locals        :
        0x0000 - 0x0016 reg=2 this Lcom/uaf/matt/testone/TestOneActivity;
        0x0000 - 0x0016 reg=3 item Landroid/view/MenuItem;

  source_file_idx    : 95 (TestOneActivity.java)

Class #15 header:
class_idx          : 31
access_flags       : 0 (0x0000)
superclass_idx     : 6
interfaces_off     : 0 (0x000000)
source_file_idx    : 15
annotations_off    : 6504 (0x001968)
class_data_off     : 11942 (0x002ea6)
static_fields_size  : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #15            -
  Class descriptor  : 'Lcom/uaf/matt/testone/getURLData;'
  Access flags      : 0x0000 ()
  Superclass        : 'Landroid/os/AsyncTask;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/getURLData;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10000 (CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0017c4:                        |[0017c4] com.uaf.matt.testone.getURLData.<init>:()V
0017d4: 7010 0900 0000         |0000: invoke-direct {v0}, Landroid/os/AsyncTask;.<init>:()V
                                       // method@0009
0017da: 0e00                   |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=16
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/getURLData;

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/getURLData;)
      name          : 'doInBackground'
      type          : '([Ljava/lang/Object;)Ljava/lang/Object;'
      access        : 0x1041 (PUBLIC BRIDGE SYNTHETIC)
      code          -
      registers     : 3
      ins           : 2
      outs          : 2
      insns size    : 7 16-bit code units
```

```
0017dc:                              |[0017dc] com.uaf.matt.testone.getURLData.doInBackground:
                                          ([Ljava/lang/Object;)Ljava/lang/Object;
0017ec: 1f02 4200                    |0000: check-cast v2, [Ljava/lang/String; // type@0042
0017f0: 6e20 4700 2100               |0002: invoke-virtual {v1, v2}, Lcom/uaf/matt/testone/getURLData;
                                          .doInBackground:([Ljava/lang/String;)Ljava/lang/Void;
                                          // method@0047
0017f6: 0c00                         |0005: move-result-object v0
0017f8: 1100                         |0006: return-object v0
        catches       : (none)
        positions     :
          0x0000 line=16
        locals        :
          0x0000 - 0x0007 reg=1 this Lcom/uaf/matt/testone/getURLData;

    #1                : (in Lcom/uaf/matt/testone/getURLData;)
      name            : 'doInBackground'
      type            : '([Ljava/lang/String;)Ljava/lang/Void;'
      access          : 0x0081 (PUBLIC VARARGS)
      code            -
      registers       : 10
      ins             : 2
      outs            : 2
      insns size      : 63 16-bit code units
0017fc:                              |[0017fc] com.uaf.matt.testone.getURLData.doInBackground:
                                          ([Ljava/lang/String;)Ljava/lang/Void;
00180c: 2204 3400                    |0000: new-instance v4, Ljava/net/URL; // type@0034
001810: 1205                         |0002: const/4 v5, #int 0 // #0
001812: 4605 0905                    |0003: aget-object v5, v9, v5
001816: 7020 5d00 5400               |0005: invoke-direct {v4, v5}, Ljava/net/URL;.<init>:
                                          (Ljava/lang/String;)V // method@005d
00181c: 6e10 5e00 0400               |0008: invoke-virtual {v4}, Ljava/net/URL;.openConnection:
                                          ()Ljava/net/URLConnection; // method@005e
001822: 0c00                         |000b: move-result-object v0
001824: 2203 2500                    |000c: new-instance v3, Ljava/io/BufferedReader; // type@0025
001828: 2205 2800                    |000e: new-instance v5, Ljava/io/InputStreamReader; // type@0028
00182c: 6e10 5f00 0000               |0010: invoke-virtual {v0}, Ljava/net/URLConnection;
                                          .getInputStream:()Ljava/io/InputStream; // method@005f
001832: 0c06                         |0013: move-result-object v6
001834: 7020 4c00 6500               |0014: invoke-direct {v5, v6}, Ljava/io/InputStreamReader;
                                          .<init>:(Ljava/io/InputStream;)V // method@004c
00183a: 7020 4900 5300               |0017: invoke-direct {v3, v5}, Ljava/io/BufferedReader;.<init>:
                                          (Ljava/io/Reader;)V // method@0049
001840: 1a02 0000                    |001a: const-string v2, "" // string@0000
001844: 6e10 4a00 0300               |001c: invoke-virtual {v3}, Ljava/io/BufferedReader;.readLine:
                                          ()Ljava/lang/String; // method@004a
00184a: 0c02                         |001f: move-result-object v2
00184c: 3802 1d00                    |0020: if-eqz v2, 003d // +001d
001850: 2205 3100                    |0022: new-instance v5, Ljava/lang/StringBuilder; // type@0031
001854: 7010 5800 0500               |0024: invoke-direct {v5}, Ljava/lang/StringBuilder;.<init>:
                                          ()V // method@0058
00185a: 1216                         |0027: const/4 v6, #int 1 // #1
00185c: 4607 0906                    |0028: aget-object v7, v9, v6
001860: 6e20 5a00 7500               |002a: invoke-virtual {v5, v7}, Ljava/lang/StringBuilder;
                                          .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@005a
001866: 0c05                         |002d: move-result-object v5
001868: 6e20 5a00 2500               |002e: invoke-virtual {v5, v2}, Ljava/lang/StringBuilder;
                                          .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@005a
00186e: 0c05                         |0031: move-result-object v5
001870: 6e10 5b00 0500               |0032: invoke-virtual {v5}, Ljava/lang/StringBuilder;.toString:
                                          ()Ljava/lang/String; // method@005b
001876: 0c05                         |0035: move-result-object v5
001878: 4d05 0906                    |0036: aput-object v5, v9, v6
00187c: 28e4                         |0038: goto 001c // -001c
00187e: 0d01                         |0039: move-exception v1
001880: 6e10 4b00 0100               |003a: invoke-virtual {v1}, Ljava/io/IOException;
                                          .printStackTrace:()V // method@004b
```

```
001886: 1205                        |003d: const/4 v5, #int 0 // #0
001888: 1105                        |003e: return-object v5
      catches       : 1
        0x0000 - 0x0038
          Ljava/io/IOException; -> 0x0039
      positions     :
        0x0000 line=19
        0x0008 line=20
        0x000c line=21
        0x001a line=22
        0x001c line=23
        0x0022 line=24
        0x0039 line=26
        0x003a line=27
        0x003d line=29
      locals        :
        0x000c - 0x0039 reg=0 conn Ljava/net/URLConnection;
        0x001c - 0x0039 reg=2 inputLine Ljava/lang/String;
        0x001a - 0x0039 reg=3 reader Ljava/io/BufferedReader;
        0x0008 - 0x0039 reg=4 url Ljava/net/URL;
        0x003a - 0x003d reg=1 e Ljava/io/IOException;
        0x0000 - 0x003f reg=8 this Lcom/uaf/matt/testone/getURLData;
        0x0000 - 0x003f reg=9 urls [Ljava/lang/String;

    source_file_idx   : 15 (DisplayWebPageActivity.java)
```

C.2   Proguard

```
Processing 'data/classes.dex'...
Opened 'data/classes.dex', DEX version '035'
DEX file header:
magic              : 'dex\n035\0'
checksum           : 1ab34520
signature          : 780a...2df9
file_size          : 6804
header_size        : 112
link_size          : 0
link_off           : 0 (0x000000)
string_ids_size    : 123
string_ids_off     : 112 (0x000070)
type_ids_size      : 51
type_ids_off       : 604 (0x00025c)
proto_ids_size     : 54
proto_ids_off      : 808 (0x000328)
field_ids_size     : 3
field_ids_off      : 1456 (0x0005b0)
method_ids_size    : 95
method_ids_off     : 1480 (0x0005c8)
class_defs_size    : 6
class_defs_off     : 2240 (0x0008c0)
data_size          : 4372
data_off           : 2432 (0x000980)

Class #0 header:
class_idx          : 15
access_flags       : 1 (0x0001)
superclass_idx     : 2
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 6515 (0x001973)
static_fields_size : 1
instance_fields_size: 0
direct_methods_size : 3
virtual_methods_size: 2

Class #0            -
```

```
        Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMathsActivity;'
        Access flags     : 0x0001 (PUBLIC)
        Superclass       : 'Landroid/app/Activity;'
        Interfaces       -
        Static fields    -
          #0             : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
            name         : 'a'
            type         : 'Ljava/util/ArrayList;'
            access       : 0x000a (PRIVATE STATIC)
        Instance fields  -
        Direct methods   -
          #0             : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
            name         : '<clinit>'
            type         : '()V'
            access       : 0x10008 (STATIC CONSTRUCTOR)
            code         -
            registers    : 2
            ins          : 0
            outs         : 2
            insns size   : 22 16-bit code units
000980:                            |[000980] com.uaf.matt.testone.DisplayMathsActivity.<clinit>:()V
000990: 2200 2900                  |0000: new-instance v0, Ljava/util/ArrayList; // type@0029
000994: 7010 5200 0000             |0002: invoke-direct {v0}, Ljava/util/ArrayList;.<init>:()V
                                          // method@0052
00099a: 6900 0000                  |0005: sput-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                          .a:Ljava/util/ArrayList; // field@0000
00099e: 6200 0000                  |0007: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                          .a:Ljava/util/ArrayList; // field@0000
0009a2: 6201 0200                  |0009: sget-object v1, Ljava/math/BigInteger;
                                          .ZERO:Ljava/math/BigInteger; // field@0002
0009a6: 6e20 5400 1000             |000b: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                          (Ljava/lang/Object;)Z // method@0054
0009ac: 6200 0000                  |000e: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                          .a:Ljava/util/ArrayList; // field@0000
0009b0: 6201 0100                  |0010: sget-object v1, Ljava/math/BigInteger;.ONE:
                                          Ljava/math/BigInteger; // field@0001
0009b4: 6e20 5400 1000             |0012: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                          (Ljava/lang/Object;)Z // method@0054
0009ba: 0e00                       |0015: return-void
            catches      : (none)
            positions    :
            locals       :

          #1             : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
            name         : '<init>'
            type         : '()V'
            access       : 0x10001 (PUBLIC CONSTRUCTOR)
            code         -
            registers    : 1
            ins          : 1
            outs         : 1
            insns size   : 4 16-bit code units
0009bc:                            |[0009bc] com.uaf.matt.testone.DisplayMathsActivity.<init>:()V
0009cc: 7010 0000 0000             |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                          // method@0000
0009d2: 0e00                       |0003: return-void
            catches      : (none)
            positions    :
            locals       :

          #2             : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
            name         : 'a'
            type         : '(I)Ljava/math/BigInteger;'
            access       : 0x0009 (PUBLIC STATIC)
            code         -
            registers    : 4
            ins          : 1
            outs         : 3
```

```
              insns size    : 38 16-bit code units


0009d4:                         |[0009d4] com.uaf.matt.testone.DisplayMathsActivity.a:
                                    (I)Ljava/math/BigInteger;
0009e4: 6200 0000               |0000: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                    .a:Ljava/util/ArrayList; // field@0000
0009e8: 6e10 5600 0000          |0002: invoke-virtual {v0}, Ljava/util/ArrayList;.size:()I
                                    // method@0056
0009ee: 0a00                    |0005: move-result v0
0009f0: 3403 1700               |0006: if-lt v3, v0, 001d // +0017
0009f4: 6200 0000               |0008: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                    .a:Ljava/util/ArrayList; // field@0000
0009f8: d801 03ff               |000a: add-int/lit8 v1, v3, #int -1 // #ff
0009fc: 7110 1300 0100          |000c: invoke-static {v1}, Lcom/uaf/matt/testone/
                                    DisplayMathsActivity;.a:(I)Ljava/math/BigInteger;
                                    // method@0013
000a02: 0c01                    |000f: move-result-object v1
000a04: d802 03fe               |0010: add-int/lit8 v2, v3, #int -2 // #fe
000a08: 7110 1300 0200          |0012: invoke-static {v2}, Lcom/uaf/matt/testone/
                                    DisplayMathsActivity;.a:(I)Ljava/math/BigInteger;
                                    // method@0013
000a0e: 0c02                    |0015: move-result-object v2
000a10: 6e20 4900 2100          |0016: invoke-virtual {v1, v2}, Ljava/math/BigInteger;.add:
                                    (Ljava/math/BigInteger;)Ljava/math/BigInteger; // method@0049
000a16: 0c01                    |0019: move-result-object v1
000a18: 6e30 5300 3001          |001a: invoke-virtual {v0, v3, v1}, Ljava/util/ArrayList;.add:
                                    (ILjava/lang/Object;)V // method@0053
000a1e: 6200 0000               |001d: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                    .a:Ljava/util/ArrayList; // field@0000
000a22: 6e20 5500 3000          |001f: invoke-virtual {v0, v3}, Ljava/util/ArrayList;.get:
                                    (I)Ljava/lang/Object; // method@0055
000a28: 0c00                    |0022: move-result-object v0
000a2a: 1f00 2300               |0023: check-cast v0, Ljava/math/BigInteger; // type@0023
000a2e: 1100                    |0025: return-object v0
      catches        : (none)
      positions      :
      locals         :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0004 (PROTECTED)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 59 16-bit code units
000a30:                         |[000a30] com.uaf.matt.testone.DisplayMathsActivity.onCreate:
                                    (Landroid/os/Bundle;)V
000a40: 6f20 0100 5400          |0000: invoke-super {v4, v5}, Landroid/app/Activity;.onCreate:
                                    (Landroid/os/Bundle;)V // method@0001
000a46: 1500 037f               |0003: const/high16 v0, #int 2130903040 // #7f03
000a4a: 6e20 1700 0400          |0005: invoke-virtual {v4, v0}, Lcom/uaf/matt/testone/
                                    DisplayMathsActivity;.setContentView:(I)V // method@0017
000a50: 6e10 1400 0400          |0008: invoke-virtual {v4}, Lcom/uaf/matt/testone/
                                    DisplayMathsActivity;.getIntent:()Landroid/content/Intent;
                                    // method@0014
000a56: 0c00                    |000b: move-result-object v0
000a58: 1a01 4f00               |000c: const-string v1, "com.uaf.matt.testone.MESSAGE"
                                    // string@004f
000a5c: 1202                    |000e: const/4 v2, #int 0 // #0
000a5e: 6e30 0500 1002          |000f: invoke-virtual {v0, v1, v2}, Landroid/content/Intent;
                                    .getIntExtra:(Ljava/lang/String;I)I // method@0005
000a64: 0a00                    |0012: move-result v0
```

```
000a66: 2201 0e00              |0013: new-instance v1, Landroid/widget/TextView; // type@000e
000a6a: 7020 0e00 4100         |0015: invoke-direct {v1, v4}, Landroid/widget/TextView;.<init>:
                                        (Landroid/content/Context;)V // method@000e
000a70: 1502 2042              |0018: const/high16 v2, #int 1109393408 // #4220
000a74: 6e20 1000 2100         |001a: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                        .setTextSize:(F)V // method@0010
000a7a: 2202 2100              |001d: new-instance v2, Ljava/lang/StringBuilder; // type@0021
000a7e: 7010 4500 0200         |001f: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:
                                        ()V // method@0045
000a84: 1a03 0000              |0022: const-string v3, "" // string@0000
000a88: 6e20 4700 3200         |0024: invoke-virtual {v2, v3}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0047
000a8e: 0c02                   |0027: move-result-object v2
000a90: 7110 1300 0000         |0028: invoke-static {v0}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.a:(I)Ljava/math/BigInteger;
                                        // method@0013
000a96: 0c00                   |002b: move-result-object v0
000a98: 6e20 4600 0200         |002c: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/Object;)Ljava/lang/StringBuilder;
                                        // method@0046
000a9e: 0c00                   |002f: move-result-object v0
000aa0: 6e10 4800 0000         |0030: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                        ()Ljava/lang/String; // method@0048
000aa6: 0c00                   |0033: move-result-object v0
000aa8: 6e20 0f00 0100         |0034: invoke-virtual {v1, v0}, Landroid/widget/TextView;
                                        .setText:(Ljava/lang/CharSequence;)V // method@000f
000aae: 6e20 1800 1400         |0037: invoke-virtual {v4, v1}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.setContentView:
                                        (Landroid/view/View;)V // method@0018
000ab4: 0e00                   |003a: return-void
        catches       : (none)
        positions     :
        locals        :

    #1              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
000ab8:                        |[000ab8] com.uaf.matt.testone.DisplayMathsActivity.
                                        onOptionsItemSelected:(Landroid/view/MenuItem;)Z
000ac8: 7210 0c00 0300         |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                        ()I // method@000c
000ace: 0a00                   |0003: move-result v0
000ad0: 1401 0400 087f         |0004: const v1, #float 180775088556386973321599455987132006400.
                                        // #7f080004
000ad6: 3310 0400             |0007: if-ne v0, v1, 000b // +0004
000ada: 1210                  |0009: const/4 v0, #int 1 // #1
000adc: 0f00                  |000a: return v0
000ade: 6f20 0300 3200        |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                        .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                        // method@0003
000ae4: 0a00                  |000e: move-result v0
000ae6: 28fb                  |000f: goto 000a // -0005
        catches       : (none)
        positions     :
        locals        :

  source_file_idx   : -1 (unknown)
```

```
Class #1 header:
class_idx        : 16
access_flags     : 1 (0x0001)
superclass_idx   : 2
interfaces_off   : 0 (0x000000)
source_file_idx  : -1
annotations_off  : 0 (0x000000)
class_data_off   : 6545 (0x001991)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #1            -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMessageActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000ae8:                         |[000ae8] com.uaf.matt.testone.DisplayMessageActivity.<init>:()V
000af8: 7010 0000 0000          |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                        // method@0000
000afe: 0e00                    |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0004 (PROTECTED)
      code          -
      registers     : 7
      ins           : 2
      outs          : 2
      insns size    : 75 16-bit code units
000b00:                         |[000b00] com.uaf.matt.testone.DisplayMessageActivity.onCreate:
                                        (Landroid/os/Bundle;)V
000b10: 6f20 0100 6500          |0000: invoke-super {v5, v6}, Landroid/app/Activity;.onCreate:
                                        (Landroid/os/Bundle;)V // method@0001
000b16: 1400 0100 037f          |0003: const v0, #float 17412888773023358300206914884397642547. 
                                        // #7f030001
000b1c: 6e20 1d00 0500          |0006: invoke-virtual {v5, v0}, Lcom/uaf/matt/testone/
                                        DisplayMessageActivity;.setContentView:(I)V
                                        // method@001d
000b22: 6e10 1a00 0500          |0009: invoke-virtual {v5}, Lcom/uaf/matt/testone/
                                        DisplayMessageActivity;.getIntent:
                                        ()Landroid/content/Intent; // method@001a
000b28: 0c00                    |000c: move-result-object v0
000b2a: 1a01 4f00               |000d: const-string v1, "com.uaf.matt.testone.MESSAGE"
                                        // string@004f
000b2e: 6e20 0600 1000          |000f: invoke-virtual {v0, v1}, Landroid/content/Intent;
                                        .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                        // method@0006
000b34: 0c00                    |0012: move-result-object v0
000b36: 1a01 3f00               |0013: const-string v1, "Super-Secret-Password" // string@003f
```

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```
000b3a: 2202 0e00                    |0015: new-instance v2, Landroid/widget/TextView; // type@000e
000b3e: 7020 0e00 5200               |0017: invoke-direct {v2, v5}, Landroid/widget/TextView;.<init>:
                                            (Landroid/content/Context;)V // method@000e
000b44: 1503 a041                    |001a: const/high16 v3, #int 1101004800 // #41a0
000b48: 6e20 1000 3200               |001c: invoke-virtual {v2, v3}, Landroid/widget/TextView;
                                            .setTextSize:(F)V // method@0010
000b4e: 7110 3000 0000               |001f: invoke-static {v0}, Lcom/uaf/matt/testone/a;.a:
                                            (Ljava/lang/String;)Ljava/lang/String; // method@0030
000b54: 0c03                         |0022: move-result-object v3
000b56: 7120 3100 3100               |0023: invoke-static {v1, v3}, Lcom/uaf/matt/testone/a;.a:
                                            (Ljava/lang/String;Ljava/lang/String;)
                                            Ljava/lang/String; // method@0031
000b5c: 0c01                         |0026: move-result-object v1
000b5e: 2203 2100                    |0027: new-instance v3, Ljava/lang/StringBuilder; // type@0021
000b62: 7010 4500 0300               |0029: invoke-direct {v3}, Ljava/lang/StringBuilder;.<init>:
                                            ()V // method@0045
000b68: 1a04 3c00                    |002c: const-string v4, "Message before encryption: "
                                            // string@003c
000b6c: 6e20 4700 4300               |002e: invoke-virtual {v3, v4}, Ljava/lang/StringBuilder;
                                            .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                            // method@0047
000b72: 0c03                         |0031: move-result-object v3
000b74: 6e20 4700 0300               |0032: invoke-virtual {v3, v0}, Ljava/lang/StringBuilder;
                                            .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                            // method@0047
000b7a: 0c00                         |0035: move-result-object v0
000b7c: 1a03 0100                    |0036: const-string v3, "Message after encryption: "
                                            // string@0001
000b80: 6e20 4700 3000               |0038: invoke-virtual {v0, v3}, Ljava/lang/StringBuilder;
                                            .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                            // method@0047
000b86: 0c00                         |003b: move-result-object v0
000b88: 6e20 4700 1000               |003c: invoke-virtual {v0, v1}, Ljava/lang/StringBuilder;
                                            .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                            // method@0047
000b8e: 0c00                         |003f: move-result-object v0
000b90: 6e10 4800 0000               |0040: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                            ()Ljava/lang/String; // method@0048
000b96: 0c00                         |0043: move-result-object v0
000b98: 6e20 0f00 0200               |0044: invoke-virtual {v2, v0}, Landroid/widget/TextView;
                                            .setText:(Ljava/lang/CharSequence;)V // method@000f
000b9e: 6e20 1e00 2500               |0047: invoke-virtual {v5, v2}, Lcom/uaf/matt/testone/
                                            DisplayMessageActivity;.setContentView:
                                            (Landroid/view/View;)V // method@001e
000ba4: 0e00                         |004a: return-void
          catches       : (none)
          positions     :
          locals        :

     #1               : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
       name           : 'onOptionsItemSelected'
       type           : '(Landroid/view/MenuItem;)Z'
       access         : 0x0001 (PUBLIC)
       code           -
       registers      : 4
       ins            : 2
       outs           : 2
       insns size     : 16 16-bit code units
000ba8:                              |[000ba8] com.uaf.matt.testone.DisplayMessageActivity.
                                            onOptionsItemSelected:(Landroid/view/MenuItem;)Z
000bb8: 7210 0c00 0300               |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                            ()I // method@000c
000bbe: 0a00                         |0003: move-result v0
000bc0: 1401 0400 087f               |0004: const v1, #float 180775088556386973321599455987132006400.0000
                                            // #7f080004
000bc6: 3310 0400                    |0007: if-ne v0, v1, 000b // +0004
000bca: 1210                         |0009: const/4 v0, #int 1 // #1
000bcc: 0f00                         |000a: return v0
```

```
000bce: 6f20 0300 3200        |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                       .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                       // method@0003
000bd4: 0a00                  |000e: move-result v0
000bd6: 28fb                  |000f: goto 000a // -0005
        catches      : (none)
        positions    :
        locals       :

   source_file_idx    : -1 (unknown)

Class #2 header:
class_idx             : 17
access_flags          : 1 (0x0001)
superclass_idx        : 2
interfaces_off        : 0 (0x000000)
source_file_idx       : -1
annotations_off       : 0 (0x000000)
class_data_off        : 6563 (0x0019a3)
static_fields_size    : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #2            -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayWebPageActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000bd8:                           |[000bd8] com.uaf.matt.testone.DisplayWebPageActivity.<init>:()V
000be8: 7010 0000 0000           |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                       // method@0000
000bee: 0e00                     |0003: return-void
        catches      : (none)
        positions    :
        locals       :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0004 (PROTECTED)
      code          -
      registers     : 10
      ins           : 2
      outs          : 2
      insns size    : 74 16-bit code units
000bf0:                           |[000bf0] com.uaf.matt.testone.DisplayWebPageActivity.onCreate:
                                          (Landroid/os/Bundle;)V
000c00: 6f20 0100 9800           |0000: invoke-super {v8, v9}, Landroid/app/Activity;.onCreate:
                                          (Landroid/os/Bundle;)V // method@0001
000c06: 1400 0200 037f           |0003: const v0, #float 1741289080126431866537395727912277711488.
                                          // #7f030002
000c0c: 6e20 2300 0800           |0006: invoke-virtual {v8, v0}, Lcom/uaf/matt/testone/
                                          DisplayWebPageActivity;.setContentView:(I)V
                                          // method@0023
```

```
000c12: 6e10 2000 0800          |0009: invoke-virtual {v8}, Lcom/uaf/matt/testone/
                                        DisplayWebPageActivity;.getIntent:
                                        ()Landroid/content/Intent; // method@0020
000c18: 0c00                    |000c: move-result-object v0
000c1a: 2201 0e00               |000d: new-instance v1, Landroid/widget/TextView; // type@000e
000c1e: 7020 0e00 8100          |000f: invoke-direct {v1, v8}, Landroid/widget/TextView;.<init>:
                                        (Landroid/content/Context;)V // method@000e
000c24: 1502 2041               |0012: const/high16 v2, #int 1092616192 // #4120
000c28: 6e20 1000 2100          |0014: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                        .setTextSize:(F)V // method@0010
000c2e: 1a02 4f00               |0017: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                        // string@004f
000c32: 6e20 0600 2000          |0019: invoke-virtual {v0, v2}, Landroid/content/Intent;
                                        .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                        // method@0006
000c38: 0c00                    |001c: move-result-object v0
000c3a: 1a02 0200               |001d: const-string v2, "0" // string@0002
000c3e: 2203 1400               |001f: new-instance v3, Lcom/uaf/matt/testone/b; // type@0014
000c42: 7010 3400 0300          |0021: invoke-direct {v3}, Lcom/uaf/matt/testone/b;.<init>:
                                        ()V // method@0034
000c48: 1224                    |0024: const/4 v4, #int 2 // #2
000c4a: 2344 3200               |0025: new-array v4, v4, [Ljava/lang/String; // type@0032
000c4e: 1205                    |0027: const/4 v5, #int 0 // #0
000c50: 2206 2100               |0028: new-instance v6, Ljava/lang/StringBuilder; // type@0021
000c54: 7010 4500 0600          |002a: invoke-direct {v6}, Ljava/lang/StringBuilder;.<init>:
                                        ()V // method@0045
000c5a: 1a07 6600               |002d: const-string v7, "http://www.google.com/search?q="
                                        // string@0066
000c5e: 6e20 4700 7600          |002f: invoke-virtual {v6, v7}, Ljava/lang/StringBuilder;
                                        .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0047
000c64: 0c06                    |0032: move-result-object v6
000c66: 6e20 4700 0600          |0033: invoke-virtual {v6, v0}, Ljava/lang/StringBuilder;
                                        .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0047
000c6c: 0c00                    |0036: move-result-object v0
000c6e: 6e10 4800 0000          |0037: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                        ()Ljava/lang/String; // method@0048
000c74: 0c00                    |003a: move-result-object v0
000c76: 4d00 0405               |003b: aput-object v0, v4, v5
000c7a: 1210                    |003d: const/4 v0, #int 1 // #1
000c7c: 4d02 0400               |003e: aput-object v2, v4, v0
000c80: 6e20 3700 4300          |0040: invoke-virtual {v3, v4}, Lcom/uaf/matt/testone/b;
                                        .execute:([Ljava/lang/Object;)Landroid/os/AsyncTask;
                                        // method@0037
000c86: 6e20 0f00 2100          |0043: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                        .setText:(Ljava/lang/CharSequence;)V // method@000f
000c8c: 6e20 2400 1800          |0046: invoke-virtual {v8, v1}, Lcom/uaf/matt/testone/
                                        DisplayWebPageActivity;.setContentView:
                                        (Landroid/view/View;)V // method@0024
000c92: 0e00                    |0049: return-void
      catches        : (none)
      positions      :
      locals         :

    #1               : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name           : 'onOptionsItemSelected'
      type           : '(Landroid/view/MenuItem;)Z'
      access         : 0x0001 (PUBLIC)
      code           -
      registers      : 4
      ins            : 2
      outs           : 2
      insns size     : 16 16-bit code units
000c94:                         |[000c94] com.uaf.matt.testone.DisplayWebPageActivity.
                                        onOptionsItemSelected:(Landroid/view/MenuItem;)Z
000ca4: 7210 0c00 0300          |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:()I
                                        // method@000c
```

```
000caa: 0a00                    |0003: move-result v0
000cac: 1401 0400 087f          |0004: const v1, #float 18077508855638697332159945598713200640.000000
                                         // #7f080004
000cb2: 3310 0400               |0007: if-ne v0, v1, 000b // +0004
000cb6: 1210                    |0009: const/4 v0, #int 1 // #1
000cb8: 0f00                    |000a: return v0
000cba: 6f20 0300 3200          |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                         .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                         // method@0003
000cc0: 0a00                    |000e: move-result v0
000cc2: 28fb                    |000f: goto 000a // -0005
      catches        : (none)
      positions      :
      locals         :

  source_file_idx    : -1 (unknown)

Class #3 header:
class_idx            : 18
access_flags         : 1 (0x0001)
superclass_idx       : 2
interfaces_off       : 0 (0x000000)
source_file_idx      : -1
annotations_off      : 0 (0x000000)
class_data_off       : 6581 (0x0019b5)
static_fields_size   : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 6

Class #3             -
  Class descriptor   : 'Lcom/uaf/matt/testone/TestOneActivity;'
  Access flags       : 0x0001 (PUBLIC)
  Superclass         : 'Landroid/app/Activity;'
  Interfaces         -
  Static fields      -
  Instance fields    -
  Direct methods     -
    #0               : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name           : '<init>'
      type           : '()V'
      access         : 0x10001 (PUBLIC CONSTRUCTOR)
      code           -
      registers      : 1
      ins            : 1
      outs           : 1
      insns size     : 4 16-bit code units
000cc4:                                 |[000cc4] com.uaf.matt.testone.TestOneActivity.<init>:()V
000cd4: 7010 0000 0000                  |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                                // method@0000
000cda: 0e00                            |0003: return-void
      catches        : (none)
      positions      :
      locals         :

  Virtual methods    -
    #0               : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name           : 'doMaths'
      type           : '(Landroid/view/View;)V'
      access         : 0x0001 (PUBLIC)
      code           -
      registers      : 5
      ins            : 2
      outs           : 3
      insns size     : 37 16-bit code units
000cdc:                                 |[000cdc] com.uaf.matt.testone.TestOneActivity.doMaths:
                                                (Landroid/view/View;)V
000cec: 2201 0400               |0000: new-instance v1, Landroid/content/Intent; // type@0004
```

```
000cf0: 1c00 0f00              |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                         // type@000f
000cf4: 7030 0400 3100         |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                         (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
000cfa: 1400 0100 087f         |0007: const v0, #float 180775027709158162366588184145378148352.00000
                                         // #7f080001
000d00: 6e20 2800 0300         |000a: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                         TestOneActivity;.findViewById:(I)Landroid/view/View;
                                         // method@0028
000d06: 0c00                   |000d: move-result-object v0
000d08: 1f00 0d00              |000e: check-cast v0, Landroid/widget/EditText; // type@000d
000d0c: 6e10 0d00 0000         |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                         ()Landroid/text/Editable; // method@000d
000d12: 0c00                   |0013: move-result-object v0
000d14: 6e10 3f00 0000         |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                         ()Ljava/lang/String; // method@003f
000d1a: 0c00                   |0017: move-result-object v0
000d1c: 7110 3d00 0000         |0018: invoke-static {v0}, Ljava/lang/Integer;.parseInt:
                                         (Ljava/lang/String;)I // method@003d
000d22: 0a00                   |001b: move-result v0
000d24: 1a02 4f00              |001c: const-string v2, "com.uaf.matt.testone.MESSAGE" // string@004f
000d28: 6e30 0700 2100         |001e: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                         .putExtra:(Ljava/lang/String;I)Landroid/content/Intent;
                                         // method@0007
000d2e: 6e20 2f00 1300         |0021: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                         TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                         // method@002f
000d34: 0e00                   |0024: return-void
      catches         : (none)
      positions       :
      locals          :

  #1                  : (in Lcom/uaf/matt/testone/TestOneActivity;)
    name              : 'encryptMessage'
    type              : '(Landroid/view/View;)V'
    access            : 0x0001 (PUBLIC)
    code              -
    registers         : 5
    ins               : 2
    outs              : 3
    insns size        : 32 16-bit code units
000d38:                        |[000d38] com.uaf.matt.testone.TestOneActivity.encryptMessage:
                                         (Landroid/view/View;)V
000d48: 2201 0400              |0000: new-instance v1, Landroid/content/Intent; // type@0004
000d4c: 1c00 1000              |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMessageActivity;
                                         // type@0010
000d50: 7030 0400 3100         |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                         (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
000d56: 1500 087f              |0007: const/high16 v0, #int 2131230720 // #7f08
000d5a: 6e20 2800 0300         |0009: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                         TestOneActivity;.findViewById:(I)Landroid/view/View;
                                         // method@0028
000d60: 0c00                   |000c: move-result-object v0
000d62: 1f00 0d00              |000d: check-cast v0, Landroid/widget/EditText; // type@000d
000d66: 6e10 0d00 0000         |000f: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                         ()Landroid/text/Editable; // method@000d
000d6c: 0c00                   |0012: move-result-object v0
000d6e: 6e10 3f00 0000         |0013: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                         ()Ljava/lang/String; // method@003f
000d74: 0c00                   |0016: move-result-object v0
000d76: 1a02 4f00              |0017: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                         // string@004f
000d7a: 6e30 0800 2100         |0019: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                         .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                         Landroid/content/Intent; // method@0008
000d80: 6e20 2f00 1300         |001c: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                         TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                         // method@002f
```

```
000d86: 0e00                      |001f: return-void
     catches       : (none)
     positions     :
     locals        :

   #2              : (in Lcom/uaf/matt/testone/TestOneActivity;)
     name          : 'getWebPage'
     type          : '(Landroid/view/View;)V'
     access        : 0x0001 (PUBLIC)
     code          -
     registers     : 5
     ins           : 2
     outs          : 3
     insns size    : 33 16-bit code units
000d88:                           |[000d88] com.uaf.matt.testone.TestOneActivity.getWebPage:
                                       (Landroid/view/View;)V
000d98: 2201 0400                 |0000: new-instance v1, Landroid/content/Intent; // type@0004
000d9c: 1c00 1100                 |0002: const-class v0, Lcom/uaf/matt/testone/DisplayWebPageActivity;
                                       // type@0011
000da0: 7030 0400 3100            |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                       (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
000da6: 1400 0200 087f            |0007: const v0, #float 180775047991567766018258608092629434368.0000
                                       // #7f080002
000dac: 6e20 2800 0300            |000a: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                       TestOneActivity;.findViewById:(I)Landroid/view/View;
                                       // method@0028
000db2: 0c00                      |000d: move-result-object v0
000db4: 1f00 0d00                 |000e: check-cast v0, Landroid/widget/EditText; // type@000d
000db8: 6e10 0d00 0000            |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                       ()Landroid/text/Editable; // method@000d
000dbe: 0c00                      |0013: move-result-object v0
000dc0: 6e10 3f00 0000            |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                       ()Ljava/lang/String; // method@003f
000dc6: 0c00                      |0017: move-result-object v0
000dc8: 1a02 4f00                 |0018: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                       // string@004f
000dcc: 6e30 0800 2100            |001a: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                       .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                       Landroid/content/Intent; // method@0008
000dd2: 6e20 2f00 1300            |001d: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                       TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                       // method@002f
000dd8: 0e00                      |0020: return-void
     catches       : (none)
     positions     :
     locals        :

   #3              : (in Lcom/uaf/matt/testone/TestOneActivity;)
     name          : 'onCreate'
     type          : '(Landroid/os/Bundle;)V'
     access        : 0x0001 (PUBLIC)
     code          -
     registers     : 3
     ins           : 2
     outs          : 2
     insns size    : 10 16-bit code units
000ddc:                           |[000ddc] com.uaf.matt.testone.TestOneActivity.onCreate:
                                       (Landroid/os/Bundle;)V
000dec: 6f20 0100 2100            |0000: invoke-super {v1, v2}, Landroid/app/Activity;.onCreate:
                                       (Landroid/os/Bundle;)V // method@0001
000df2: 1400 0300 037f            |0003: const v0, #float 174128928295052790305409996738478997504.00
                                       // #7f030003
000df8: 6e20 2e00 0100            |0006: invoke-virtual {v1, v0}, Lcom/uaf/matt/testone/
                                       TestOneActivity;.setContentView:(I)V // method@002e
000dfe: 0e00                      |0009: return-void
     catches       : (none)
     positions     :
     locals        :
```

```
        #4                : (in Lcom/uaf/matt/testone/TestOneActivity;)
          name            : 'onCreateOptionsMenu'
          type            : '(Landroid/view/Menu;)Z'
          access          : 0x0001 (PUBLIC)
          code            -
          registers       : 4
          ins             : 2
          outs            : 3
          insns size      : 14 16-bit code units
000e00:                         |[000e00] com.uaf.matt.testone.TestOneActivity.onCreateOptionsMenu:
                                    (Landroid/view/Menu;)Z
000e10: 6e10 2900 0200         |0000: invoke-virtual {v2}, Lcom/uaf/matt/testone/TestOneActivity;
                                    .getMenuInflater:()Landroid/view/MenuInflater; // method@0029
000e16: 0c00                   |0003: move-result-object v0
000e18: 1501 077f              |0004: const/high16 v1, #int 2131165184 // #7f07
000e1c: 6e30 0b00 1003         |0006: invoke-virtual {v0, v1, v3}, Landroid/view/MenuInflater;
                                    .inflate:(ILandroid/view/Menu;)V // method@000b
000e22: 6f20 0200 3200         |0009: invoke-super {v2, v3}, Landroid/app/Activity;
                                    .onCreateOptionsMenu:(Landroid/view/Menu;)Z // method@0002
000e28: 0a00                   |000c: move-result v0
000e2a: 0f00                   |000d: return v0
          catches         : (none)
          positions       :
          locals          :

        #5                : (in Lcom/uaf/matt/testone/TestOneActivity;)
          name            : 'onOptionsItemSelected'
          type            : '(Landroid/view/MenuItem;)Z'
          access          : 0x0001 (PUBLIC)
          code            -
          registers       : 4
          ins             : 2
          outs            : 2
          insns size      : 22 16-bit code units
000e2c:                         |[000e2c] com.uaf.matt.testone.TestOneActivity.onOptionsItemSelected:
                                    (Landroid/view/MenuItem;)Z
000e3c: 1210                   |0000: const/4 v0, #int 1 // #1
000e3e: 7210 0c00 0300         |0001: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                    ()I // method@000c
000e44: 0a01                   |0004: move-result v1
000e46: 2b01 0900 0000         |0005: packed-switch v1, 0000000e // +00000009
000e4c: 6f20 0300 3200         |0008: invoke-super {v2, v3}, Landroid/app/Activity;
                                    .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                    // method@0003
000e52: 0a00                   |000b: move-result v0
000e54: 0f00                   |000c: return v0
000e56: 0000                   |000d: nop // spacer
000e58: 0001 0200 0300 087f 0700 0000 0700 ... |000e: packed-switch-data (8 units)
          catches         : (none)
          positions       :
          locals          :

   source_file_idx    : -1 (unknown)

Class #4 header:
class_idx            : 19
access_flags         : 1 (0x0001)
superclass_idx       : 30
interfaces_off       : 0 (0x000000)
source_file_idx      : -1
annotations_off      : 0 (0x000000)
class_data_off       : 6615 (0x0019d7)
static_fields_size   : 0
instance_fields_size : 0
direct_methods_size  : 4
virtual_methods_size : 0
```

```
Class #4                -
  Class descriptor  : 'Lcom/uaf/matt/testone/a;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/a;)
      name          : 'a'
      type          : '(Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x0019 (PUBLIC STATIC FINAL)
      code          -
      registers     : 7
      ins           : 1
      outs          : 2
      insns size    : 81 16-bit code units
000e68:                         |[000e68] com.uaf.matt.testone.a.a:(Ljava/lang/String;)
                                             Ljava/lang/String;
000e78: 1a00 3b00               |0000: const-string v0, "MD5" // string@003b
000e7c: 7110 4e00 0000          |0002: invoke-static {v0}, Ljava/security/MessageDigest;
                                        .getInstance:(Ljava/lang/String;)
                                        Ljava/security/MessageDigest; // method@004e
000e82: 0c00                    |0005: move-result-object v0
000e84: 6e10 4000 0600          |0006: invoke-virtual {v6}, Ljava/lang/String;.getBytes:()[B
                                        // method@0040
000e8a: 0c01                    |0009: move-result-object v1
000e8c: 6e20 4f00 1000          |000a: invoke-virtual {v0, v1}, Ljava/security/MessageDigest;
                                        .update:([B)V // method@004f
000e92: 6e10 4d00 0000          |000d: invoke-virtual {v0}, Ljava/security/MessageDigest;.digest:
                                        ()[B // method@004d
000e98: 0c02                    |0010: move-result-object v2
000e9a: 2203 2000               |0011: new-instance v3, Ljava/lang/StringBuffer; // type@0020
000e9e: 7010 4200 0300          |0013: invoke-direct {v3}, Ljava/lang/StringBuffer;.<init>:()V
                                        // method@0042
000ea4: 1200                    |0016: const/4 v0, #int 0 // #0
000ea6: 0101                    |0017: move v1, v0
000ea8: 2120                    |0018: array-length v0, v2
000eaa: 3501 2c00               |0019: if-ge v1, v0, 0045 // +002c
000eae: 4800 0201               |001b: aget-byte v0, v2, v1
000eb2: d500 ff00               |001d: and-int/lit16 v0, v0, #int 255 // #00ff
000eb6: 7110 3e00 0000          |001f: invoke-static {v0}, Ljava/lang/Integer;.toHexString:
                                        (I)Ljava/lang/String; // method@003e
000ebc: 0c00                    |0022: move-result-object v0
000ebe: 6e10 4100 0000          |0023: invoke-virtual {v0}, Ljava/lang/String;.length:()I
                                        // method@0041
000ec4: 0a04                    |0026: move-result v4
000ec6: 1225                    |0027: const/4 v5, #int 2 // #2
000ec8: 3554 1600               |0028: if-ge v4, v5, 003e // +0016
000ecc: 2204 2100               |002a: new-instance v4, Ljava/lang/StringBuilder; // type@0021
000ed0: 7010 4500 0400          |002c: invoke-direct {v4}, Ljava/lang/StringBuilder;.<init>:()V
                                        // method@0045
000ed6: 1a05 0200               |002f: const-string v5, "0" // string@0002
000eda: 6e20 4700 5400          |0031: invoke-virtual {v4, v5}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0047
000ee0: 0c04                    |0034: move-result-object v4
000ee2: 6e20 4700 0400          |0035: invoke-virtual {v4, v0}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0047
000ee8: 0c00                    |0038: move-result-object v0
000eea: 6e10 4800 0000          |0039: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                        ()Ljava/lang/String; // method@0048
000ef0: 0c00                    |003c: move-result-object v0
000ef2: 28e6                    |003d: goto 0023 // -001a
000ef4: 6e20 4300 0300          |003e: invoke-virtual {v3, v0}, Ljava/lang/StringBuffer;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuffer; // method@0043
000efa: d800 0101               |0041: add-int/lit8 v0, v1, #int 1 // #01
```

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```
000efe: 0101                    |0043: move v1, v0
000f00: 28d4                    |0044: goto 0018 // -002c
000f02: 6e10 4400 0300          |0045: invoke-virtual {v3}, Ljava/lang/StringBuffer;.toString:
                                          ()Ljava/lang/String; // method@0044
000f08: 0c00                    |0048: move-result-object v0
000f0a: 1100                    |0049: return-object v0
000f0c: 0d00                    |004a: move-exception v0
000f0e: 6e10 3c00 0000          |004b: invoke-virtual {v0}, Ljava/lang/Exception;.printStackTrace:
                                          ()V // method@003c
000f14: 1a00 5600               |004e: const-string v0, "error" // string@0056
000f18: 28f9                    |0050: goto 0049 // -0007
        catches        : 1
          0x0000 - 0x0048
            Ljava/lang/Exception; -> 0x004a
        positions      :
        locals         :

    #1              : (in Lcom/uaf/matt/testone/a;)
      name          : 'a'
      type          : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x0009 (PUBLIC STATIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 29 16-bit code units
000f28:                         |[000f28] com.uaf.matt.testone.a.a:
                                          (Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;
000f38: 6e10 4000 0200          |0000: invoke-virtual {v2}, Ljava/lang/String;.getBytes:()[B
                                          // method@0040
000f3e: 0c00                    |0003: move-result-object v0
000f40: 7110 3200 0000          |0004: invoke-static {v0}, Lcom/uaf/matt/testone/a;.a:([B)[B
                                          // method@0032
000f46: 0c00                    |0007: move-result-object v0
000f48: 6e10 4000 0300          |0008: invoke-virtual {v3}, Ljava/lang/String;.getBytes:()[B
                                          // method@0040
000f4e: 0c01                    |000b: move-result-object v1
000f50: 7120 3300 1000          |000c: invoke-static {v0, v1}, Lcom/uaf/matt/testone/a;.a:
                                          ([B[B)[B // method@0033
000f56: 0c00                    |000f: move-result-object v0
000f58: 1201                    |0010: const/4 v1, #int 0 // #0
000f5a: 7120 0a00 1000          |0011: invoke-static {v0, v1}, Landroid/util/Base64;
                                          .encodeToString:([BI)Ljava/lang/String; // method@000a
000f60: 0c00                    |0014: move-result-object v0
000f62: 1100                    |0015: return-object v0
000f64: 0d00                    |0016: move-exception v0
000f66: 6e10 3c00 0000          |0017: invoke-virtual {v0}, Ljava/lang/Exception;.printStackTrace:
                                          ()V // method@003c
000f6c: 1a00 5600               |001a: const-string v0, "error" // string@0056
000f70: 28f9                    |001c: goto 0015 // -0007
        catches        : 1
          0x0000 - 0x0014
            Ljava/lang/Exception; -> 0x0016
        positions      :
        locals         :

    #2              : (in Lcom/uaf/matt/testone/a;)
      name          : 'a'
      type          : '([B)[B'
      access        : 0x000a (PRIVATE STATIC)
      code          -
      registers     : 4
      ins           : 1
      outs          : 3
      insns size    : 29 16-bit code units
000f80:                         |[000f80] com.uaf.matt.testone.a.a:([B)[B
000f90: 1a00 0500               |0000: const-string v0, "AES" // string@0005
000f94: 7110 5b00 0000          |0002: invoke-static {v0}, Ljavax/crypto/KeyGenerator;
```

```
                                                .getInstance:(Ljava/lang/String;)
                                                Ljavax/crypto/KeyGenerator; // method@005b
000f9a: 0c00                    |0005: move-result-object v0
000f9c: 1a01 3e00               |0006: const-string v1, "SHA1PRNG" // string@003e
000fa0: 7110 5000 0100          |0008: invoke-static {v1}, Ljava/security/SecureRandom;
                                                .getInstance:(Ljava/lang/String;)
                                                Ljava/security/SecureRandom; // method@0050
000fa6: 0c01                    |000b: move-result-object v1
000fa8: 6e20 5100 3100          |000c: invoke-virtual {v1, v3}, Ljava/security/SecureRandom;
                                                .setSeed:([B)V // method@0051
000fae: 1302 8000               |000f: const/16 v2, #int 128 // #80
000fb2: 6e30 5c00 2001          |0011: invoke-virtual {v0, v2, v1}, Ljavax/crypto/KeyGenerator;
                                                .init:(ILjava/security/SecureRandom;)V // method@005c
000fb8: 6e10 5a00 0000          |0014: invoke-virtual {v0}, Ljavax/crypto/KeyGenerator;
                                                .generateKey:()Ljavax/crypto/SecretKey; // method@005a
000fbe: 0c00                    |0017: move-result-object v0
000fc0: 7210 5d00 0000          |0018: invoke-interface {v0}, Ljavax/crypto/SecretKey;.getEncoded:
                                                ()[B // method@005d
000fc6: 0c00                    |001b: move-result-object v0
000fc8: 1100                    |001c: return-object v0
      catches        : (none)
      positions      :
      locals         :

    #3                 : (in Lcom/uaf/matt/testone/a;)
      name           : 'a'
      type           : '([B[B)[B'
      access         : 0x000a (PRIVATE STATIC)
      code           -
      registers      : 5
      ins            : 2
      outs           : 3
      insns size     : 22 16-bit code units
000fcc:                         |[000fcc] com.uaf.matt.testone.a.a:([B[B)[B
000fdc: 2200 2d00               |0000: new-instance v0, Ljavax/crypto/spec/SecretKeySpec;
                                                // type@002d
000fe0: 1a01 0500               |0002: const-string v1, "AES" // string@0005
000fe4: 7030 5e00 3001          |0004: invoke-direct {v0, v3, v1}, Ljavax/crypto/spec/
                                                SecretKeySpec;.<init>:([BLjava/lang/String;)V
                                                // method@005e
000fea: 1a01 0500               |0007: const-string v1, "AES" // string@0005
000fee: 7110 5800 0100          |0009: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                                (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@0058
000ff4: 0c01                    |000c: move-result-object v1
000ff6: 1212                    |000d: const/4 v2, #int 1 // #1
000ff8: 6e30 5900 2100          |000e: invoke-virtual {v1, v2, v0}, Ljavax/crypto/Cipher;.init:
                                                (ILjava/security/Key;)V // method@0059
000ffe: 6e20 5700 4100          |0011: invoke-virtual {v1, v4}, Ljavax/crypto/Cipher;.doFinal:
                                                ([B)[B // method@0057
001004: 0c00                    |0014: move-result-object v0
001006: 1100                    |0015: return-object v0
      catches        : (none)
      positions      :
      locals         :

  Virtual methods    -
  source_file_idx    : -1 (unknown)

Class #5 header:
class_idx          : 20
access_flags       : 0 (0x0000)
superclass_idx     : 5
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 6635 (0x0019eb)
static_fields_size : 0
instance_fields_size: 0
```

```
direct_methods_size : 1
virtual_methods_size: 2

Class #5              -
  Class descriptor  : 'Lcom/uaf/matt/testone/b;'
  Access flags      : 0x0000 ()
  Superclass        : 'Landroid/os/AsyncTask;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/b;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10000 (CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001008:                               |[001008] com.uaf.matt.testone.b.<init>:()V
001018: 7010 0900 0000                |0000: invoke-direct {v0}, Landroid/os/AsyncTask;.<init>:()V
                                              // method@0009
00101e: 0e00                          |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/b;)
      name          : 'a'
      type          : '([Ljava/lang/String;)Ljava/lang/Void;'
      access        : 0x0081 (PUBLIC VARARGS)
      code          -
      registers     : 7
      ins           : 2
      outs          : 2
      insns size    : 63 16-bit code units
001020:                               |[001020] com.uaf.matt.testone.b.a:([Ljava/lang/String;)
                                                 Ljava/lang/Void;
001030: 2200 2400                     |0000: new-instance v0, Ljava/net/URL; // type@0024
001034: 1201                          |0002: const/4 v1, #int 0 // #0
001036: 4601 0601                     |0003: aget-object v1, v6, v1
00103a: 7020 4a00 1000                |0005: invoke-direct {v0, v1}, Ljava/net/URL;.<init>:
                                              (Ljava/lang/String;)V // method@004a
001040: 6e10 4b00 0000                |0008: invoke-virtual {v0}, Ljava/net/URL;.openConnection:
                                              ()Ljava/net/URLConnection; // method@004b
001046: 0c00                          |000b: move-result-object v0
001048: 2201 1500                     |000c: new-instance v1, Ljava/io/BufferedReader; // type@0015
00104c: 2202 1800                     |000e: new-instance v2, Ljava/io/InputStreamReader; // type@0018
001050: 6e10 4c00 0000                |0010: invoke-virtual {v0}, Ljava/net/URLConnection;
                                              .getInputStream:()Ljava/io/InputStream; // method@004c
001056: 0c00                          |0013: move-result-object v0
001058: 7020 3b00 0200                |0014: invoke-direct {v2, v0}, Ljava/io/InputStreamReader;
                                              .<init>:(Ljava/io/InputStream;)V // method@003b
00105e: 7020 3800 2100                |0017: invoke-direct {v1, v2}, Ljava/io/BufferedReader;
                                              .<init>:(Ljava/io/Reader;)V // method@0038
001064: 1a00 0000                     |001a: const-string v0, "" // string@0000
001068: 6e10 3900 0100                |001c: invoke-virtual {v1}, Ljava/io/BufferedReader;.readLine:
                                              ()Ljava/lang/String; // method@0039
00106e: 0c00                          |001f: move-result-object v0
001070: 3800 1d00                     |0020: if-eqz v0, 003d // +001d
001074: 2202 2100                     |0022: new-instance v2, Ljava/lang/StringBuilder; // type@0021
001078: 7010 4500 0200                |0024: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:
                                              ()V // method@0045
00107e: 1213                          |0027: const/4 v3, #int 1 // #1
001080: 4604 0603                     |0028: aget-object v4, v6, v3
001084: 6e20 4700 4200                |002a: invoke-virtual {v2, v4}, Ljava/lang/StringBuilder;.append:
```

```
                                            (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                            // method@0047
00108a: 0c02                      |002d: move-result-object v2
00108c: 6e20 4700 0200            |002e: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;.append:
                                            (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                            // method@0047
001092: 0c00                      |0031: move-result-object v0
001094: 6e10 4800 0000            |0032: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                            ()Ljava/lang/String; // method@0048
00109a: 0c00                      |0035: move-result-object v0
00109c: 4d00 0603                 |0036: aput-object v0, v6, v3
0010a0: 28e4                      |0038: goto 001c // -001c
0010a2: 0d00                      |0039: move-exception v0
0010a4: 6e10 3a00 0000            |003a: invoke-virtual {v0}, Ljava/io/IOException;
                                            .printStackTrace:()V // method@003a
0010aa: 1200                      |003d: const/4 v0, #int 0 // #0
0010ac: 1100                      |003e: return-object v0
      catches        : 1
        0x0000 - 0x0038
          Ljava/io/IOException; -> 0x0039
      positions     :
      locals        :

    #1                : (in Lcom/uaf/matt/testone/b;)
      name          : 'doInBackground'
      type          : '([Ljava/lang/Object;)Ljava/lang/Object;'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 3
      ins           : 2
      outs          : 2
      insns size    : 7 16-bit code units
0010bc:                           |[0010bc] com.uaf.matt.testone.b.doInBackground:
                                            ([Ljava/lang/Object;)Ljava/lang/Object;
0010cc: 1f02 3200                 |0000: check-cast v2, [Ljava/lang/String; // type@0032
0010d0: 6e20 3500 2100            |0002: invoke-virtual {v1, v2}, Lcom/uaf/matt/testone/b;.a:
                                            ([Ljava/lang/String;)Ljava/lang/Void; // method@0035
0010d6: 0c00                      |0005: move-result-object v0
0010d8: 1100                      |0006: return-object v0
      catches       : (none)
      positions     :
      locals        :

  source_file_idx   : -1 (unknown)
```

C.3   Java Archive Grinder

```
Processing 'classes-dex2jar_s-jar2dex.dex'...
Opened 'classes-dex2jar_s-jar2dex.dex', DEX version '035'
DEX file header:
magic              : 'dex\n035\0'
checksum           : 689961b6
signature          : a55b...909d
file_size          : 9444
header_size        : 112
link_size          : 0
link_off           : 0 (0x000000)
string_ids_size    : 169
string_ids_off     : 112 (0x000070)
type_ids_size      : 61
type_ids_off       : 788 (0x000314)
proto_ids_size     : 55
proto_ids_off      : 1032 (0x000408)
field_ids_size     : 36
field_ids_off      : 1692 (0x00069c)
method_ids_size    : 111
method_ids_off     : 1980 (0x0007bc)
```

```
class_defs_size     : 16
class_defs_off      : 2868 (0x000b34)
data_size           : 6064
data_off            : 3380 (0x000d34)

Class #0 header:
class_idx           : 15
access_flags        : 17 (0x0011)
superclass_idx      : 40
interfaces_off      : 0 (0x000000)
source_file_idx     : -1
annotations_off     : 0 (0x000000)
class_data_off      : 8961 (0x002301)
static_fields_size  : 1
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #0            -
  Class descriptor  : 'Lcom/uaf/matt/testone/BuildConfig;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/BuildConfig;)
      name          : 'DEBUG'
      type          : 'Z'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/BuildConfig;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000d34:                                 |[000d34] com.uaf.matt.testone.BuildConfig.<init>:()V
000d44: 7010 4d00 0000                  |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                         // method@004d
000d4a: 0e00                            |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
  source_file_idx   : -1 (unknown)

Class #1 header:
class_idx           : 16
access_flags        : 1 (0x0001)
superclass_idx      : 2
interfaces_off      : 0 (0x000000)
source_file_idx     : -1
annotations_off     : 0 (0x000000)
class_data_off      : 8973 (0x00230d)
static_fields_size  : 1
instance_fields_size: 0
direct_methods_size : 3
virtual_methods_size: 2

Class #1            -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMathsActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
```

```
    Static fields      -
      #0               : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
        name           : 'a'
        type           : 'Ljava/util/ArrayList;'
        access         : 0x000a (PRIVATE STATIC)
    Instance fields    -
    Direct methods     -
      #0               : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
        name           : '<clinit>'
        type           : '()V'
        access         : 0x10008 (STATIC CONSTRUCTOR)
        code           -
        registers      : 2
        ins            : 0
        outs           : 2
        insns size     : 22 16-bit code units
000d4c:                                 |[000d4c] com.uaf.matt.testone.DisplayMathsActivity.<clinit>:
                                         |              ()V
000d5c: 2200 3300                       |0000: new-instance v0, Ljava/util/ArrayList; // type@0033
000d60: 7010 6200 0000                  |0002: invoke-direct {v0}, Ljava/util/ArrayList;.<init>:
                                         |              ()V // method@0062
000d66: 6900 0100                       |0005: sput-object v0, Lcom/uaf/matt/testone/
                                         |              DisplayMathsActivity;.a:Ljava/util/ArrayList;
                                         |              // field@0001
000d6a: 6200 0100                       |0007: sget-object v0, Lcom/uaf/matt/testone/
                                         |              DisplayMathsActivity;.a:Ljava/util/ArrayList;
                                         |              // field@0001




000d6e: 6201 2300                       |0009: sget-object v1, Ljava/math/BigInteger;.ZERO:
                                         |              Ljava/math/BigInteger; // field@0023
000d72: 6e20 6400 1000                  |000b: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                         |              (Ljava/lang/Object;)Z // method@0064
000d78: 6200 0100                       |000e: sget-object v0, Lcom/uaf/matt/testone/
                                         |              DisplayMathsActivity;.a:Ljava/util/ArrayList;
                                         |              // field@0001
000d7c: 6201 2200                       |0010: sget-object v1, Ljava/math/BigInteger;.ONE:
                                         |              Ljava/math/BigInteger; // field@0022
000d80: 6e20 6400 1000                  |0012: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                         |              (Ljava/lang/Object;)Z // method@0064
000d86: 0e00                            |0015: return-void
        catches        : (none)
        positions      :
        locals         :

      #1               : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
        name           : '<init>'
        type           : '()V'
        access         : 0x10001 (PUBLIC CONSTRUCTOR)
        code           -
        registers      : 1
        ins            : 1
        outs           : 1
        insns size     : 4 16-bit code units
000d88:                                 |[000d88] com.uaf.matt.testone.DisplayMathsActivity.<init>:()V
000d98: 7010 0000 0000                  |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:
                                         |              ()V // method@0000
000d9e: 0e00                            |0003: return-void
        catches        : (none)
        positions      :
        locals         :

      #2               : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
        name           : 'fib'
        type           : '(I)Ljava/math/BigInteger;'
```

```
        access          : 0x0009 (PUBLIC STATIC)
        code            -
        registers       : 4
        ins             : 1
        outs            : 3
        insns size      : 38 16-bit code units
000da0:                                 |[000da0] com.uaf.matt.testone.DisplayMathsActivity.fib:
                                             (I)Ljava/math/BigInteger;
000db0: 6200 0100                       |0000: sget-object v0, Lcom/uaf/matt/testone/
                                             DisplayMathsActivity;.a:Ljava/util/ArrayList;
                                             // field@0001
000db4: 6e10 6600 0000                  |0002: invoke-virtual {v0}, Ljava/util/ArrayList;.size:()I
                                             // method@0066
000dba: 0a00                            |0005: move-result v0
000dbc: 3403 1700                       |0006: if-lt v3, v0, 001d // +0017
000dc0: 6200 0100                       |0008: sget-object v0, Lcom/uaf/matt/testone/
                                             DisplayMathsActivity;.a:Ljava/util/ArrayList;
                                             // field@0001
000dc4: d801 03ff                       |000a: add-int/lit8 v1, v3, #int -1 // #ff
000dc8: 7110 1500 0100                  |000c: invoke-static {v1}, Lcom/uaf/matt/testone/
                                             DisplayMathsActivity;.fib:(I)Ljava/math/BigInteger;
                                             // method@0015
000dce: 0c01                            |000f: move-result-object v1
000dd0: d802 03fe                       |0010: add-int/lit8 v2, v3, #int -2 // #fe
000dd4: 7110 1500 0200                  |0012: invoke-static {v2}, Lcom/uaf/matt/testone/
                                             DisplayMathsActivity;.fib:(I)Ljava/math/BigInteger;
                                             // method@0015
000dda: 0c02                            |0015: move-result-object v2
000ddc: 6e20 5900 2100                  |0016: invoke-virtual {v1, v2}, Ljava/math/BigInteger;.add:
                                             (Ljava/math/BigInteger;)Ljava/math/BigInteger;
                                             // method@0059
000de2: 0c01                            |0019: move-result-object v1
000de4: 6e30 6300 3001                  |001a: invoke-virtual {v0, v3, v1}, Ljava/util/ArrayList;
                                             .add:(ILjava/lang/Object;)V // method@0063
000dea: 6200 0100                       |001d: sget-object v0, Lcom/uaf/matt/testone/
                                             DisplayMathsActivity;.a:Ljava/util/ArrayList;
                                             // field@0001
000dee: 6e20 6500 3000                  |001f: invoke-virtual {v0, v3}, Ljava/util/ArrayList;.get:
                                             (I)Ljava/lang/Object; // method@0065
000df4: 0c00                            |0022: move-result-object v0
000df6: 1f00 2d00                       |0023: check-cast v0, Ljava/math/BigInteger; // type@002d
000dfa: 1100                            |0025: return-object v0
        catches         : (none)
        positions       :
        locals          :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0004 (PROTECTED)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 59 16-bit code units
000dfc:                                 |[000dfc] com.uaf.matt.testone.DisplayMathsActivity.onCreate:
                                             (Landroid/os/Bundle;)V
000e0c: 6f20 0100 5400                  |0000: invoke-super {v4, v5}, Landroid/app/Activity;.onCreate:
                                             (Landroid/os/Bundle;)V // method@0001
000e12: 1500 037f                       |0003: const/high16 v0, #int 2130903040 // #7f03
000e16: 6e20 1900 0400                  |0005: invoke-virtual {v4, v0}, Lcom/uaf/matt/testone/
                                             DisplayMathsActivity;.setContentView:(I)V // method@0019
000e1c: 6e10 1600 0400                  |0008: invoke-virtual {v4}, Lcom/uaf/matt/testone/
                                             DisplayMathsActivity;.getIntent:()Landroid/content/Intent;
                                             // method@0016
000e22: 0c00                            |000b: move-result-object v0
000e24: 1a01 6800                       |000c: const-string v1, "com.uaf.matt.testone.MESSAGE"
```

```
                                          // string@0068
000e28: 1202                   |000e: const/4 v2, #int 0 // #0
000e2a: 6e30 0500 1002         |000f: invoke-virtual {v0, v1, v2}, Landroid/content/Intent;
                                          .getIntExtra:(Ljava/lang/String;I)I // method@0005
000e30: 0a00                   |0012: move-result v0
000e32: 2201 0e00              |0013: new-instance v1, Landroid/widget/TextView; // type@000e
000e36: 7020 0f00 4100         |0015: invoke-direct {v1, v4}, Landroid/widget/TextView;.<init>:
                                          (Landroid/content/Context;)V // method@000f
000e3c: 1502 2042              |0018: const/high16 v2, #int 1109393408 // #4220
000e40: 6e20 1100 2100         |001a: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                          .setTextSize:(F)V // method@0011
000e46: 2202 2b00              |001d: new-instance v2, Ljava/lang/StringBuilder; // type@002b
000e4a: 7010 5500 0200         |001f: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:
                                          ()V // method@0055
000e50: 1a03 0000              |0022: const-string v3, "" // string@0000
000e54: 6e20 5700 3200         |0024: invoke-virtual {v2, v3}, Ljava/lang/StringBuilder;.append:
                                          (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@0057
000e5a: 0c02                   |0027: move-result-object v2
000e5c: 7110 1500 0000         |0028: invoke-static {v0}, Lcom/uaf/matt/testone/
                                          DisplayMathsActivity;.fib:(I)Ljava/math/BigInteger;
                                          // method@0015
000e62: 0c00                   |002b: move-result-object v0
000e64: 6e20 5600 0200         |002c: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;.append:
                                          (Ljava/lang/Object;)Ljava/lang/StringBuilder;
                                          // method@0056
000e6a: 0c00                   |002f: move-result-object v0
000e6c: 6e10 5800 0000         |0030: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                          ()Ljava/lang/String; // method@0058
000e72: 0c00                   |0033: move-result-object v0
000e74: 6e20 1000 0100         |0034: invoke-virtual {v1, v0}, Landroid/widget/TextView;
                                          .setText:(Ljava/lang/CharSequence;)V // method@0010
000e7a: 6e20 1a00 1400         |0037: invoke-virtual {v4, v1}, Lcom/uaf/matt/testone/
                                          DisplayMathsActivity;.setContentView:
                                          (Landroid/view/View;)V // method@001a
000e80: 0e00                   |003a: return-void
      catches         : (none)
      positions       :
      locals          :

    #1              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
000e84:                        |[000e84] com.uaf.matt.testone.DisplayMathsActivity.
                                          onOptionsItemSelected:(Landroid/view/MenuItem;)Z
000e94: 7210 0d00 0300         |0000: invoke-interface {v3}, Landroid/view/MenuItem;
                                          .getItemId:()I // method@000d
000e9a: 0a00                   |0003: move-result v0
000e9c: 1401 0400 087f         |0004: const v1, #float 180775088556386973321599455987132006400.00
                                          // #7f080004
000ea2: 3310 0400              |0007: if-ne v0, v1, 000b // +0004
000ea6: 1210                   |0009: const/4 v0, #int 1 // #1
000ea8: 0f00                   |000a: return v0
000eaa: 6f20 0300 3200         |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                          .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                          // method@0003
000eb0: 0a00                   |000e: move-result v0
000eb2: 28fb                   |000f: goto 000a // -0005
      catches         : (none)
      positions       :
      locals          :
```

```
   source_file_idx    : -1 (unknown)

Class #2 header:
class_idx          : 17
access_flags       : 1 (0x0001)
superclass_idx     : 2
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 9003 (0x00232b)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #2             -
  Class descriptor   : 'Lcom/uaf/matt/testone/DisplayMessageActivity;'
  Access flags       : 0x0001 (PUBLIC)
  Superclass         : 'Landroid/app/Activity;'
  Interfaces         -
  Static fields      -
  Instance fields    -
  Direct methods     -
    #0               : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name           : '<init>'
      type           : '()V'
      access         : 0x10001 (PUBLIC CONSTRUCTOR)
      code           -
      registers      : 1
      ins            : 1
      outs           : 1
      insns size     : 4 16-bit code units
000eb4:                             |[000eb4] com.uaf.matt.testone.DisplayMessageActivity.<init>:()V
000ec4: 7010 0000 0000             |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                            // method@0000
000eca: 0e00                       |0003: return-void
      catches        : (none)
      positions      :
      locals         :

  Virtual methods    -
    #0               : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name           : 'onCreate'
      type           : '(Landroid/os/Bundle;)V'
      access         : 0x0004 (PROTECTED)
      code           -
      registers      : 7
      ins            : 2
      outs           : 2
      insns size     : 75 16-bit code units
000ecc:                             |[000ecc] com.uaf.matt.testone.DisplayMessageActivity.onCreate:
                                            (Landroid/os/Bundle;)V
000edc: 6f20 0100 6500             |0000: invoke-super {v5, v6}, Landroid/app/Activity;.onCreate:
                                            (Landroid/os/Bundle;)V // method@0001
000ee2: 1400 0100 037f             |0003: const v0, #float 174128887730233583002069148843976425472.00
                                            // #7f030001
000ee8: 6e20 1f00 0500             |0006: invoke-virtual {v5, v0}, Lcom/uaf/matt/testone/
                                            DisplayMessageActivity;.setContentView:(I)V // method@001f
000eee: 6e10 1c00 0500             |0009: invoke-virtual {v5}, Lcom/uaf/matt/testone/
                                            DisplayMessageActivity;.getIntent:
                                            ()Landroid/content/Intent; // method@001c
000ef4: 0c00                       |000c: move-result-object v0
000ef6: 1a01 6800                  |000d: const-string v1, "com.uaf.matt.testone.MESSAGE"
                                            // string@0068
000efa: 6e20 0600 1000             |000f: invoke-virtual {v0, v1}, Landroid/content/Intent;
                                            .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                            // method@0006
000f00: 0c00                       |0012: move-result-object v0
```

```
000f02: 2201 0e00          |0013: new-instance v1, Landroid/widget/TextView; // type@000e
000f06: 7020 0f00 5100     |0015: invoke-direct {v1, v5}, Landroid/widget/TextView;.<init>:
                                   (Landroid/content/Context;)V // method@000f
000f0c: 1502 a041          |0018: const/high16 v2, #int 1101004800 // #41a0
000f10: 6e20 1100 2100     |001a: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                   .setTextSize:(F)V // method@0011
000f16: 1a02 4d00          |001d: const-string v2, "Super-Secret-Password" // string@004d
000f1a: 7110 3600 0000     |001f: invoke-static {v0}, Lcom/uaf/matt/testone/SimpleCrypto;
                                   .md5:(Ljava/lang/String;)Ljava/lang/String; // method@0036
000f20: 0c03              |0022: move-result-object v3
000f22: 7120 3400 3200     |0023: invoke-static {v2, v3}, Lcom/uaf/matt/testone/SimpleCrypto;
                                   .encrypt:(Ljava/lang/String;Ljava/lang/String;)
                                   Ljava/lang/String; // method@0034
000f28: 0c02              |0026: move-result-object v2
000f2a: 2203 2b00          |0027: new-instance v3, Ljava/lang/StringBuilder; // type@002b
000f2e: 7010 5500 0300     |0029: invoke-direct {v3}, Ljava/lang/StringBuilder;.<init>:()V
                                   // method@0055




000f34: 1a04 4a00          |002c: const-string v4, "Message before encryption: "
                                   // string@004a
000f38: 6e20 5700 4300     |002e: invoke-virtual {v3, v4}, Ljava/lang/StringBuilder;.append:
                                   (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                   // method@0057
000f3e: 0c03              |0031: move-result-object v3
000f40: 6e20 5700 0300     |0032: invoke-virtual {v3, v0}, Ljava/lang/StringBuilder;.append:
                                   (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                   // method@0057
000f46: 0c00              |0035: move-result-object v0
000f48: 1a03 0100          |0036: const-string v3, "Message after encryption: "
                                   // string@0001
000f4c: 6e20 5700 3000     |0038: invoke-virtual {v0, v3}, Ljava/lang/StringBuilder;.append:
                                   (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                   // method@0057
000f52: 0c00              |003b: move-result-object v0
000f54: 6e20 5700 2000     |003c: invoke-virtual {v0, v2}, Ljava/lang/StringBuilder;.append:
                                   (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                   // method@0057
000f5a: 0c00              |003f: move-result-object v0
000f5c: 6e10 5800 0000     |0040: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                   ()Ljava/lang/String; // method@0058
000f62: 0c00              |0043: move-result-object v0
000f64: 6e20 1000 0100     |0044: invoke-virtual {v1, v0}, Landroid/widget/TextView;.setText:
                                   (Ljava/lang/CharSequence;)V // method@0010
000f6a: 6e20 2000 1500     |0047: invoke-virtual {v5, v1}, Lcom/uaf/matt/testone/
                                   DisplayMessageActivity;.setContentView:
                                   (Landroid/view/View;)V // method@0020
000f70: 0e00              |004a: return-void
        catches       : (none)
        positions     :
        locals        :

    #1              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
000f74:                        |[000f74] com.uaf.matt.testone.DisplayMessageActivity.
                                   onOptionsItemSelected:(Landroid/view/MenuItem;)Z
000f84: 7210 0d00 0300     |0000: invoke-interface {v3}, Landroid/view/MenuItem;
                                   .getItemId:()I // method@000d
```

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```
000f8a: 0a00                       |0003: move-result v0
000f8c: 1401 0400 087f             |0004: const v1, #float 180775088556386973321599455987132006400.00
                                          // #7f080004
000f92: 3310 0400                  |0007: if-ne v0, v1, 000b // +0004
000f96: 1210                       |0009: const/4 v0, #int 1 // #1
000f98: 0f00                       |000a: return v0
000f9a: 6f20 0300 3200             |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                          .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                          // method@0003
000fa0: 0a00                       |000e: move-result v0
000fa2: 28fb                       |000f: goto 000a // -0005
      catches        : (none)
      positions      :
      locals         :

  source_file_idx    : -1 (unknown)

Class #3 header:
class_idx            : 18
access_flags         : 1 (0x0001)
superclass_idx       : 2
interfaces_off       : 0 (0x000000)
source_file_idx      : -1
annotations_off      : 0 (0x000000)
class_data_off       : 9021 (0x00233d)
static_fields_size   : 0
instance_fields_size : 0
direct_methods_size  : 1
virtual_methods_size : 2

Class #3            -
  Class descriptor   : 'Lcom/uaf/matt/testone/DisplayWebPageActivity;'
  Access flags       : 0x0001 (PUBLIC)
  Superclass         : 'Landroid/app/Activity;'
  Interfaces         -
  Static fields      -
  Instance fields    -
  Direct methods     -
    #0               : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name           : '<init>'
      type           : '()V'
      access         : 0x10001 (PUBLIC CONSTRUCTOR)
      code           -
      registers      : 1
      ins            : 1
      outs           : 1
      insns size     : 4 16-bit code units
000fa4:                            |[000fa4] com.uaf.matt.testone.DisplayWebPageActivity.<init>:()V
000fb4: 7010 0000 0000             |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                          // method@0000
000fba: 0e00                       |0003: return-void
      catches        : (none)
      positions      :
      locals         :

  Virtual methods    -
    #0               : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name           : 'onCreate'
      type           : '(Landroid/os/Bundle;)V'
      access         : 0x0004 (PROTECTED)
      code           -
      registers      : 9
      ins            : 2
      outs           : 2
      insns size     : 76 16-bit code units
000fbc:                            |[000fbc] com.uaf.matt.testone.DisplayWebPageActivity.onCreate:
                                          (Landroid/os/Bundle;)V
000fcc: 6f20 0100 8700             |0000: invoke-super {v7, v8}, Landroid/app/Activity;.onCreate:
```

```
                                              (Landroid/os/Bundle;)V // method@0001
000fd2: 1400 0200 037f          |0003: const v0, #float 174128908012643186653739572791227711488.00
                                              // #7f030002
000fd8: 6e20 2500 0700          |0006: invoke-virtual {v7, v0}, Lcom/uaf/matt/testone/
                                              DisplayWebPageActivity;.setContentView:(I)V // method@0025
000fde: 6e10 2200 0700          |0009: invoke-virtual {v7}, Lcom/uaf/matt/testone/
                                              DisplayWebPageActivity;.getIntent:
                                              ()Landroid/content/Intent; // method@0022
000fe4: 0c00                    |000c: move-result-object v0
000fe6: 2201 0e00              |000d: new-instance v1, Landroid/widget/TextView; // type@000e
000fea: 7020 0f00 7100          |000f: invoke-direct {v1, v7}, Landroid/widget/TextView;.<init>:
                                              (Landroid/content/Context;)V // method@000f
000ff0: 1502 2041              |0012: const/high16 v2, #int 1092616192 // #4120
000ff4: 6e20 1100 2100          |0014: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                              .setTextSize:(F)V // method@0011
000ffa: 1a02 6800              |0017: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                              // string@0068
000ffe: 6e20 0600 2000          |0019: invoke-virtual {v0, v2}, Landroid/content/Intent;
                                              .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                              // method@0006
001004: 0c00                    |001c: move-result-object v0
001006: 2202 1e00              |001d: new-instance v2, Lcom/uaf/matt/testone/a; // type@001e
00100a: 7010 4200 0200          |001f: invoke-direct {v2}, Lcom/uaf/matt/testone/a;.<init>:()V
                                              // method@0042
001010: 1223                    |0022: const/4 v3, #int 2 // #2
001012: 2333 3c00              |0023: new-array v3, v3, [Ljava/lang/String; // type@003c
001016: 1204                    |0025: const/4 v4, #int 0 // #0
001018: 2205 2b00              |0026: new-instance v5, Ljava/lang/StringBuilder; // type@002b
00101c: 7010 5500 0500          |0028: invoke-direct {v5}, Ljava/lang/StringBuilder;.<init>:()V
                                              // method@0055
001022: 1a06 8700              |002b: const-string v6, "http://www.google.com/search?q="
                                              // string@0087
001026: 6e20 5700 6500          |002d: invoke-virtual {v5, v6}, Ljava/lang/StringBuilder;.append:
                                              (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                              // method@0057
00102c: 0c05                    |0030: move-result-object v5
00102e: 6e20 5700 0500          |0031: invoke-virtual {v5, v0}, Ljava/lang/StringBuilder;.append:
                                              (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                              // method@0057
001034: 0c00                    |0034: move-result-object v0
001036: 6e10 5800 0000          |0035: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                              ()Ljava/lang/String; // method@0058
00103c: 0c00                    |0038: move-result-object v0
00103e: 4d00 0304              |0039: aput-object v0, v3, v4
001042: 1210                    |003b: const/4 v0, #int 1 // #1
001044: 1a04 0200              |003c: const-string v4, "0" // string@0002
001048: 4d04 0300              |003e: aput-object v4, v3, v0
00104c: 6e20 4500 3200          |0040: invoke-virtual {v2, v3}, Lcom/uaf/matt/testone/a;.execute:
                                              ([Ljava/lang/Object;)Landroid/os/AsyncTask; // method@0045
001052: 1a00 0200              |0043: const-string v0, "0" // string@0002
001056: 6e20 1000 0100          |0045: invoke-virtual {v1, v0}, Landroid/widget/TextView;.setText:
                                              (Ljava/lang/CharSequence;)V // method@0010
00105c: 6e20 2600 1700          |0048: invoke-virtual {v7, v1}, Lcom/uaf/matt/testone/
                                              DisplayWebPageActivity;.setContentView:
                                              (Landroid/view/View;)V // method@0026
001062: 0e00                    |004b: return-void
      catches       : (none)
      positions     :
      locals        :

  #1              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
    name          : 'onOptionsItemSelected'
    type          : '(Landroid/view/MenuItem;)Z'
    access        : 0x0001 (PUBLIC)
    code          -
    registers     : 4
    ins           : 2
    outs          : 2
```

```
        insns size    : 16 16-bit code units
001064:                         |[001064] com.uaf.matt.testone.DisplayWebPageActivity.
                                     onOptionsItemSelected:(Landroid/view/MenuItem;)Z
001074: 7210 0d00 0300          |0000: invoke-interface {v3}, Landroid/view/MenuItem;
                                     .getItemId:()I // method@000d
00107a: 0a00                    |0003: move-result v0
00107c: 1401 0400 087f          |0004: const v1, #float 180775088556386973321599455987132006400.00
                                     // #7f080004
001082: 3310 0400              |0007: if-ne v0, v1, 000b // +0004
001086: 1210                    |0009: const/4 v0, #int 1 // #1
001088: 0f00                    |000a: return v0
00108a: 6f20 0300 3200          |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                     .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                     // method@0003
001090: 0a00                    |000e: move-result v0
001092: 28fb                    |000f: goto 000a // -0005
        catches       : (none)
        positions     :
        locals        :

  source_file_idx    : -1 (unknown)

Class #4 header:
class_idx            : 19
access_flags         : 17 (0x0011)
superclass_idx       : 40
interfaces_off       : 0 (0x000000)
source_file_idx      : -1
annotations_off      : 0 (0x000000)
class_data_off       : 9039 (0x00234f)
static_fields_size   : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #4            -
  Class descriptor   : 'Lcom/uaf/matt/testone/R$attr;'
  Access flags       : 0x0011 (PUBLIC FINAL)
  Superclass         : 'Ljava/lang/Object;'
  Interfaces         -
  Static fields      -
  Instance fields    -
  Direct methods     -
    #0               : (in Lcom/uaf/matt/testone/R$attr;)
      name           : '<init>'
      type           : '()V'
      access         : 0x10001 (PUBLIC CONSTRUCTOR)
      code           -
      registers      : 1
      ins            : 1
      outs           : 1
      insns size     : 4 16-bit code units
001094:                         |[001094] com.uaf.matt.testone.R.attr.<init>:()V
0010a4: 7010 4d00 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
0010aa: 0e00                    |0003: return-void
      catches        : (none)
      positions      :
      locals         :

  Virtual methods    -
  source_file_idx    : -1 (unknown)

Class #5 header:
class_idx            : 20
access_flags         : 17 (0x0011)
superclass_idx       : 40
interfaces_off       : 0 (0x000000)
source_file_idx      : -1
```

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```
annotations_off     : 0 (0x000000)
class_data_off      : 9049 (0x002359)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #5              -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$dimen;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$dimen;)
      name          : 'activity_horizontal_margin'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$dimen;)
      name          : 'activity_vertical_margin'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$dimen;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0010ac:                    |[0010ac] com.uaf.matt.testone.R.dimen.<init>:()V
0010bc: 7010 4d00 0000     |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
0010c2: 0e00               |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
  source_file_idx   : -1 (unknown)

Class #6 header:
class_idx           : 21
access_flags        : 17 (0x0011)
superclass_idx      : 40
interfaces_off      : 0 (0x000000)
source_file_idx     : -1
annotations_off     : 0 (0x000000)
class_data_off      : 9063 (0x002367)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #6              -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$drawable;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$drawable;)
      name          : 'ic_action_search'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$drawable;)
      name          : 'ic_launcher'
      type          : 'I'
```

```
        access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields    -
  Direct methods     -
    #0              : (in Lcom/uaf/matt/testone/R$drawable;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0010c4:                      |[0010c4] com.uaf.matt.testone.R.drawable.<init>:()V
0010d4: 7010 4d00 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
0010da: 0e00                |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods    -
  source_file_idx    : -1 (unknown)

Class #7 header:
class_idx          : 22
access_flags       : 17 (0x0011)
superclass_idx     : 40
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 9077 (0x002375)
static_fields_size : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #7            -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$id;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields      -
    #0              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'action_search'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'action_settings'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #2              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'do_some_maths'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #3              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'encrypt_string'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #4              : (in Lcom/uaf/matt/testone/R$id;)
      name          : 'pull_web_page'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields    -
  Direct methods     -
    #0              : (in Lcom/uaf/matt/testone/R$id;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
```

```
        registers     : 1
        ins           : 1
        outs          : 1
        insns size    : 4 16-bit code units
0010dc:                     |[0010dc] com.uaf.matt.testone.R.id.<init>:()V
0010ec: 7010 4d00 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
0010f2: 0e00                |0003: return-void
        catches       : (none)
        positions     :
        locals        :

  Virtual methods   -
  source_file_idx   : -1 (unknown)

Class #8 header:
class_idx           : 23
access_flags        : 17 (0x0011)
superclass_idx      : 40
interfaces_off      : 0 (0x000000)
source_file_idx     : -1
annotations_off     : 0 (0x000000)
class_data_off      : 9097 (0x002389)
static_fields_size  : 4
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #8             -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$layout;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_display_maths'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_display_message'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #2              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_display_web_page'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #3              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : 'activity_test_one'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$layout;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0010f4:                     |[0010f4] com.uaf.matt.testone.R.layout.<init>:()V
001104: 7010 4d00 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
00110a: 0e00                |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
```

```
    source_file_idx   : -1 (unknown)

Class #9 header:
class_idx          : 24
access_flags       : 17 (0x0011)
superclass_idx     : 40
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 9115 (0x00239b)
static_fields_size : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #9              -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$menu;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$menu;)
      name          : 'main_activity_actions'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$menu;)
      name          : 'menu_display_maths'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #2              : (in Lcom/uaf/matt/testone/R$menu;)
      name          : 'menu_display_message'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #3              : (in Lcom/uaf/matt/testone/R$menu;)
      name          : 'menu_display_web_page'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #4              : (in Lcom/uaf/matt/testone/R$menu;)
      name          : 'menu_test_one'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$menu;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
00110c:                    |[00110c] com.uaf.matt.testone.R.menu.<init>:()V
00111c: 7010 4d00 0000     |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
001122: 0e00               |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
  source_file_idx   : -1 (unknown)

Class #10 header:
class_idx          : 25
access_flags       : 17 (0x0011)
superclass_idx     : 40
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
```

```
annotations_off      : 0 (0x000000)
class_data_off       : 9135 (0x0023af)
static_fields_size   : 11
instance_fields_size : 0
direct_methods_size  : 1
virtual_methods_size : 0

Class #10              -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$string;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'action_search'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'action_settings'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #2              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'app_name'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #3              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'button_send'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #4              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'do_some_maths'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #5              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'encrypt_string'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #6              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'pull_web_page'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #7              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'title_activity_display_maths'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #8              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'title_activity_display_message'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #9              : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'title_activity_display_web_page'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #10             : (in Lcom/uaf/matt/testone/R$string;)
      name          : 'title_activity_main'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$string;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
```

```
001124:                        |[001124] com.uaf.matt.testone.R.string.<init>:()V
001134: 7010 4d00 0000         |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
00113a: 0e00                   |0003: return-void
      catches        : (none)
      positions      :
      locals         :

  Virtual methods   -
  source_file_idx   : -1 (unknown)

Class #11 header:
class_idx             : 26
access_flags          : 17 (0x0011)
superclass_idx        : 40
interfaces_off        : 0 (0x000000)
source_file_idx       : -1
annotations_off       : 0 (0x000000)
class_data_off        : 9167 (0x0023cf)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #11            -
  Class descriptor  : 'Lcom/uaf/matt/testone/R$style;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/R$style;)
      name          : 'AppBaseTheme'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
    #1              : (in Lcom/uaf/matt/testone/R$style;)
      name          : 'AppTheme'
      type          : 'I'
      access        : 0x0019 (PUBLIC STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R$style;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
00113c:                        |[00113c] com.uaf.matt.testone.R.style.<init>:()V
00114c: 7010 4d00 0000         |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
001152: 0e00                   |0003: return-void
      catches        : (none)
      positions      :
      locals         :

  Virtual methods   -
  source_file_idx   : -1 (unknown)

Class #12 header:
class_idx             : 27
access_flags          : 17 (0x0011)
superclass_idx        : 40
interfaces_off        : 0 (0x000000)
source_file_idx       : -1
annotations_off       : 0 (0x000000)
class_data_off        : 9181 (0x0023dd)
static_fields_size  : 0
instance_fields_size: 0
```

```
    direct_methods_size : 1
    virtual_methods_size: 0

Class #12              -
  Class descriptor  : 'Lcom/uaf/matt/testone/R;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/R;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001154:                     |[001154] com.uaf.matt.testone.R.<init>:()V
001164: 7010 4d00 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
00116a: 0e00                |0003: return-void
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
  source_file_idx   : -1 (unknown)

Class #13 header:
class_idx          : 28
access_flags       : 1 (0x0001)
superclass_idx     : 40
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 9191 (0x0023e7)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 7
virtual_methods_size: 0

Class #13              -
  Class descriptor  : 'Lcom/uaf/matt/testone/SimpleCrypto;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
00116c:                     |[00116c] com.uaf.matt.testone.SimpleCrypto.<init>:()V
00117c: 7010 4d00 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@004d
001182: 0e00                |0003: return-void
      catches       : (none)
      positions     :
      locals        :

    #1              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
```

```
          name          : 'c'
          type          : '([B[B)[B'
          access        : 0x000a (PRIVATE STATIC)
          code          -
          registers     : 5
          ins           : 2
          outs          : 3
          insns size    : 22 16-bit code units
001184:                       |[001184] com.uaf.matt.testone.SimpleCrypto.c:([B[B)[B
001194: 2200 3700             |0000: new-instance v0, Ljavax/crypto/spec/SecretKeySpec; // type@0037
001198: 1a01 0500             |0002: const-string v1, "AES" // string@0005
00119c: 7030 6e00 3001        |0004: invoke-direct {v0, v3, v1}, Ljavax/crypto/spec/SecretKeySpec;
                                       .<init>:([BLjava/lang/String;)V // method@006e
0011a2: 1a01 0500             |0007: const-string v1, "AES" // string@0005
0011a6: 7110 6800 0100        |0009: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                       (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@0068
0011ac: 0c01                  |000c: move-result-object v1
0011ae: 1222                  |000d: const/4 v2, #int 2 // #2
0011b0: 6e30 6900 2100        |000e: invoke-virtual {v1, v2, v0}, Ljavax/crypto/Cipher;.init:
                                       (ILjava/security/Key;)V // method@0069
0011b6: 6e20 6700 4100        |0011: invoke-virtual {v1, v4}, Ljavax/crypto/Cipher;.doFinal:
                                       ([B)[B // method@0067
0011bc: 0c00                  |0014: move-result-object v0
0011be: 1100                  |0015: return-object v0
          catches       : (none)
          positions     :
          locals        :

      #2              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
          name          : 'decrypt'
          type          : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
          access        : 0x0009 (PUBLIC STATIC)
          code          -
          registers     : 5
          ins           : 2
          outs          : 2
          insns size    : 30 16-bit code units
0011c0:                       |[0011c0] com.uaf.matt.testone.SimpleCrypto.decrypt:
                                       (Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;
0011d0: 2200 2900             |0000: new-instance v0, Ljava/lang/String; // type@0029
0011d4: 6e10 5000 0300        |0002: invoke-virtual {v3}, Ljava/lang/String;.getBytes:()[B
                                       // method@0050
0011da: 0c01                  |0005: move-result-object v1
0011dc: 7110 3500 0100        |0006: invoke-static {v1}, Lcom/uaf/matt/testone/SimpleCrypto;.f:
                                       ([B)[B // method@0035
0011e2: 0c01                  |0009: move-result-object v1
0011e4: 1202                  |000a: const/4 v2, #int 0 // #0
0011e6: 7120 0a00 2400        |000b: invoke-static {v4, v2}, Landroid/util/Base64;.decode:
                                       (Ljava/lang/String;I)[B // method@000a
0011ec: 0c02                  |000e: move-result-object v2
0011ee: 7120 3100 2100        |000f: invoke-static {v1, v2}, Lcom/uaf/matt/testone/SimpleCrypto;
                                       .c:([B[B)[B // method@0031
0011f4: 0c01                  |0012: move-result-object v1
0011f6: 7020 4f00 1000        |0013: invoke-direct {v0, v1}, Ljava/lang/String;.<init>:([B)V
                                       // method@004f
0011fc: 1100                  |0016: return-object v0
0011fe: 0d00                  |0017: move-exception v0
001200: 6e10 4a00 0000        |0018: invoke-virtual {v0}, Ljava/lang/Exception;.printStackTrace:
                                       ()V // method@004a
001206: 1a00 7500             |001b: const-string v0, "error" // string@0075
00120a: 28f9                  |001d: goto 0016 // -0007
          catches       : 1
            0x0000 - 0x0016
              Ljava/lang/Exception; -> 0x0017
          positions     :
          locals        :

      #3              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
```

```
            name          : 'e'
            type          : '([B[B)[B'
            access        : 0x000a (PRIVATE STATIC)
            code          -
            registers     : 5
            ins           : 2
            outs          : 3
            insns size    : 22 16-bit code units
001218:                           |[001218] com.uaf.matt.testone.SimpleCrypto.e:([B[B)[B
001228: 2200 3700         |0000: new-instance v0, Ljavax/crypto/spec/SecretKeySpec; // type@0037
00122c: 1a01 0500         |0002: const-string v1, "AES" // string@0005
001230: 7030 6e00 3001    |0004: invoke-direct {v0, v3, v1}, Ljavax/crypto/spec/SecretKeySpec;
                                        .<init>:([BLjava/lang/String;)V // method@006e
001236: 1a01 0500         |0007: const-string v1, "AES" // string@0005
00123a: 7110 6800 0100    |0009: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                        (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@0068
001240: 0c01             |000c: move-result-object v1
001242: 1212             |000d: const/4 v2, #int 1 // #1
001244: 6e30 6900 2100    |000e: invoke-virtual {v1, v2, v0}, Ljavax/crypto/Cipher;.init:
                                        (ILjava/security/Key;)V // method@0069
00124a: 6e20 6700 4100    |0011: invoke-virtual {v1, v4}, Ljavax/crypto/Cipher;.doFinal:
                                        ([B)[B // method@0067
001250: 0c00             |0014: move-result-object v0
001252: 1100             |0015: return-object v0
        catches       : (none)
        positions     :
        locals        :

    #4              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
      name          : 'encrypt'
      type          : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x0009 (PUBLIC STATIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 29 16-bit code units
001254:                           |[001254] com.uaf.matt.testone.SimpleCrypto.encrypt:
                                        (Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;
001264: 6e10 5000 0200    |0000: invoke-virtual {v2}, Ljava/lang/String;.getBytes:()[B
                                        // method@0050
00126a: 0c00             |0003: move-result-object v0
00126c: 7110 3500 0000    |0004: invoke-static {v0}, Lcom/uaf/matt/testone/SimpleCrypto;.f:
                                        ([B)[B // method@0035
001272: 0c00             |0007: move-result-object v0
001274: 6e10 5000 0300    |0008: invoke-virtual {v3}, Ljava/lang/String;.getBytes:()[B
                                        // method@0050
00127a: 0c01             |000b: move-result-object v1
00127c: 7120 3300 1000    |000c: invoke-static {v0, v1}, Lcom/uaf/matt/testone/SimpleCrypto;
                                        .e:([B[B)[B // method@0033
001282: 0c00             |000f: move-result-object v0
001284: 1201             |0010: const/4 v1, #int 0 // #0
001286: 7120 0b00 1000    |0011: invoke-static {v0, v1}, Landroid/util/Base64;
                                        .encodeToString:([BI)Ljava/lang/String; // method@000b
00128c: 0c00             |0014: move-result-object v0
00128e: 1100             |0015: return-object v0
001290: 0d00             |0016: move-exception v0
001292: 6e10 4a00 0000    |0017: invoke-virtual {v0}, Ljava/lang/Exception;.printStackTrace:
                                        ()V // method@004a
001298: 1a00 7500         |001a: const-string v0, "error" // string@0075
00129c: 28f9             |001c: goto 0015 // -0007
        catches       : 1
          0x0000 - 0x0014
            Ljava/lang/Exception; -> 0x0016
        positions     :
        locals        :

    #5              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
```

```
        name          : 'f'
        type          : '([B)[B'
        access        : 0x000a (PRIVATE STATIC)
        code          -
        registers     : 4
        ins           : 1
        outs          : 3
        insns size    : 29 16-bit code units
0012ac:                         |[0012ac] com.uaf.matt.testone.SimpleCrypto.f:([B)[B
0012bc: 1a00 0500               |0000: const-string v0, "AES" // string@0005
0012c0: 7110 6b00 0000          |0002: invoke-static {v0}, Ljavax/crypto/KeyGenerator;
                                         .getInstance:(Ljava/lang/String;)Ljavax/crypto/KeyGenerator;
                                         // method@006b
0012c6: 0c00                    |0005: move-result-object v0
0012c8: 1a01 4c00               |0006: const-string v1, "SHA1PRNG" // string@004c
0012cc: 7110 6000 0100          |0008: invoke-static {v1}, Ljava/security/SecureRandom;
                                         .getInstance:(Ljava/lang/String;)
                                         Ljava/security/SecureRandom; // method@0060
0012d2: 0c01                    |000b: move-result-object v1
0012d4: 6e20 6100 3100          |000c: invoke-virtual {v1, v3}, Ljava/security/SecureRandom;
                                         .setSeed:([B)V // method@0061
0012da: 1302 8000               |000f: const/16 v2, #int 128 // #80
0012de: 6e30 6c00 2001          |0011: invoke-virtual {v0, v2, v1}, Ljavax/crypto/KeyGenerator;
                                         .init:(ILjava/security/SecureRandom;)V // method@006c
0012e4: 6e10 6a00 0000          |0014: invoke-virtual {v0}, Ljavax/crypto/KeyGenerator;
                                         .generateKey:()Ljavax/crypto/SecretKey; // method@006a
0012ea: 0c00                    |0017: move-result-object v0
0012ec: 7210 6d00 0000          |0018: invoke-interface {v0}, Ljavax/crypto/SecretKey;.getEncoded:
                                         ()[B // method@006d
0012f2: 0c00                    |001b: move-result-object v0
0012f4: 1100                    |001c: return-object v0
        catches       : (none)
        positions     :
        locals        :

    #6              : (in Lcom/uaf/matt/testone/SimpleCrypto;)
        name          : 'md5'
        type          : '(Ljava/lang/String;)Ljava/lang/String;'
        access        : 0x0019 (PUBLIC STATIC FINAL)
        code          -
        registers     : 7
        ins           : 1
        outs          : 2
        insns size    : 81 16-bit code units
0012f8:                         |[0012f8] com.uaf.matt.testone.SimpleCrypto.md5:
                                         (Ljava/lang/String;)Ljava/lang/String;
001308: 1a00 4900               |0000: const-string v0, "MD5" // string@0049
00130c: 7110 5e00 0000          |0002: invoke-static {v0}, Ljava/security/MessageDigest;
                                         .getInstance:(Ljava/lang/String;)Ljava/security/MessageDigest;
                                         // method@005e
001312: 0c00                    |0005: move-result-object v0
001314: 6e10 5000 0600          |0006: invoke-virtual {v6}, Ljava/lang/String;.getBytes:()[B
                                         // method@0050
00131a: 0c01                    |0009: move-result-object v1
00131c: 6e20 5f00 1000          |000a: invoke-virtual {v0, v1}, Ljava/security/MessageDigest;.update:
                                         ([B)V // method@005f
001322: 6e10 5d00 0000          |000d: invoke-virtual {v0}, Ljava/security/MessageDigest;.digest:()[B
                                         // method@005d
001328: 0c02                    |0010: move-result-object v2
00132a: 2203 2a00               |0011: new-instance v3, Ljava/lang/StringBuffer; // type@002a
00132e: 7010 5200 0300          |0013: invoke-direct {v3}, Ljava/lang/StringBuffer;.<init>:()V
                                         // method@0052
001334: 1200                    |0016: const/4 v0, #int 0 // #0
001336: 0101                    |0017: move v1, v0
001338: 2120                    |0018: array-length v0, v2
00133a: 3501 2c00               |0019: if-ge v1, v0, 0045 // +002c
00133e: 4800 0201               |001b: aget-byte v0, v2, v1
001342: d500 ff00               |001d: and-int/lit16 v0, v0, #int 255 // #00ff
```

```
001346: 7110 4c00 0000        |001f: invoke-static {v0}, Ljava/lang/Integer;.toHexString:
                                       (I)Ljava/lang/String; // method@004c
00134c: 0c00                   |0022: move-result-object v0
00134e: 6e10 5100 0000         |0023: invoke-virtual {v0}, Ljava/lang/String;.length:()I
                                       // method@0051
001354: 0a04                   |0026: move-result v4
001356: 1225                   |0027: const/4 v5, #int 2 // #2
001358: 3554 1600              |0028: if-ge v4, v5, 003e // +0016
00135c: 2204 2b00              |002a: new-instance v4, Ljava/lang/StringBuilder; // type@002b
001360: 7010 5500 0400         |002c: invoke-direct {v4}, Ljava/lang/StringBuilder;.<init>:()V
                                       // method@0055


001366: 1a05 0200              |002f: const-string v5, "0" // string@0002
00136a: 6e20 5700 5400         |0031: invoke-virtual {v4, v5}, Ljava/lang/StringBuilder;.append:
                                       (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@0057
001370: 0c04                   |0034: move-result-object v4
001372: 6e20 5700 0400         |0035: invoke-virtual {v4, v0}, Ljava/lang/StringBuilder;.append:
                                       (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@0057
001378: 0c00                   |0038: move-result-object v0
00137a: 6e10 5800 0000         |0039: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                       ()Ljava/lang/String; // method@0058
001380: 0c00                   |003c: move-result-object v0
001382: 28e6                   |003d: goto 0023 // -001a
001384: 6e20 5300 0300         |003e: invoke-virtual {v3, v0}, Ljava/lang/StringBuffer;.append:
                                       (Ljava/lang/String;)Ljava/lang/StringBuffer; // method@0053
00138a: d800 0101              |0041: add-int/lit8 v0, v1, #int 1 // #01
00138e: 0101                   |0043: move v1, v0
001390: 28d4                   |0044: goto 0018 // -002c
001392: 6e10 5400 0300         |0045: invoke-virtual {v3}, Ljava/lang/StringBuffer;.toString:
                                       ()Ljava/lang/String; // method@0054
001398: 0c00                   |0048: move-result-object v0
00139a: 1100                   |0049: return-object v0
00139c: 0d00                   |004a: move-exception v0
00139e: 6e10 4a00 0000         |004b: invoke-virtual {v0}, Ljava/lang/Exception;.printStackTrace:
                                       ()V // method@004a
0013a4: 1a00 7500              |004e: const-string v0, "error" // string@0075
0013a8: 28f9                   |0050: goto 0049 // -0007
         catches        : 1
           0x0000 - 0x0048
             Ljava/lang/Exception; -> 0x004a
         positions     :
         locals        :

  Virtual methods    -
  source_file_idx    : -1 (unknown)

Class #14 header:
class_idx          : 29
access_flags       : 1 (0x0001)
superclass_idx     : 2
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 9225 (0x002409)
static_fields_size : 1
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 6

Class #14            -
  Class descriptor  : 'Lcom/uaf/matt/testone/TestOneActivity;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
```

```
   Static fields     -
     #0              : (in Lcom/uaf/matt/testone/TestOneActivity;)
       name          : 'EXTRA_MESSAGE'
       type          : 'Ljava/lang/String;'
       access        : 0x0019 (PUBLIC STATIC FINAL)
   Instance fields   -
   Direct methods    -
     #0              : (in Lcom/uaf/matt/testone/TestOneActivity;)
       name          : '<init>'
       type          : '()V'
       access        : 0x10001 (PUBLIC CONSTRUCTOR)
       code          -
       registers     : 1
       ins           : 1
       outs          : 1
       insns size    : 4 16-bit code units
0013b8:                             |[0013b8] com.uaf.matt.testone.TestOneActivity.<init>:()V
0013c8: 7010 0000 0000             |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                            // method@0000
0013ce: 0e00                       |0003: return-void
       catches       : (none)
       positions     :
       locals        :

   Virtual methods   -
     #0              : (in Lcom/uaf/matt/testone/TestOneActivity;)
       name          : 'doMaths'
       type          : '(Landroid/view/View;)V'
       access        : 0x0001 (PUBLIC)
       code          -
       registers     : 5
       ins           : 2
       outs          : 3
       insns size    : 37 16-bit code units
0013d0:                             |[0013d0] com.uaf.matt.testone.TestOneActivity.doMaths:
                                            (Landroid/view/View;)V
0013e0: 2201 0400                  |0000: new-instance v1, Landroid/content/Intent; // type@0004
0013e4: 1c00 1000                  |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMathsActivity; // type@0010
0013e8: 7030 0400 3100             |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>
                                            :(Landroid/content/Context;Ljava/lang/Class;)V
                                            // method@0004
0013ee: 1a02 6800                  |0007: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                            // string@0068
0013f2: 1400 0100 087f             |0009: const v0, #float 180775027709158162366588184145378148352.00
                                            // #7f080001
0013f8: 6e20 3a00 0300             |000c: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                            TestOneActivity;.findViewById:(I)Landroid/view/View;
                                            // method@003a
0013fe: 0c00                       |000f: move-result-object v0
001400: 1f00 0d00                  |0010: check-cast v0, Landroid/widget/EditText; // type@000d
001404: 6e10 0e00 0000             |0012: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                            ()Landroid/text/Editable; // method@000e
00140a: 0c00                       |0015: move-result-object v0
00140c: 6e10 4e00 0000             |0016: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                            ()Ljava/lang/String; // method@004e
001412: 0c00                       |0019: move-result-object v0
001414: 7110 4b00 0000             |001a: invoke-static {v0}, Ljava/lang/Integer;.parseInt:
                                            (Ljava/lang/String;)I // method@004b
00141a: 0a00                       |001d: move-result v0
00141c: 6e30 0700 2100             |001e: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                            .putExtra:(Ljava/lang/String;I)Landroid/content/Intent;
                                            // method@0007
001422: 6e20 4100 1300             |0021: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                            TestOneActivity;.startActivity:
                                            (Landroid/content/Intent;)V // method@0041
001428: 0e00                       |0024: return-void
       catches       : (none)
       positions     :
```

```
        locals        :

    #1              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'encryptMessage'
      type          : '(Landroid/view/View;)V'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 5
      ins           : 2
      outs          : 3
      insns size    : 32 16-bit code units
00142c:                         |[00142c] com.uaf.matt.testone.TestOneActivity.encryptMessage:
                                        (Landroid/view/View;)V
00143c: 2201 0400               |0000: new-instance v1, Landroid/content/Intent; // type@0004
001440: 1c00 1100               |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMessageActivity;
                                        // type@0011
001444: 7030 0400 3100          |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                        (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
00144a: 1a02 6800               |0007: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                        // string@0068
00144e: 1500 087f               |0009: const/high16 v0, #int 2131230720 // #7f08
001452: 6e20 3a00 0300          |000b: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.findViewById:(I)Landroid/view/View;
                                        // method@003a
001458: 0c00                    |000e: move-result-object v0
00145a: 1f00 0d00               |000f: check-cast v0, Landroid/widget/EditText; // type@000d
00145e: 6e10 0e00 0000          |0011: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                        ()Landroid/text/Editable; // method@000e
001464: 0c00                    |0014: move-result-object v0
001466: 6e10 4e00 0000          |0015: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                        ()Ljava/lang/String; // method@004e
00146c: 0c00                    |0018: move-result-object v0
00146e: 6e30 0800 2100          |0019: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                        .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                        Landroid/content/Intent; // method@0008
001474: 6e20 4100 1300          |001c: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                        // method@0041
00147a: 0e00                    |001f: return-void
      catches        : (none)
      positions      :
      locals         :

    #2              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'getWebPage'
      type          : '(Landroid/view/View;)V'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 5
      ins           : 2
      outs          : 3
      insns size    : 33 16-bit code units
00147c:                         |[00147c] com.uaf.matt.testone.TestOneActivity.getWebPage:
                                        (Landroid/view/View;)V
00148c: 2201 0400               |0000: new-instance v1, Landroid/content/Intent; // type@0004
001490: 1c00 1200               |0002: const-class v0, Lcom/uaf/matt/testone/
                                        DisplayWebPageActivity; // type@0012
001494: 7030 0400 3100          |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;
                                        .<init>:(Landroid/content/Context;Ljava/lang/Class;)V
                                        // method@0004
00149a: 1a02 6800               |0007: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                        // string@0068
00149e: 1400 0200 087f          |0009: const v0, #float 180775047991567766018258608092629434368.00
                                        // #7f080002
0014a4: 6e20 3a00 0300          |000c: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.findViewById:(I)Landroid/view/View;
                                        // method@003a
0014aa: 0c00                    |000f: move-result-object v0
```

```
0014ac: 1f00 0d00            |0010: check-cast v0, Landroid/widget/EditText; // type@000d
0014b0: 6e10 0e00 0000       |0012: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                      ()Landroid/text/Editable; // method@000e
0014b6: 0c00                 |0015: move-result-object v0
0014b8: 6e10 4e00 0000       |0016: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                      ()Ljava/lang/String; // method@004e
0014be: 0c00                 |0019: move-result-object v0
0014c0: 6e30 0800 2100       |001a: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                      .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                      Landroid/content/Intent; // method@0008
0014c6: 6e20 4100 1300       |001d: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                      TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                      // method@0041
0014cc: 0e00                 |0020: return-void
      catches       : (none)
      positions     :
      locals        :

    #3            : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name        : 'onCreate'
      type        : '(Landroid/os/Bundle;)V'
      access      : 0x0001 (PUBLIC)
      code        -
      registers   : 3
      ins         : 2
      outs        : 2
      insns size  : 10 16-bit code units
0014d0:                       |[0014d0] com.uaf.matt.testone.TestOneActivity.onCreate:
                                      (Landroid/os/Bundle;)V
0014e0: 6f20 0100 2100       |0000: invoke-super {v1, v2}, Landroid/app/Activity;.onCreate:
                                      (Landroid/os/Bundle;)V // method@0001
0014e6: 1400 0300 037f       |0003: const v0, #float 174128928295052790305409996738478997504.00
                                      // #7f030003
0014ec: 6e20 4000 0100       |0006: invoke-virtual {v1, v0}, Lcom/uaf/matt/testone/
                                      TestOneActivity;.setContentView:(I)V // method@0040
0014f2: 0e00                 |0009: return-void
      catches       : (none)
      positions     :
      locals        :

    #4            : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name        : 'onCreateOptionsMenu'
      type        : '(Landroid/view/Menu;)Z'
      access      : 0x0001 (PUBLIC)
      code        -
      registers   : 4
      ins         : 2
      outs        : 3
      insns size  : 14 16-bit code units
0014f4:                       |[0014f4] com.uaf.matt.testone.TestOneActivity.onCreateOptionsMenu:
                                      (Landroid/view/Menu;)Z
001504: 6e10 3b00 0200       |0000: invoke-virtual {v2}, Lcom/uaf/matt/testone/TestOneActivity;
                                      .getMenuInflater:()Landroid/view/MenuInflater; // method@003b
00150a: 0c00                 |0003: move-result-object v0
00150c: 1501 077f            |0004: const/high16 v1, #int 2131165184 // #7f07
001510: 6e30 0c00 1003       |0006: invoke-virtual {v0, v1, v3}, Landroid/view/MenuInflater;
                                      .inflate:(ILandroid/view/Menu;)V // method@000c
001516: 6f20 0200 3200       |0009: invoke-super {v2, v3}, Landroid/app/Activity;
                                      .onCreateOptionsMenu:(Landroid/view/Menu;)Z // method@0002
00151c: 0a00                 |000c: move-result v0
00151e: 0f00                 |000d: return v0
      catches       : (none)
      positions     :
      locals        :

    #5            : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name        : 'onOptionsItemSelected'
      type        : '(Landroid/view/MenuItem;)Z'
```

```
        access          : 0x0001 (PUBLIC)
        code            -
        registers       : 4
        ins             : 2
        outs            : 2
        insns size      : 22 16-bit code units
001520:                         |[001520] com.uaf.matt.testone.TestOneActivity.onOptionsItemSelected:
                                        (Landroid/view/MenuItem;)Z
001530: 1210                     |0000: const/4 v0, #int 1 // #1
001532: 7210 0d00 0300           |0001: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                        ()I // method@000d
001538: 0a01                     |0004: move-result v1
00153a: 2b01 0900 0000           |0005: packed-switch v1, 0000000e // +00000009
001540: 6f20 0300 3200           |0008: invoke-super {v2, v3}, Landroid/app/Activity;
                                        .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                        // method@0003
001546: 0a00                     |000b: move-result v0
001548: 0f00                     |000c: return v0
00154a: 0000                     |000d: nop // spacer
00154c: 0001 0200 0300 087f 0700 0000 0700 ... |000e: packed-switch-data (8 units)
        catches         : (none)
        positions       :
        locals          :

  source_file_idx       : -1 (unknown)

Class #15 header:
class_idx               : 30
access_flags            : 0 (0x0000)
superclass_idx          : 5
interfaces_off          : 0 (0x000000)
source_file_idx         : -1
annotations_off         : 0 (0x000000)
class_data_off          : 9261 (0x00242d)
static_fields_size      : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #15               -
  Class descriptor  : 'Lcom/uaf/matt/testone/a;'
  Access flags      : 0x0000 ()
  Superclass        : 'Landroid/os/AsyncTask;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/a;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10000 (CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
00155c:                         |[00155c] com.uaf.matt.testone.a.<init>:()V
00156c: 7010 0900 0000           |0000: invoke-direct {v0}, Landroid/os/AsyncTask;.<init>:()V
                                        // method@0009
001572: 0e00                     |0003: return-void
        catches         : (none)
        positions       :
        locals          :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/a;)
      name          : 'doInBackground'
      type          : '([Ljava/lang/Object;)Ljava/lang/Object;'
```

```
        access          : 0x1041 (PUBLIC BRIDGE SYNTHETIC)
        code            -
        registers       : 3
        ins             : 2
        outs            : 2
        insns size      : 7 16-bit code units
001574:                          |[001574] com.uaf.matt.testone.a.doInBackground:
                                        ([Ljava/lang/Object;)Ljava/lang/Object;
001584: 1f02 3c00               |0000: check-cast v2, [Ljava/lang/String; // type@003c
001588: 6e20 4400 2100         |0002: invoke-virtual {v1, v2}, Lcom/uaf/matt/testone/a;
                                        .doInBackground:([Ljava/lang/String;)Ljava/lang/Void;
                                        // method@0044
00158e: 0c00                   |0005: move-result-object v0
001590: 1100                   |0006: return-object v0
        catches         : (none)
        positions       :
        locals          :

    #1              : (in Lcom/uaf/matt/testone/a;)
        name            : 'doInBackground'
        type            : '([Ljava/lang/String;)Ljava/lang/Void;'
        access          : 0x0081 (PUBLIC VARARGS)
        code            -
        registers       : 7
        ins             : 2
        outs            : 2
        insns size      : 62 16-bit code units
001594:                          |[001594] com.uaf.matt.testone.a.doInBackground:
                                        ([Ljava/lang/String;)Ljava/lang/Void;
0015a4: 2200 1f00              |0000: new-instance v0, Ljava/io/BufferedReader; // type@001f
0015a8: 2201 2200              |0002: new-instance v1, Ljava/io/InputStreamReader; // type@0022
0015ac: 2202 2e00              |0004: new-instance v2, Ljava/net/URL; // type@002e
0015b0: 1203                   |0006: const/4 v3, #int 0 // #0
0015b2: 4603 0603              |0007: aget-object v3, v6, v3
0015b6: 7020 5a00 3200         |0009: invoke-direct {v2, v3}, Ljava/net/URL;.<init>:
                                        (Ljava/lang/String;)V // method@005a
0015bc: 6e10 5b00 0200         |000c: invoke-virtual {v2}, Ljava/net/URL;.openConnection:
                                        ()Ljava/net/URLConnection; // method@005b
0015c2: 0c02                   |000f: move-result-object v2
0015c4: 6e10 5c00 0200         |0010: invoke-virtual {v2}, Ljava/net/URLConnection;
                                        .getInputStream:()Ljava/io/InputStream; // method@005c
0015ca: 0c02                   |0013: move-result-object v2
0015cc: 7020 4900 2100         |0014: invoke-direct {v1, v2}, Ljava/io/InputStreamReader;
                                        .<init>:(Ljava/io/InputStream;)V // method@0049
0015d2: 7020 4600 1000         |0017: invoke-direct {v0, v1}, Ljava/io/BufferedReader;.<init>:
                                        (Ljava/io/Reader;)V // method@0046
0015d8: 6e10 4700 0000         |001a: invoke-virtual {v0}, Ljava/io/BufferedReader;.readLine:
                                        ()Ljava/lang/String; // method@0047
0015de: 0c01                   |001d: move-result-object v1
0015e0: 3801 1e00              |001e: if-eqz v1, 003c // +001e
0015e4: 1212                   |0020: const/4 v2, #int 1 // #1
0015e6: 2203 2b00              |0021: new-instance v3, Ljava/lang/StringBuilder; // type@002b
0015ea: 7010 5500 0300         |0023: invoke-direct {v3}, Ljava/lang/StringBuilder;.<init>:
                                        ()V // method@0055
0015f0: 1214                   |0026: const/4 v4, #int 1 // #1
0015f2: 4604 0604              |0027: aget-object v4, v6, v4
0015f6: 6e20 5700 4300         |0029: invoke-virtual {v3, v4}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0057
0015fc: 0c03                   |002c: move-result-object v3
0015fe: 6e20 5700 1300         |002d: invoke-virtual {v3, v1}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0057
001604: 0c01                   |0030: move-result-object v1
001606: 6e10 5800 0100         |0031: invoke-virtual {v1}, Ljava/lang/StringBuilder;.toString:
                                        ()Ljava/lang/String; // method@0058
00160c: 0c01                   |0034: move-result-object v1
00160e: 4d01 0602              |0035: aput-object v1, v6, v2
```

```
001612: 28e3                    |0037: goto 001a // -001d
001614: 0d00                    |0038: move-exception v0
001616: 6e10 4800 0000          |0039: invoke-virtual {v0}, Ljava/io/IOException;
                                         .printStackTrace:()V // method@0048
00161c: 1200                    |003c: const/4 v0, #int 0 // #0
00161e: 1100                    |003d: return-object v0
      catches        : 1
        0x0000 - 0x0037
          Ljava/io/IOException; -> 0x0038
      positions      :
      locals         :

  source_file_idx    : -1 (unknown)
```

C.4   Zelix KlassMaster

```
Processing 'classes.dex'...
Opened 'classes.dex', DEX version '035'
DEX file header:
magic               : 'dex\n035\0'
checksum            : 52871191
signature           : a35a...9a40
file_size           : 9944
header_size         : 112
link_size           : 0
link_off            : 0 (0x000000)
string_ids_size     : 130
string_ids_off      : 112 (0x000070)
type_ids_size       : 52
type_ids_off        : 632 (0x000278)
proto_ids_size      : 56
proto_ids_off       : 840 (0x000348)
field_ids_size      : 10
field_ids_off       : 1512 (0x0005e8)
method_ids_size     : 102
method_ids_off      : 1592 (0x000638)
class_defs_size     : 6
class_defs_off      : 2408 (0x000968)
data_size           : 7344
data_off            : 2600 (0x000a28)

Class #0 header:
class_idx           : 2
access_flags        : 0 (0x0000)
superclass_idx      : 6
interfaces_off      : 0 (0x000000)
source_file_idx     : -1
annotations_off     : 0 (0x000000)
class_data_off      : 9619 (0x002593)
static_fields_size  : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #0            -
  Class descriptor  : 'La;'
  Access flags      : 0x0000 ()
  Superclass        : 'Landroid/os/AsyncTask;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in La;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10000 (CONSTRUCTOR)
      code          -
```

```
        registers       : 1
        ins             : 1
        outs            : 1
        insns size      : 4 16-bit code units
000a28:                             |[000a28] a.<init>:()V
000a38: 7010 0d00 0000              |0000: invoke-direct {v0}, Landroid/os/AsyncTask;.<init>:()V
                                    // method@000d
000a3e: 0e00                        |0003: return-void
        catches         : (none)
        positions       :
        locals          :

  Virtual methods   -
    #0              : (in La;)
      name          : 'a'
      type          : '([Ljava/lang/String;)Ljava/lang/Void;'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 8
      ins           : 2
      outs          : 2
      insns size    : 71 16-bit code units
000a40:                             |[000a40] a.a:([Ljava/lang/String;)Ljava/lang/Void;
000a50: 6000 0000                   |0000: sget v0, Lb;.a:I // field@0000
000a54: 2201 2400                   |0002: new-instance v1, Ljava/net/URL; // type@0024
000a58: 1202                        |0004: const/4 v2, #int 0 // #0
000a5a: 4602 0702                   |0005: aget-object v2, v7, v2
000a5e: 7020 5100 2100              |0007: invoke-direct {v1, v2}, Ljava/net/URL;.<init>:
                                    (Ljava/lang/String;)V // method@0051
000a64: 6e10 5200 0100              |000a: invoke-virtual {v1}, Ljava/net/URL;.openConnection:
                                    ()Ljava/net/URLConnection; // method@0052
000a6a: 0c01                        |000d: move-result-object v1
000a6c: 2202 1500                   |000e: new-instance v2, Ljava/io/BufferedReader; // type@0015
000a70: 2203 1800                   |0010: new-instance v3, Ljava/io/InputStreamReader; // type@0018
000a74: 6e10 5300 0100              |0012: invoke-virtual {v1}, Ljava/net/URLConnection;
                                    .getInputStream:()Ljava/io/InputStream; // method@0053
000a7a: 0c01                        |0015: move-result-object v1
000a7c: 7020 3f00 1300              |0016: invoke-direct {v3, v1}, Ljava/io/InputStreamReader;
                                    .<init>:(Ljava/io/InputStream;)V // method@003f
000a82: 7020 3c00 3200              |0019: invoke-direct {v2, v3}, Ljava/io/BufferedReader;
                                    .<init>:(Ljava/io/Reader;)V // method@003c
000a88: 1a01 0000                   |001c: const-string v1, "" // string@0000
000a8c: 6e10 3d00 0200              |001e: invoke-virtual {v2}, Ljava/io/BufferedReader;.readLine:
                                    ()Ljava/lang/String; // method@003d
000a92: 0c01                        |0021: move-result-object v1
000a94: 3801 1c00                   |0022: if-eqz v1, 003e // +001c
000a98: 2203 2100                   |0024: new-instance v3, Ljava/lang/StringBuilder; // type@0021
000a9c: 7010 4c00 0300              |0026: invoke-direct {v3}, Ljava/lang/StringBuilder;.<init>:
                                    ()V // method@004c
000aa2: 1214                        |0029: const/4 v4, #int 1 // #1
000aa4: 4605 0704                   |002a: aget-object v5, v7, v4
000aa8: 6e20 4e00 5300              |002c: invoke-virtual {v3, v5}, Ljava/lang/StringBuilder;
                                    .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                    // method@004e
000aae: 0c03                        |002f: move-result-object v3
000ab0: 6e20 4e00 1300              |0030: invoke-virtual {v3, v1}, Ljava/lang/StringBuilder;
                                    .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                    // method@004e
000ab6: 0c01                        |0033: move-result-object v1
000ab8: 6e10 4f00 0100              |0034: invoke-virtual {v1}, Ljava/lang/StringBuilder;.toString:
                                    ()Ljava/lang/String; // method@004f
000abe: 0c01                        |0037: move-result-object v1
000ac0: 4d01 0704                   |0038: aput-object v1, v7, v4
000ac4: 3900 0400                   |003a: if-nez v0, 003e // +0004
000ac8: 3800 e2ff                   |003c: if-eqz v0, 001e // -001e
000acc: 1200                        |003e: const/4 v0, #int 0 // #0
000ace: 1100                        |003f: return-object v0
000ad0: 0d00                        |0040: move-exception v0
```

```
000ad2: 2700                        |0041: throw v0
000ad4: 0d00                        |0042: move-exception v0
000ad6: 6e10 3e00 0000              |0043: invoke-virtual {v0}, Ljava/io/IOException;
                                            .printStackTrace:()V // method@003e
000adc: 28f8                        |0046: goto 003e // -0008
      catches         : 3
        0x0002 - 0x0021
          Ljava/io/IOException; -> 0x0042
        0x0024 - 0x003a
          Ljava/io/IOException; -> 0x0040
        0x0041 - 0x0042
          Ljava/io/IOException; -> 0x0042
      positions       :
      locals          :

    #1              : (in La;)
      name          : 'doInBackground'
      type          : '([Ljava/lang/Object;)Ljava/lang/Object;'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 3
      ins           : 2
      outs          : 2
      insns size    : 7 16-bit code units
000b00:                             |[000b00] a.doInBackground:([Ljava/lang/Object;)Ljava/lang/Object;
000b10: 1f02 3300                   |0000: check-cast v2, [Ljava/lang/String; // type@0033
000b14: 6e20 0100 2100              |0002: invoke-virtual {v1, v2}, La;.a:([Ljava/lang/String;)
                                            Ljava/lang/Void; // method@0001
000b1a: 0c00                        |0005: move-result-object v0
000b1c: 1100                        |0006: return-object v0
      catches         : (none)
      positions       :
      locals          :

  source_file_idx   : -1 (unknown)

Class #1 header:
class_idx         : 16
access_flags      : 1 (0x0001)
superclass_idx    : 3
interfaces_off    : 0 (0x000000)
source_file_idx   : -1
annotations_off   : 0 (0x000000)
class_data_off    : 9637 (0x0025a5)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2

Class #1           -
  Class descriptor  : 'Lb;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
    #0              : (in Lb;)
      name          : 'a'
      type          : 'I'
      access        : 0x0009 (PUBLIC STATIC)
    #1              : (in Lb;)
      name          : 'z'
      type          : '[Ljava/lang/String;'
      access        : 0x001a (PRIVATE STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lb;)
      name          : '<clinit>'
      type          : '()V'
```

```
        access          : 0x10008 (STATIC CONSTRUCTOR)
        code            -
        registers       : 14
        ins             : 0
        outs            : 2
        insns size      : 160 16-bit code units
000b20:                                      |[000b20] b.<clinit>:()V
000b30: 1307 3300                            |0000: const/16 v7, #int 51 // #33
000b34: 1308 3000                            |0002: const/16 v8, #int 48 // #30
000b38: 1309 0f00                            |0004: const/16 v9, #int 15 // #f
000b3c: 121c                                 |0006: const/4 v12, #int 1 // #1
000b3e: 1203                                 |0007: const/4 v3, #int 0 // #0
000b40: 1220                                 |0008: const/4 v0, #int 2 // #2
000b42: 230a 3300                            |0009: new-array v10, v0, [Ljava/lang/String;
                                             |      // type@0033
000b46: 1a00 4c00                            |000b: const-string v0, "[D?5?RG?x??_?h_???
                                             |      'ˆRC?nA?XR˜?" // string@004c
000b4a: 6e10 4800 0000                       |000d: invoke-virtual {v0}, Ljava/lang/String;
                                             |      .toCharArray:()[C // method@0048
000b50: 0c00                                 |0010: move-result-object v0
000b52: 2101                                 |0011: array-length v1, v0
000b54: 36c1 7300                            |0012: if-gt v1, v12, 0085 // +0073
000b58: 0132                                 |0014: move v2, v3
000b5a: 0704                                 |0015: move-object v4, v0
000b5c: 0125                                 |0016: move v5, v2
000b5e: 011d                                 |0017: move v13, v1
000b60: 0701                                 |0018: move-object v1, v0
000b62: 01d0                                 |0019: move v0, v13
000b64: 490b 0102                            |001a: aget-char v11, v1, v2
000b68: dc06 0505                            |001c: rem-int/lit8 v6, v5, #int 5 // #05
000b6c: 2b06 6a00 0000                       |001e: packed-switch v6, 00000088 // +0000006a
000b72: 0196                                 |0021: move v6, v9
000b74: b7b6                                 |0022: xor-int/2addr v6, v11
000b76: 8e66                                 |0023: int-to-char v6, v6
000b78: 5006 0102                            |0024: aput-char v6, v1, v2
000b7c: d802 0501                            |0026: add-int/lit8 v2, v5, #int 1 // #01
000b80: 3900 0600                            |0028: if-nez v0, 002e // +0006
000b84: 0741                                 |002a: move-object v1, v4
000b86: 0125                                 |002b: move v5, v2
000b88: 0102                                 |002c: move v2, v0
000b8a: 28ed                                 |002d: goto 001a // -0013
000b8c: 0101                                 |002e: move v1, v0
000b8e: 0740                                 |002f: move-object v0, v4
000b90: 3621 e5ff                            |0030: if-gt v1, v2, 0015 // -001b
000b94: 2201 1f00                            |0032: new-instance v1, Ljava/lang/String;
                                             |      // type@001f
000b98: 7020 4400 0100                       |0034: invoke-direct {v1, v0}, Ljava/lang/String;
                                             |      .<init>:([C)V // method@0044
000b9e: 6e10 4600 0100                       |0037: invoke-virtual {v1}, Ljava/lang/String;
                                             |      .intern:()Ljava/lang/String; // method@0046
000ba4: 0c00                                 |003a: move-result-object v0
000ba6: 4d00 0a03                            |003b: aput-object v0, v10, v3
000baa: 1a00 3f00                            |003d: const-string v0, "P?]CzR??AnG??
                                             |      j@_?j?0u>\r:u" // string@003f
000bae: 6e10 4800 0000                       |003f: invoke-virtual {v0}, Ljava/lang/String;
                                             |      .toCharArray:()[C // method@0048
000bb4: 0c00                                 |0042: move-result-object v0
000bb6: 2101                                 |0043: array-length v1, v0
000bb8: 36c1 1d00                            |0044: if-gt v1, v12, 0061 // +001d
000bbc: 0702                                 |0046: move-object v2, v0
000bbe: 0134                                 |0047: move v4, v3
000bc0: 011d                                 |0048: move v13, v1
000bc2: 0701                                 |0049: move-object v1, v0
000bc4: 01d0                                 |004a: move v0, v13
000bc6: 4906 0103                            |004b: aget-char v6, v1, v3
000bca: dc05 0405                            |004d: rem-int/lit8 v5, v4, #int 5 // #05
000bce: 2b05 4500 0000                       |004f: packed-switch v5, 00000094 // +00000045
000bd4: 0195                                 |0052: move v5, v9
```

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```
000bd6: b765                                |0053: xor-int/2addr v5, v6
000bd8: 8e55                                |0054: int-to-char v5, v5
000bda: 5005 0103                           |0055: aput-char v5, v1, v3
000bde: d803 0401                           |0057: add-int/lit8 v3, v4, #int 1 // #01
000be2: 3900 0600                           |0059: if-nez v0, 005f // +0006
000be6: 0721                                |005b: move-object v1, v2
000be8: 0134                                |005c: move v4, v3
000bea: 0103                                |005d: move v3, v0
000bec: 28ed                                |005e: goto 004b // -0013
000bee: 0101                                |005f: move v1, v0
000bf0: 0720                                |0060: move-object v0, v2
000bf2: 3631 e5ff                           |0061: if-gt v1, v3, 0046 // -001b
000bf6: 2201 1f00                           |0063: new-instance v1, Ljava/lang/String;
                                                      // type@001f
000bfa: 7020 4400 0100                      |0065: invoke-direct {v1, v0}, Ljava/lang/String;
                                                      .<init>:([C)V // method@0044
000c00: 6e10 4600 0100                      |0068: invoke-virtual {v1}, Ljava/lang/String;
                                                      .intern:()Ljava/lang/String; // method@0046
000c06: 0c00                                |006b: move-result-object v0
000c08: 4d00 0a0c                           |006c: aput-object v0, v10, v12
000c0c: 690a 0100                           |006e: sput-object v10, Lb;.z:
                                                      [Ljava/lang/String; // field@0001
000c10: 0e00                                |0070: return-void
000c12: 0176                                |0071: move v6, v7
000c14: 28b0                                |0072: goto 0022 // -0050
000c16: 1306 7d00                           |0073: const/16 v6, #int 125 // #7d
000c1a: 28ad                                |0075: goto 0022 // -0053
000c1c: 0186                                |0076: move v6, v8
000c1e: 28ab                                |0077: goto 0022 // -0055
000c20: 1306 6d00                           |0078: const/16 v6, #int 109 // #6d
000c24: 28a8                                |007a: goto 0022 // -0058
000c26: 0175                                |007b: move v5, v7
000c28: 28d7                                |007c: goto 0053 // -0029
000c2a: 1305 7d00                           |007d: const/16 v5, #int 125 // #7d
000c2e: 28d4                                |007f: goto 0053 // -002c
000c30: 0185                                |0080: move v5, v8
000c32: 28d2                                |0081: goto 0053 // -002e
000c34: 1305 6d00                           |0082: const/16 v5, #int 109 // #6d
000c38: 28cf                                |0084: goto 0053 // -0031
000c3a: 0132                                |0085: move v2, v3
000c3c: 28aa                                |0086: goto 0030 // -0056
000c3e: 0000                                |0087: nop // spacer
000c40: 0001 0400 0000 0000 5300 0000 5500 ... |0088: packed-switch-data (12 units)
000c58: 0001 0400 0000 0000 2c00 0000 2e00 ... |0094: packed-switch-data (12 units)
          catches        : (none)
          positions      :
          locals         :

      #1              : (in Lb;)
        name          : '<init>'
        type          : '()V'
        access        : 0x10001 (PUBLIC CONSTRUCTOR)
        code          -
        registers     : 1
        ins           : 1
        outs          : 1
        insns size    : 4 16-bit code units
000c70:                         |[000c70] b.<init>:()V
000c80: 7010 0400 0000          |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                         // method@0004
000c86: 0e00                    |0003: return-void
          catches        : (none)
          positions      :
          locals         :

  Virtual methods  -
      #0              : (in Lb;)
        name          : 'onCreate'
```

```
         type            : '(Landroid/os/Bundle;)V'
         access          : 0x0004 (PROTECTED)
         code            -
         registers       : 12
         ins             : 2
         outs            : 2
         insns size      : 88 16-bit code units
000c88:                                |[000c88] b.onCreate:(Landroid/os/Bundle;)V
000c98: 1219                           |0000: const/4 v9, #int 1 // #1
000c9a: 1208                           |0001: const/4 v8, #int 0 // #0
000c9c: 6000 0000                      |0002: sget v0, Lb;.a:I // field@0000
000ca0: 6f20 0500 ba00                 |0004: invoke-super {v10, v11}, Landroid/app/Activity;.onCreate:
                                       |      (Landroid/os/Bundle;)V // method@0005
000ca6: 1401 0200 037f                 |0007: const v1, #float 174128908012643186653739572791227711488.00
                                       |      // #7f030002
000cac: 6e20 1a00 1a00                 |000a: invoke-virtual {v10, v1}, Lb;.setContentView:(I)V
                                       |      // method@001a
000cb2: 6e10 1700 0a00                 |000d: invoke-virtual {v10}, Lb;.getIntent:
                                       |      ()Landroid/content/Intent; // method@0017
000cb8: 0c01                           |0010: move-result-object v1
000cba: 2202 0f00                      |0011: new-instance v2, Landroid/widget/TextView; // type@000f
000cbe: 7020 1200 a200                 |0013: invoke-direct {v2, v10}, Landroid/widget/TextView;.<init>:
                                       |      (Landroid/content/Context;)V // method@0012
000cc4: 1503 2041                      |0016: const/high16 v3, #int 1092616192 // #4120
000cc8: 6e20 1400 3200                 |0018: invoke-virtual {v2, v3}, Landroid/widget/TextView;
                                       |      .setTextSize:(F)V // method@0014
000cce: 6203 0100                      |001b: sget-object v3, Lb;.z:[Ljava/lang/String; // field@0001
000cd2: 4603 0309                      |001d: aget-object v3, v3, v9
000cd6: 6e20 0a00 3100                 |001f: invoke-virtual {v1, v3}, Landroid/content/Intent;
                                       |      .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                       |      // method@000a
000cdc: 0c01                           |0022: move-result-object v1
000cde: 1a03 0300                      |0023: const-string v3, "0" // string@0003
000ce2: 2204 0200                      |0025: new-instance v4, La; // type@0002
000ce6: 7010 0000 0400                 |0027: invoke-direct {v4}, La;.<init>:()V // method@0000
000cec: 1225                           |002a: const/4 v5, #int 2 // #2
000cee: 2355 3300                      |002b: new-array v5, v5, [Ljava/lang/String; // type@0033
000cf2: 2206 2100                      |002d: new-instance v6, Ljava/lang/StringBuilder; // type@0021
000cf6: 7010 4c00 0600                 |002f: invoke-direct {v6}, Ljava/lang/StringBuilder;.<init>:()V
                                       |      // method@004c
000cfc: 6207 0100                      |0032: sget-object v7, Lb;.z:[Ljava/lang/String; // field@0001
000d00: 4607 0708                      |0034: aget-object v7, v7, v8
000d04: 6e20 4e00 7600                 |0036: invoke-virtual {v6, v7}, Ljava/lang/StringBuilder;.append:
                                       |      (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                       |      // method@004e
000d0a: 0c06                           |0039: move-result-object v6
000d0c: 6e20 4e00 1600                 |003a: invoke-virtual {v6, v1}, Ljava/lang/StringBuilder;.append:
                                       |      (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                       |      // method@004e
000d12: 0c01                           |003d: move-result-object v1
000d14: 6e10 4f00 0100                 |003e: invoke-virtual {v1}, Ljava/lang/StringBuilder;.toString:
                                       |      ()Ljava/lang/String; // method@004f
000d1a: 0c01                           |0041: move-result-object v1
000d1c: 4d01 0508                      |0042: aput-object v1, v5, v8
000d20: 4d03 0509                      |0044: aput-object v3, v5, v9
000d24: 6e20 0300 5400                 |0046: invoke-virtual {v4, v5}, La;.execute:([Ljava/lang/Object;)
                                       |      Landroid/os/AsyncTask; // method@0003
000d2a: 6e20 1300 3200                 |0049: invoke-virtual {v2, v3}, Landroid/widget/TextView;.setText:
                                       |      (Ljava/lang/CharSequence;)V // method@0013
000d30: 6e20 1b00 2a00                 |004c: invoke-virtual {v10, v2}, Lb;.setContentView:
                                       |      (Landroid/view/View;)V // method@001b
000d36: 3800 0800                      |004f: if-eqz v0, 0057 // +0008
000d3a: 6000 0200                      |0051: sget v0, Lc;.a:I // field@0002
000d3e: d800 0001                      |0053: add-int/lit8 v0, v0, #int 1 // #01
000d42: 6700 0200                      |0055: sput v0, Lc;.a:I // field@0002
000d46: 0e00                           |0057: return-void
         catches         : (none)
         positions       :
```

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        locals          :

    #1                  : (in Lb;)
        name            : 'onOptionsItemSelected'
        type            : '(Landroid/view/MenuItem;)Z'
        access          : 0x0001 (PUBLIC)
        code            -
        registers       : 4
        ins             : 2
        outs            : 2
        insns size      : 20 16-bit code units
000d48:                         |[000d48] b.onOptionsItemSelected:(Landroid/view/MenuItem;)Z
000d58: 7210 1000 0300          |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                      ()I // method@0010
000d5e: 0a00                    |0003: move-result v0
000d60: 6001 0000               |0004: sget v1, Lb;.a:I // field@0000
000d64: 3901 0800               |0006: if-nez v1, 000e // +0008
000d68: 1401 0400 087f          |0008: const v1, #float 180775088556386973321599455987132006400.00
                                      // #7f080004
000d6e: 3310 0400               |000b: if-ne v0, v1, 000f // +0004
000d72: 1210                    |000d: const/4 v0, #int 1 // #1
000d74: 0f00                    |000e: return v0
000d76: 6f20 0700 3200          |000f: invoke-super {v2, v3}, Landroid/app/Activity;
                                      .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                      // method@0007
000d7c: 0a00                    |0012: move-result v0
000d7e: 28fb                    |0013: goto 000e // -0005
        catches         : (none)
        positions       :
        locals          :

    source_file_idx   : -1 (unknown)

Class #2 header:
class_idx           : 17
access_flags        : 1 (0x0001)
superclass_idx      : 30
interfaces_off      : 0 (0x000000)
source_file_idx     : -1
annotations_off     : 0 (0x000000)
class_data_off      : 9665 (0x0025c1)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 5
virtual_methods_size: 0

Class #2             -
  Class descriptor  : 'Lc;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lc;)
      name          : 'a'
      type          : 'I'
      access        : 0x0009 (PUBLIC STATIC)
    #1              : (in Lc;)
      name          : 'z'
      type          : '[Ljava/lang/String;'
      access        : 0x001a (PRIVATE STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Lc;)
      name          : '<clinit>'
      type          : '()V'
      access        : 0x10008 (STATIC CONSTRUCTOR)
      code          -
      registers     : 15
```

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      ins            : 0
      outs           : 2
      insns size     : 564 16-bit code units
000d80:                                       |[000d80] c.<clinit>:()V
000d90: 1308 2100                             |0000: const/16 v8, #int 33 // #21
000d94: 1307 1f00                             |0002: const/16 v7, #int 31 // #1f
000d98: 1309 1600                             |0004: const/16 v9, #int 22 // #16
000d9c: 121d                                  |0006: const/4 v13, #int 1 // #1
000d9e: 1203                                  |0007: const/4 v3, #int 0 // #0
000da0: 1270                                  |0008: const/4 v0, #int 7 // #7
000da2: 230a 3300                             |0009: new-array v10, v0, [Ljava/lang/String;
                                              |       // type@0033
000da6: 1a00 5100                             |000b: const-string v0, "ˆd2" // string@0051
000daa: 6e10 4800 0000                        |000d: invoke-virtual {v0}, Ljava/lang/String;
                                              |       .toCharArray:()[C // method@0048
000db0: 0c00                                  |0010: move-result-object v0
000db2: 2101                                  |0011: array-length v1, v0
000db4: 36d1 cb01                             |0012: if-gt v1, v13, 01dd // +01cb
000db8: 0132                                  |0014: move v2, v3
000dba: 0704                                  |0015: move-object v4, v0
000dbc: 0125                                  |0016: move v5, v2
000dbe: 011e                                  |0017: move v14, v1
000dc0: 0701                                  |0018: move-object v1, v0
000dc2: 01e0                                  |0019: move v0, v14
000dc4: 490b 0102                             |001a: aget-char v11, v1, v2
000dc8: dc06 0505                             |001c: rem-int/lit8 v6, v5, #int 5 // #05
000dcc: 2b06 c201 0000                        |001e: packed-switch v6, 000001e0 // +000001c2
000dd2: 0196                                  |0021: move v6, v9
000dd4: b7b6                                  |0022: xor-int/2addr v6, v11
000dd6: 8e66                                  |0023: int-to-char v6, v6
000dd8: 5006 0102                             |0024: aput-char v6, v1, v2
000ddc: d802 0501                             |0026: add-int/lit8 v2, v5, #int 1 // #01
000de0: 3900 0600                             |0028: if-nez v0, 002e // +0006
000de4: 0741                                  |002a: move-object v1, v4
000de6: 0125                                  |002b: move v5, v2
000de8: 0102                                  |002c: move v2, v0
000dea: 28ed                                  |002d: goto 001a // -0013
000dec: 0101                                  |002e: move v1, v0
000dee: 0740                                  |002f: move-object v0, v4
000df0: 3621 e5ff                             |0030: if-gt v1, v2, 0015 // -001b
000df4: 2201 1f00                             |0032: new-instance v1, Ljava/lang/String;
                                              |       // type@001f
000df8: 7020 4400 0100                        |0034: invoke-direct {v1, v0}, Ljava/lang/String;
                                              |       .<init>:([C)V // method@0044
000dfe: 6e10 4600 0100                        |0037: invoke-virtual {v1}, Ljava/lang/String;
                                              |       .intern:()Ljava/lang/String; // method@0046
000e04: 0c00                                  |003a: move-result-object v0
000e06: 4d00 0a03                             |003b: aput-object v0, v10, v3
000e0a: 1a00 5100                             |003d: const-string v0, "ˆd2" // string@0051
000e0e: 6e10 4800 0000                        |003f: invoke-virtual {v0}, Ljava/lang/String;
                                              |       .toCharArray:()[C // method@0048
000e14: 0c00                                  |0042: move-result-object v0
000e16: 2101                                  |0043: array-length v1, v0
000e18: 36d1 9601                             |0044: if-gt v1, v13, 01da // +0196
000e1c: 0132                                  |0046: move v2, v3
000e1e: 0704                                  |0047: move-object v4, v0
000e20: 0125                                  |0048: move v5, v2
000e22: 011e                                  |0049: move v14, v1
000e24: 0701                                  |004a: move-object v1, v0
000e26: 01e0                                  |004b: move v0, v14
000e28: 490b 0102                             |004c: aget-char v11, v1, v2
000e2c: dc06 0505                             |004e: rem-int/lit8 v6, v5, #int 5 // #05
000e30: 2b06 9c01 0000                        |0050: packed-switch v6, 000001ec // +0000019c
000e36: 0196                                  |0053: move v6, v9
000e38: b7b6                                  |0054: xor-int/2addr v6, v11
000e3a: 8e66                                  |0055: int-to-char v6, v6
000e3c: 5006 0102                             |0056: aput-char v6, v1, v2
000e40: d802 0501                             |0058: add-int/lit8 v2, v5, #int 1 // #01
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000e44: 3900 0600                        |005a: if-nez v0, 0060 // +0006
000e48: 0741                             |005c: move-object v1, v4
000e4a: 0125                             |005d: move v5, v2
000e4c: 0102                             |005e: move v2, v0
000e4e: 28ed                             |005f: goto 004c // -0013
000e50: 0101                             |0060: move v1, v0
000e52: 0740                             |0061: move-object v0, v4
000e54: 3621 e5ff                        |0062: if-gt v1, v2, 0047 // -001b
000e58: 2201 1f00                        |0064: new-instance v1, Ljava/lang/String;
                                         |      // type@001f
000e5c: 7020 4400 0100                   |0066: invoke-direct {v1, v0}, Ljava/lang/String;
                                         |      .<init>:([C)V // method@0044
000e62: 6e10 4600 0100                   |0069: invoke-virtual {v1}, Ljava/lang/String;
                                         |      .intern:()Ljava/lang/String; // method@0046
000e68: 0c00                             |006c: move-result-object v0
000e6a: 4d00 0a0d                        |006d: aput-object v0, v10, v13
000e6e: 122b                             |006f: const/4 v11, #int 2 // #2
000e70: 1a00 8100                        |0070: const-string v0, "zS?2d" // string@0081
000e74: 6e10 4800 0000                   |0072: invoke-virtual {v0}, Ljava/lang/String;
                                         |      .toCharArray:()[C // method@0048
000e7a: 0c00                             |0075: move-result-object v0
000e7c: 2101                             |0076: array-length v1, v0
000e7e: 36d1 6001                        |0077: if-gt v1, v13, 01d7 // +0160
000e82: 0132                             |0079: move v2, v3
000e84: 0704                             |007a: move-object v4, v0
000e86: 0125                             |007b: move v5, v2
000e88: 011e                             |007c: move v14, v1
000e8a: 0701                             |007d: move-object v1, v0
000e8c: 01e0                             |007e: move v0, v14
000e8e: 490c 0102                        |007f: aget-char v12, v1, v2
000e92: dc06 0505                        |0081: rem-int/lit8 v6, v5, #int 5 // #05
000e96: 2b06 7501 0000                   |0083: packed-switch v6, 000001f8 // +00000175
000e9c: 0196                             |0086: move v6, v9
000e9e: b7c6                             |0087: xor-int/2addr v6, v12
000ea0: 8e66                             |0088: int-to-char v6, v6
000ea2: 5006 0102                        |0089: aput-char v6, v1, v2
000ea6: d802 0501                        |008b: add-int/lit8 v2, v5, #int 1 // #01
000eaa: 3900 0600                        |008d: if-nez v0, 0093 // +0006
000eae: 0741                             |008f: move-object v1, v4
000eb0: 0125                             |0090: move v5, v2
000eb2: 0102                             |0091: move v2, v0
000eb4: 28ed                             |0092: goto 007f // -0013
000eb6: 0101                             |0093: move v1, v0
000eb8: 0740                             |0094: move-object v0, v4
000eba: 3621 e5ff                        |0095: if-gt v1, v2, 007a // -001b
000ebe: 2201 1f00                        |0097: new-instance v1, Ljava/lang/String;
                                         |      // type@001f
000ec2: 7020 4400 0100                   |0099: invoke-direct {v1, v0}, Ljava/lang/String;
                                         |      .<init>:([C)V // method@0044
000ec8: 6e10 4600 0100                   |009c: invoke-virtual {v1}, Ljava/lang/String;
                                         |      .intern:()Ljava/lang/String; // method@0046
000ece: 0c00                             |009f: move-result-object v0
000ed0: 4d00 0a0b                        |00a0: aput-object v0, v10, v11
000ed4: 123b                             |00a2: const/4 v11, #int 3 // #3
000ed6: 1a00 2300                        |00a3: const-string v0, "Li lFMo&" // string@0023
000eda: 6e10 4800 0000                   |00a5: invoke-virtual {v0}, Ljava/lang/String;
                                         |      .toCharArray:()[C // method@0048
000ee0: 0c00                             |00a8: move-result-object v0
000ee2: 2101                             |00a9: array-length v1, v0
000ee4: 36d1 2a01                        |00aa: if-gt v1, v13, 01d4 // +012a
000ee8: 0132                             |00ac: move v2, v3
000eea: 0704                             |00ad: move-object v4, v0
000eec: 0125                             |00ae: move v5, v2
000eee: 011e                             |00af: move v14, v1
000ef0: 0701                             |00b0: move-object v1, v0
000ef2: 01e0                             |00b1: move v0, v14
000ef4: 490c 0102                        |00b2: aget-char v12, v1, v2
000ef8: dc06 0505                        |00b4: rem-int/lit8 v6, v5, #int 5 // #05
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000efc: 2b06 4e01 0000                    |00b6: packed-switch v6, 00000204 // +0000014e
000f02: 0196                              |00b9: move v6, v9
000f04: b7c6                              |00ba: xor-int/2addr v6, v12
000f06: 8e66                              |00bb: int-to-char v6, v6
000f08: 5006 0102                         |00bc: aput-char v6, v1, v2
000f0c: d802 0501                         |00be: add-int/lit8 v2, v5, #int 1 // #01
000f10: 3900 0600                         |00c0: if-nez v0, 00c6 // +0006
000f14: 0741                              |00c2: move-object v1, v4
000f16: 0125                              |00c3: move v5, v2
000f18: 0102                              |00c4: move v2, v0
000f1a: 28ed                              |00c5: goto 00b2 // -0013
000f1c: 0101                              |00c6: move v1, v0
000f1e: 0740                              |00c7: move-object v0, v4
000f20: 3621 e5ff                         |00c8: if-gt v1, v2, 00ad // -001b
000f24: 2201 1f00                         |00ca: new-instance v1, Ljava/lang/String;
                                          |      // type@001f
000f28: 7020 4400 0100                    |00cc: invoke-direct {v1, v0}, Ljava/lang/String;
                                          |      .<init>:([C)V // method@0044
000f2e: 6e10 4600 0100                    |00cf: invoke-virtual {v1}, Ljava/lang/String;
                                          |      .intern:()Ljava/lang/String; // method@0046
000f34: 0c00                              |00d2: move-result-object v0
000f36: 4d00 0a0b                         |00d3: aput-object v0, v10, v11
000f3a: 124b                              |00d5: const/4 v11, #int 4 // #4
000f3c: 1a00 5100                         |00d6: const-string v0, "ˆd2" // string@0051
000f40: 6e10 4800 0000                    |00d8: invoke-virtual {v0}, Ljava/lang/String;
                                          |      .toCharArray:()[C // method@0048
000f46: 0c00                              |00db: move-result-object v0
000f48: 2101                              |00dc: array-length v1, v0
000f4a: 36d1 f400                         |00dd: if-gt v1, v13, 01d1 // +00f4
000f4e: 0132                              |00df: move v2, v3
000f50: 0704                              |00e0: move-object v4, v0
000f52: 0125                              |00e1: move v5, v2
000f54: 011e                              |00e2: move v14, v1
000f56: 0701                              |00e3: move-object v1, v0
000f58: 01e0                              |00e4: move v0, v14
000f5a: 490c 0102                         |00e5: aget-char v12, v1, v2
000f5e: dc06 0505                         |00e7: rem-int/lit8 v6, v5, #int 5 // #05
000f62: 2b06 2701 0000                    |00e9: packed-switch v6, 00000210 // +00000127
000f68: 0196                              |00ec: move v6, v9
000f6a: b7c6                              |00ed: xor-int/2addr v6, v12
000f6c: 8e66                              |00ee: int-to-char v6, v6
000f6e: 5006 0102                         |00ef: aput-char v6, v1, v2
000f72: d802 0501                         |00f1: add-int/lit8 v2, v5, #int 1 // #01
000f76: 3900 0600                         |00f3: if-nez v0, 00f9 // +0006
000f7a: 0741                              |00f5: move-object v1, v4
000f7c: 0125                              |00f6: move v5, v2
000f7e: 0102                              |00f7: move v2, v0
000f80: 28ed                              |00f8: goto 00e5 // -0013
000f82: 0101                              |00f9: move v1, v0
000f84: 0740                              |00fa: move-object v0, v4
000f86: 3621 e5ff                         |00fb: if-gt v1, v2, 00e0 // -001b
000f8a: 2201 1f00                         |00fd: new-instance v1, Ljava/lang/String;
                                          |      // type@001f
000f8e: 7020 4400 0100                    |00ff: invoke-direct {v1, v0}, Ljava/lang/String;
                                          |      .<init>:([C)V // method@0044
000f94: 6e10 4600 0100                    |0102: invoke-virtual {v1}, Ljava/lang/String;
                                          |      .intern:()Ljava/lang/String; // method@0046
000f9a: 0c00                              |0105: move-result-object v0
000f9c: 4d00 0a0b                         |0106: aput-object v0, v10, v11
000fa0: 125b                              |0108: const/4 v11, #int 5 // #5
000fa2: 1a00 8100                         |0109: const-string v0, "zS?2d" // string@0081
000fa6: 6e10 4800 0000                    |010b: invoke-virtual {v0}, Ljava/lang/String;.toCharArray:()[C
                                          |      // method@0048
000fac: 0c00                              |010e: move-result-object v0
000fae: 2101                              |010f: array-length v1, v0
000fb0: 36d1 be00                         |0110: if-gt v1, v13, 01ce // +00be
000fb4: 0132                              |0112: move v2, v3
000fb6: 0704                              |0113: move-object v4, v0
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000fb8: 0125                    |0114: move v5, v2
000fba: 011e                    |0115: move v14, v1
000fbc: 0701                    |0116: move-object v1, v0
000fbe: 01e0                    |0117: move v0, v14
000fc0: 490c 0102               |0118: aget-char v12, v1, v2
000fc4: dc06 0505               |011a: rem-int/lit8 v6, v5, #int 5 // #05
000fc8: 2b06 0001 0000          |011c: packed-switch v6, 0000021c // +00000100
000fce: 0196                    |011f: move v6, v9
000fd0: b7c6                    |0120: xor-int/2addr v6, v12
000fd2: 8e66                    |0121: int-to-char v6, v6
000fd4: 5006 0102               |0122: aput-char v6, v1, v2
000fd8: d802 0501               |0124: add-int/lit8 v2, v5, #int 1 // #01
000fdc: 3900 0600               |0126: if-nez v0, 012c // +0006
000fe0: 0741                    |0128: move-object v1, v4
000fe2: 0125                    |0129: move v5, v2
000fe4: 0102                    |012a: move v2, v0
000fe6: 28ed                    |012b: goto 0118 // -0013
000fe8: 0101                    |012c: move v1, v0
000fea: 0740                    |012d: move-object v0, v4
000fec: 3621 e5ff               |012e: if-gt v1, v2, 0113 // -001b
000ff0: 2201 1f00               |0130: new-instance v1, Ljava/lang/String;
                                         // type@001f
000ff4: 7020 4400 0100          |0132: invoke-direct {v1, v0}, Ljava/lang/String;
                                         .<init>:([C)V // method@0044
000ffa: 6e10 4600 0100          |0135: invoke-virtual {v1}, Ljava/lang/String;
                                         .intern:()Ljava/lang/String; // method@0046
001000: 0c00                    |0138: move-result-object v0
001002: 4d00 0a0b               |0139: aput-object v0, v10, v11
001006: 1266                    |013b: const/4 v6, #int 6 // #6
001008: 1a00 4000               |013c: const-string v0, "ReT" // string@0040
00100c: 6e10 4800 0000          |013e: invoke-virtual {v0}, Ljava/lang/String;
                                         .toCharArray:()[C // method@0048
001012: 0c00                    |0141: move-result-object v0
001014: 2101                    |0142: array-length v1, v0
001016: 36d1 1d00               |0143: if-gt v1, v13, 0160 // +001d
00101a: 0702                    |0145: move-object v2, v0
00101c: 0134                    |0146: move v4, v3
00101e: 011e                    |0147: move v14, v1
001020: 0701                    |0148: move-object v1, v0
001022: 01e0                    |0149: move v0, v14
001024: 490b 0103               |014a: aget-char v11, v1, v3
001028: dc05 0405               |014c: rem-int/lit8 v5, v4, #int 5 // #05
00102c: 2b05 da00 0000          |014e: packed-switch v5, 00000228 // +000000da
001032: 0195                    |0151: move v5, v9
001034: b7b5                    |0152: xor-int/2addr v5, v11
001036: 8e55                    |0153: int-to-char v5, v5
001038: 5005 0103               |0154: aput-char v5, v1, v3
00103c: d803 0401               |0156: add-int/lit8 v3, v4, #int 1 // #01
001040: 3900 0600               |0158: if-nez v0, 015e // +0006
001044: 0721                    |015a: move-object v1, v2
001046: 0134                    |015b: move v4, v3
001048: 0103                    |015c: move v3, v0
00104a: 28ed                    |015d: goto 014a // -0013
00104c: 0101                    |015e: move v1, v0
00104e: 0720                    |015f: move-object v0, v2
001050: 3631 e5ff               |0160: if-gt v1, v3, 0145 // -001b
001054: 2201 1f00               |0162: new-instance v1, Ljava/lang/String;
                                         // type@001f
001058: 7020 4400 0100          |0164: invoke-direct {v1, v0}, Ljava/lang/String;
                                         .<init>:([C)V // method@0044
00105e: 6e10 4600 0100          |0167: invoke-virtual {v1}, Ljava/lang/String;
                                         .intern:()Ljava/lang/String; // method@0046
001064: 0c00                    |016a: move-result-object v0
001066: 4d00 0a06               |016b: aput-object v0, v10, v6
00106a: 690a 0300               |016d: sput-object v10, Lc;.z:
                                         [Ljava/lang/String; // field@0003
00106e: 0e00                    |016f: return-void
001070: 0176                    |0170: move v6, v7
```

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001072: 2900 b1fe          |0171: goto/16 0022 // -014f
001076: 0186               |0173: move v6, v8
001078: 2900 aefe          |0174: goto/16 0022 // -0152
00107c: 1306 6100          |0176: const/16 v6, #int 97 // #61
001080: 2900 aafe          |0178: goto/16 0022 // -0156
001084: 1306 5d00          |017a: const/16 v6, #int 93 // #5d
001088: 2900 a6fe          |017c: goto/16 0022 // -015a
00108c: 0176               |017e: move v6, v7
00108e: 2900 d5fe          |017f: goto/16 0054 // -012b
001092: 0186               |0181: move v6, v8
001094: 2900 d2fe          |0182: goto/16 0054 // -012e
001098: 1306 6100          |0184: const/16 v6, #int 97 // #61
00109c: 2900 cefe          |0186: goto/16 0054 // -0132
0010a0: 1306 5d00          |0188: const/16 v6, #int 93 // #5d
0010a4: 2900 cafe          |018a: goto/16 0054 // -0136
0010a8: 0176               |018c: move v6, v7
0010aa: 2900 fafe          |018d: goto/16 0087 // -0106
0010ae: 0186               |018f: move v6, v8
0010b0: 2900 f7fe          |0190: goto/16 0087 // -0109
0010b4: 1306 6100          |0192: const/16 v6, #int 97 // #61
0010b8: 2900 f3fe          |0194: goto/16 0087 // -010d
0010bc: 1306 5d00          |0196: const/16 v6, #int 93 // #5d
0010c0: 2900 effe          |0198: goto/16 0087 // -0111
0010c4: 0176               |019a: move v6, v7
0010c6: 2900 1fff          |019b: goto/16 00ba // -00e1
0010ca: 0186               |019d: move v6, v8
0010cc: 2900 1cff          |019e: goto/16 00ba // -00e4
0010d0: 1306 6100          |01a0: const/16 v6, #int 97 // #61
0010d4: 2900 18ff          |01a2: goto/16 00ba // -00e8
0010d8: 1306 5d00          |01a4: const/16 v6, #int 93 // #5d
0010dc: 2900 14ff          |01a6: goto/16 00ba // -00ec
0010e0: 0176               |01a8: move v6, v7
0010e2: 2900 44ff          |01a9: goto/16 00ed // -00bc
0010e6: 0186               |01ab: move v6, v8
0010e8: 2900 41ff          |01ac: goto/16 00ed // -00bf
0010ec: 1306 6100          |01ae: const/16 v6, #int 97 // #61
0010f0: 2900 3dff          |01b0: goto/16 00ed // -00c3
0010f4: 1306 5d00          |01b2: const/16 v6, #int 93 // #5d
0010f8: 2900 39ff          |01b4: goto/16 00ed // -00c7
0010fc: 0176               |01b6: move v6, v7
0010fe: 2900 69ff          |01b7: goto/16 0120 // -0097
001102: 0186               |01b9: move v6, v8
001104: 2900 66ff          |01ba: goto/16 0120 // -009a
001108: 1306 6100          |01bc: const/16 v6, #int 97 // #61
00110c: 2900 62ff          |01be: goto/16 0120 // -009e
001110: 1306 5d00          |01c0: const/16 v6, #int 93 // #5d
001114: 2900 5eff          |01c2: goto/16 0120 // -00a2
001118: 0175               |01c4: move v5, v7
00111a: 288d               |01c5: goto 0152 // -0073
00111c: 0185               |01c6: move v5, v8
00111e: 288b               |01c7: goto 0152 // -0075
001120: 1305 6100          |01c8: const/16 v5, #int 97 // #61
001124: 2888               |01ca: goto 0152 // -0078
001126: 1305 5d00          |01cb: const/16 v5, #int 93 // #5d
00112a: 2885               |01cd: goto 0152 // -007b
00112c: 0132               |01ce: move v2, v3
00112e: 2900 5fff          |01cf: goto/16 012e // -00a1
001132: 0132               |01d1: move v2, v3
001134: 2900 29ff          |01d2: goto/16 00fb // -00d7
001138: 0132               |01d4: move v2, v3
00113a: 2900 f3fe          |01d5: goto/16 00c8 // -010d
00113e: 0132               |01d7: move v2, v3
001140: 2900 bdfe          |01d8: goto/16 0095 // -0143
001144: 0132               |01da: move v2, v3
001146: 2900 87fe          |01db: goto/16 0062 // -0179
00114a: 0132               |01dd: move v2, v3
00114c: 2900 52fe          |01de: goto/16 0030 // -01ae
001150: 0001 0400 0000 0000 5201 0000 5501 ... |01e0: packed-switch-data (12 units)
```

```
001168: 0001 0400 0000 0000 2e01 0000 3101 ... |01ec: packed-switch-data (12 units)
001180: 0001 0400 0000 0000 0901 0000 0c01 ... |01f8: packed-switch-data (12 units)
001198: 0001 0400 0000 0000 e400 0000 e700 ... |0204: packed-switch-data (12 units)
0011b0: 0001 0400 0000 0000 bf00 0000 c200 ... |0210: packed-switch-data (12 units)
0011c8: 0001 0400 0000 0000 9a00 0000 9d00 ... |021c: packed-switch-data (12 units)
0011e0: 0001 0400 0000 0000 7600 0000 7800 ... |0228: packed-switch-data (12 units)
            catches       : (none)
            positions     :
            locals        :

    #1                    : (in Lc;)
        name              : 'a'
        type              : '(Ljava/lang/String;)Ljava/lang/String;'
        access            : 0x0019 (PUBLIC STATIC FINAL)
        code              -
        registers         : 8
        ins               : 1
        outs              : 2
        insns size        : 97 16-bit code units
0011f8:                         |[0011f8] c.a:(Ljava/lang/String;)Ljava/lang/String;
001208: 6002 0000              |0000: sget v2, Lb;.a:I // field@0000
00120c: 6200 0300              |0002: sget-object v0, Lc;.z:[Ljava/lang/String; // field@0003
001210: 1261                   |0004: const/4 v1, #int 6 // #6
001212: 4600 0001              |0005: aget-object v0, v0, v1
001216: 7110 5500 0000         |0007: invoke-static {v0}, Ljava/security/MessageDigest;.getInstance:
                                        (Ljava/lang/String;)Ljava/security/MessageDigest;
                                        // method@0055
00121c: 0c00                   |000a: move-result-object v0
00121e: 6e10 4500 0700         |000b: invoke-virtual {v7}, Ljava/lang/String;.getBytes:()[B
                                        // method@0045
001224: 0c01                   |000e: move-result-object v1
001226: 6e20 5600 1000         |000f: invoke-virtual {v0, v1}, Ljava/security/MessageDigest;
                                        .update:([B)V // method@0056
00122c: 6e10 5400 0000         |0012: invoke-virtual {v0}, Ljava/security/MessageDigest;.digest:
                                        ()[B // method@0054
001232: 0c03                   |0015: move-result-object v3
001234: 2204 2000              |0016: new-instance v4, Ljava/lang/StringBuffer; // type@0020
001238: 7010 4900 0400         |0018: invoke-direct {v4}, Ljava/lang/StringBuffer;.<init>:()V
                                        // method@0049
00123e: 1201                   |001b: const/4 v1, #int 0 // #0
001240: 2130                   |001c: array-length v0, v3
001242: 3501 3100              |001d: if-ge v1, v0, 004e // +0031
001246: 4800 0301              |001f: aget-byte v0, v3, v1
00124a: d500 ff00              |0021: and-int/lit16 v0, v0, #int 255 // #00ff
00124e: 7110 4200 0000         |0023: invoke-static {v0}, Ljava/lang/Integer;.toHexString:
                                        (I)Ljava/lang/String; // method@0042
001254: 0c00                   |0026: move-result-object v0
001256: 3902 2b00              |0027: if-nez v2, 0052 // +002b
00125a: 6e10 4700 0000         |0029: invoke-virtual {v0}, Ljava/lang/String;.length:()I
                                        // method@0047
001260: 0a05                   |002c: move-result v5
001262: 1226                   |002d: const/4 v6, #int 2 // #2
001264: 3565 1900              |002e: if-ge v5, v6, 0047 // +0019
001268: 2205 2100              |0030: new-instance v5, Ljava/lang/StringBuilder; // type@0021
00126c: 7010 4c00 0500         |0032: invoke-direct {v5}, Ljava/lang/StringBuilder;.<init>:()V
                                        // method@004c
001272: 1a06 0300              |0035: const-string v6, "0" // string@0003
001276: 6e20 4e00 6500         |0037: invoke-virtual {v5, v6}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@004e
00127c: 0c05                   |003a: move-result-object v5
00127e: 6e20 4e00 0500         |003b: invoke-virtual {v5, v0}, Ljava/lang/StringBuilder;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@004e
001284: 0c00                   |003e: move-result-object v0
001286: 6e10 4f00 0000         |003f: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                        ()Ljava/lang/String; // method@004f
00128c: 0c00                   |0042: move-result-object v0
00128e: 3902 1c00              |0043: if-nez v2, 005f // +001c
001292: 3802 e4ff              |0045: if-eqz v2, 0029 // -001c
```

```
001296: 6e20 4a00 0400          |0047: invoke-virtual {v4, v0}, Ljava/lang/StringBuffer;.append:
                                        (Ljava/lang/String;)Ljava/lang/StringBuffer; // method@004a
00129c: d800 0101               |004a: add-int/lit8 v0, v1, #int 1 // #01
0012a0: 3802 1100               |004c: if-eqz v2, 005d // +0011
0012a4: 6e10 4b00 0400          |004e: invoke-virtual {v4}, Ljava/lang/StringBuffer;.toString:
                                        ()Ljava/lang/String; // method@004b
0012aa: 0c00                    |0051: move-result-object v0
0012ac: 1100                    |0052: return-object v0
0012ae: 0d00                    |0053: move-exception v0
0012b0: 6e10 4000 0000          |0054: invoke-virtual {v0}, Ljava/lang/Exception;.printStackTrace:()V
                                        // method@0040
0012b6: 6200 0300               |0057: sget-object v0, Lc;.z:[Ljava/lang/String; // field@0003
0012ba: 1251                    |0059: const/4 v1, #int 5 // #5
0012bc: 4600 0001               |005a: aget-object v0, v0, v1
0012c0: 28f6                    |005c: goto 0052 // -000a
0012c2: 0101                    |005d: move v1, v0
0012c4: 28be                    |005e: goto 001c // -0042
0012c6: 0110                    |005f: move v0, v1
0012c8: 28ec                    |0060: goto 004c // -0014
        catches       : 1
          0x0002 - 0x0051
            Ljava/lang/Exception; -> 0x0053
        positions     :
        locals        :

    #2              : (in Lc;)
      name          : 'a'
      type          : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x0009 (PUBLIC STATIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 32 16-bit code units
0012d8:                         |[0012d8] c.a:(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;
0012e8: 6e10 4500 0200          |0000: invoke-virtual {v2}, Ljava/lang/String;.getBytes:()[B
                                        // method@0045
0012ee: 0c00                    |0003: move-result-object v0
0012f0: 7110 1f00 0000          |0004: invoke-static {v0}, Lc;.a:([B)[B // method@001f
0012f6: 0c00                    |0007: move-result-object v0
0012f8: 6e10 4500 0300          |0008: invoke-virtual {v3}, Ljava/lang/String;.getBytes:()[B
                                        // method@0045
0012fe: 0c01                    |000b: move-result-object v1
001300: 7120 2000 1000          |000c: invoke-static {v0, v1}, Lc;.a:([B[B)[B // method@0020
001306: 0c00                    |000f: move-result-object v0
001308: 1201                    |0010: const/4 v1, #int 0 // #0
00130a: 7120 0e00 1000          |0011: invoke-static {v0, v1}, Landroid/util/Base64;
                                        .encodeToString:([BI)Ljava/lang/String; // method@000e
001310: 0c00                    |0014: move-result-object v0
001312: 1100                    |0015: return-object v0
001314: 0d00                    |0016: move-exception v0
001316: 6e10 4000 0000          |0017: invoke-virtual {v0}, Ljava/lang/Exception;
                                        .printStackTrace:()V // method@0040
00131c: 6200 0300               |001a: sget-object v0, Lc;.z:[Ljava/lang/String; // field@0003
001320: 1221                    |001c: const/4 v1, #int 2 // #2
001322: 4600 0001               |001d: aget-object v0, v0, v1
001326: 28f6                    |001f: goto 0015 // -000a
        catches       : 1
          0x0000 - 0x0014
            Ljava/lang/Exception; -> 0x0016
        positions     :
        locals        :

    #3              : (in Lc;)
      name          : 'a'
      type          : '([B)[B'
      access        : 0x000a (PRIVATE STATIC)
      code          -
```

```
            registers       : 4
            ins             : 1
            outs            : 3
            insns size      : 35 16-bit code units
001334:                             |[001334] c.a:([B)[B
001344: 6200 0300                   |0000: sget-object v0, Lc;.z:[Ljava/lang/String; // field@0003
001348: 1241                        |0002: const/4 v1, #int 4 // #4
00134a: 4600 0001                   |0003: aget-object v0, v0, v1
00134e: 7110 6200 0000              |0005: invoke-static {v0}, Ljavax/crypto/KeyGenerator;.getInstance:
                                            (Ljava/lang/String;)Ljavax/crypto/KeyGenerator;
                                            // method@0062
001354: 0c00                        |0008: move-result-object v0
001356: 6201 0300                   |0009: sget-object v1, Lc;.z:[Ljava/lang/String; // field@0003
00135a: 1232                        |000b: const/4 v2, #int 3 // #3
00135c: 4601 0102                   |000c: aget-object v1, v1, v2
001360: 7110 5700 0100              |000e: invoke-static {v1}, Ljava/security/SecureRandom;
                                            .getInstance:(Ljava/lang/String;)
                                            Ljava/security/SecureRandom; // method@0057
001366: 0c01                        |0011: move-result-object v1
001368: 6e20 5800 3100              |0012: invoke-virtual {v1, v3}, Ljava/security/SecureRandom;
                                            .setSeed:([B)V // method@0058
00136e: 1302 8000                   |0015: const/16 v2, #int 128 // #80
001372: 6e30 6300 2001              |0017: invoke-virtual {v0, v2, v1}, Ljavax/crypto/KeyGenerator;
                                            .init:(ILjava/security/SecureRandom;)V // method@0063
001378: 6e10 6100 0000              |001a: invoke-virtual {v0}, Ljavax/crypto/KeyGenerator;
                                            .generateKey:()Ljavax/crypto/SecretKey; // method@0061
00137e: 0c00                        |001d: move-result-object v0
001380: 7210 6400 0000              |001e: invoke-interface {v0}, Ljavax/crypto/SecretKey;.getEncoded:
                                            ()[B // method@0064
001386: 0c00                        |0021: move-result-object v0
001388: 1100                        |0022: return-object v0
            catches         : (none)
            positions       :
            locals          :

      #4               : (in Lc;)
            name            : 'a'
            type            : '([B[B)[B'
            access          : 0x000a (PRIVATE STATIC)
            code            -
            registers       : 6
            ins             : 2
            outs            : 3
            insns size      : 27 16-bit code units
00138c:                             |[00138c] c.a:([B[B)[B
00139c: 1213                        |0000: const/4 v3, #int 1 // #1
00139e: 2200 2d00                   |0001: new-instance v0, Ljavax/crypto/spec/SecretKeySpec; // type@002d
0013a2: 6201 0300                   |0003: sget-object v1, Lc;.z:[Ljava/lang/String; // field@0003
0013a6: 1202                        |0005: const/4 v2, #int 0 // #0
0013a8: 4601 0102                   |0006: aget-object v1, v1, v2
0013ac: 7030 6500 4001              |0008: invoke-direct {v0, v4, v1}, Ljavax/crypto/spec/SecretKeySpec;
                                            .<init>:([BLjava/lang/String;)V // method@0065
0013b2: 6201 0300                   |000b: sget-object v1, Lc;.z:[Ljava/lang/String; // field@0003
0013b6: 4601 0103                   |000d: aget-object v1, v1, v3
0013ba: 7110 5f00 0100              |000f: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                            (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@005f
0013c0: 0c01                        |0012: move-result-object v1
0013c2: 6e30 6000 3100              |0013: invoke-virtual {v1, v3, v0}, Ljavax/crypto/Cipher;.init:
                                            (ILjava/security/Key;)V // method@0060
0013c8: 6e20 5e00 5100              |0016: invoke-virtual {v1, v5}, Ljavax/crypto/Cipher;.doFinal:
                                            ([B)[B // method@005e
0013ce: 0c00                        |0019: move-result-object v0
0013d0: 1100                        |001a: return-object v0
            catches         : (none)
            positions       :
            locals          :

  Virtual methods   -
```

```
     source_file_idx   : -1 (unknown)

Class #3 header:
class_idx          : 18
access_flags       : 1 (0x0001)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : -1
annotations_off    : 0 (0x000000)
class_data_off     : 9695 (0x0025df)
static_fields_size : 1
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2

Class #3              -
  Class descriptor  : 'Ld;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
    #0              : (in Ld;)
      name          : 'z'
      type          : '[Ljava/lang/String;'
      access        : 0x001a (PRIVATE STATIC FINAL)
  Instance fields   -
  Direct methods    -
    #0              : (in Ld;)
      name          : '<clinit>'
      type          : '()V'
      access        : 0x10008 (STATIC CONSTRUCTOR)
      code          -
      registers     : 15
      ins           : 0
      outs          : 2
      insns size    : 320 16-bit code units
0013d4:                                      |[0013d4] d.<clinit>:()V
0013e4: 1307 3e00                            |0000: const/16 v7, #int 62 // #3e
0013e8: 1308 3100                            |0002: const/16 v8, #int 49 // #31
0013ec: 1309 0a00                            |0004: const/16 v9, #int 10 // #a
0013f0: 121d                                 |0006: const/4 v13, #int 1 // #1
0013f2: 1203                                 |0007: const/4 v3, #int 0 // #0
0013f4: 1240                                 |0008: const/4 v0, #int 4 // #4
0013f6: 230a 3300                            |0009: new-array v10, v0, [Ljava/lang/String;
                                             |      // type@0033
0013fa: 1a00 0100                            |000b: const-string v0, "K?Txrm?
                                             |      Rx:JZak,MA^x;" // string@0001
0013fe: 6e10 4800 0000                       |000d: invoke-virtual {v0}, Ljava/lang/String;
                                             |      .toCharArray:()[C // method@0048
001404: 0c00                                 |0010: move-result-object v0
001406: 2101                                 |0011: array-length v1, v0
001408: 36d1 fa00                            |0012: if-gt v1, v13, 010c // +00fa
00140c: 0132                                 |0014: move v2, v3
00140e: 0704                                 |0015: move-object v4, v0
001410: 0125                                 |0016: move v5, v2
001412: 011e                                 |0017: move v14, v1
001414: 0701                                 |0018: move-object v1, v0
001416: 01e0                                 |0019: move v0, v14
001418: 490b 0102                            |001a: aget-char v11, v1, v2
00141c: dc06 0505                            |001c: rem-int/lit8 v6, v5, #int 5 // #05
001420: 2b06 f200 0000                       |001e: packed-switch v6, 00000110 // +000000f2
001426: 0196                                 |0021: move v6, v9
001428: b7b6                                 |0022: xor-int/2addr v6, v11
00142a: 8e66                                 |0023: int-to-char v6, v6
00142c: 5006 0102                            |0024: aput-char v6, v1, v2
001430: d802 0501                            |0026: add-int/lit8 v2, v5, #int 1 // #01
001434: 3900 0600                            |0028: if-nez v0, 002e // +0006
001438: 0741                                 |002a: move-object v1, v4
```

```
001143a: 0125                    |002b: move v5, v2
00143c: 0102                     |002c: move v2, v0
00143e: 28ed                     |002d: goto 001a // -0013
001440: 0101                     |002e: move v1, v0
001442: 0740                     |002f: move-object v0, v4
001444: 3621 e5ff                |0030: if-gt v1, v2, 0015 // -001b
001448: 2201 1f00                |0032: new-instance v1, Ljava/lang/String;
                                 |      // type@001f
00144c: 7020 4400 0100           |0034: invoke-direct {v1, v0}, Ljava/lang/String;
                                 |      .<init>:([C)V // method@0044
001452: 6e10 4600 0100           |0037: invoke-virtual {v1}, Ljava/lang/String;
                                 |      .intern:()Ljava/lang/String; // method@0046
001458: 0c00                     |003a: move-result-object v0
00145a: 4d00 0a03                |003b: aput-object v0, v10, v3
00145e: 1a00 4100                |003d: const-string v0, "Us?By>Y??k9J?C*:P?Cs/J?
                                 |      ˆde?" // string@0041
001462: 6e10 4800 0000           |003f: invoke-virtual {v0}, Ljava/lang/String;
                                 |      .toCharArray:()[C // method@0048
001468: 0c00                     |0042: move-result-object v0
00146a: 2101                     |0043: array-length v1, v0
00146c: 36d1 c500                |0044: if-gt v1, v13, 0109 // +00c5
001470: 0132                     |0046: move v2, v3
001472: 0704                     |0047: move-object v4, v0
001474: 0125                     |0048: move v5, v2
001476: 011e                     |0049: move v14, v1
001478: 0701                     |004a: move-object v1, v0
00147a: 01e0                     |004b: move v0, v14
00147c: 490b 0102                |004c: aget-char v11, v1, v2
001480: dc06 0505                |004e: rem-int/lit8 v6, v5, #int 5 // #05
001484: 2b06 cc00 0000           |0050: packed-switch v6, 0000011c // +000000cc
00148a: 0196                     |0053: move v6, v9
00148c: b7b6                     |0054: xor-int/2addr v6, v11
00148e: 8e66                     |0055: int-to-char v6, v6
001490: 5006 0102                |0056: aput-char v6, v1, v2
001494: d802 0501                |0058: add-int/lit8 v2, v5, #int 1 // #01
001498: 3900 0600                |005a: if-nez v0, 0060 // +0006
00149c: 0741                     |005c: move-object v1, v4
00149e: 0125                     |005d: move v5, v2
0014a0: 0102                     |005e: move v2, v0
0014a2: 28ed                     |005f: goto 004c // -0013
0014a4: 0101                     |0060: move v1, v0
0014a6: 0740                     |0061: move-object v0, v4
0014a8: 3621 e5ff                |0062: if-gt v1, v2, 0047 // -001b
0014ac: 2201 1f00                |0064: new-instance v1, Ljava/lang/String;
                                 |      // type@001f
0014b0: 7020 4400 0100           |0066: invoke-direct {v1, v0}, Ljava/lang/String;
                                 |      .<init>:([C)V // method@0044
0014b6: 6e10 4600 0100           |0069: invoke-virtual {v1}, Ljava/lang/String;
                                 |      .intern:()Ljava/lang/String; // method@0046
0014bc: 0c00                     |006c: move-result-object v0
0014be: 4d00 0a0d                |006d: aput-object v0, v10, v13
0014c2: 122b                     |006f: const/4 v11, #int 2 // #2
0014c4: 1a00 0200                |0070: const-string v0, "?[?Bk8[WSo9Q?T*:P?Cs/J?
                                 |      ˆde?" // string@0002
0014c8: 6e10 4800 0000           |0072: invoke-virtual {v0}, Ljava/lang/String;
                                 |      .toCharArray:()[C // method@0048
0014ce: 0c00                     |0075: move-result-object v0
0014d0: 2101                     |0076: array-length v1, v0
0014d2: 36d1 9000                |0077: if-gt v1, v13, 0107 // +0090
0014d6: 0132                     |0079: move v2, v3
0014d8: 0704                     |007a: move-object v4, v0
0014da: 0125                     |007b: move v5, v2
0014dc: 011e                     |007c: move v14, v1
0014de: 0701                     |007d: move-object v1, v0
0014e0: 01e0                     |007e: move v0, v14
0014e2: 490c 0102                |007f: aget-char v12, v1, v2
0014e6: dc06 0505                |0081: rem-int/lit8 v6, v5, #int 5 // #05
0014ea: 2b06 a500 0000           |0083: packed-switch v6, 00000128 // +000000a5
```

```
0014f0: 0196                    |0086: move v6, v9
0014f2: b7c6                    |0087: xor-int/2addr v6, v12
0014f4: 8e66                    |0088: int-to-char v6, v6
0014f6: 5006 0102               |0089: aput-char v6, v1, v2
0014fa: d802 0501               |008b: add-int/lit8 v2, v5, #int 1 // #01
0014fe: 3900 0600               |008d: if-nez v0, 0093 // +0006
001502: 0741                    |008f: move-object v1, v4
001504: 0125                    |0090: move v5, v2
001506: 0102                    |0091: move v2, v0
001508: 28ed                    |0092: goto 007f // -0013
00150a: 0101                    |0093: move v1, v0
00150c: 0740                    |0094: move-object v0, v4
00150e: 3621 e5ff               |0095: if-gt v1, v2, 007a // -001b
001512: 2201 1f00               |0097: new-instance v1, Ljava/lang/String;
                                |      // type@001f
001516: 7020 4400 0100          |0099: invoke-direct {v1, v0}, Ljava/lang/String;
                                |      .<init>:([C)V // method@0044
00151c: 6e10 4600 0100          |009c: invoke-virtual {v1}, Ljava/lang/String;
                                |      .intern:()Ljava/lang/String; // method@0046
001522: 0c00                    |009f: move-result-object v0
001524: 4d00 0a0b               |00a0: aput-object v0, v10, v11
001528: 1236                    |00a2: const/4 v6, #int 3 // #3
00152a: 1a00 0400               |00a3: const-string v0, "<Q??>XY\k+JYEo,J?
                                |      _oqs2bY?y2" // string@0004
00152e: 6e10 4800 0000          |00a5: invoke-virtual {v0}, Ljava/lang/String;
                                |      .toCharArray:()[C // method@0048
001534: 0c00                    |00a8: move-result-object v0
001536: 2101                    |00a9: array-length v1, v0
001538: 36d1 1d00               |00aa: if-gt v1, v13, 00c7 // +001d
00153c: 0702                    |00ac: move-object v2, v0
00153e: 0134                    |00ad: move v4, v3
001540: 011e                    |00ae: move v14, v1
001542: 0701                    |00af: move-object v1, v0
001544: 01e0                    |00b0: move v0, v14
001546: 490b 0103               |00b1: aget-char v11, v1, v3
00154a: dc05 0405               |00b3: rem-int/lit8 v5, v4, #int 5 // #05
00154e: 2b05 7f00 0000          |00b5: packed-switch v5, 00000134 // +0000007f
001554: 0195                    |00b8: move v5, v9
001556: b7b5                    |00b9: xor-int/2addr v5, v11
001558: 8e55                    |00ba: int-to-char v5, v5
00155a: 5005 0103               |00bb: aput-char v5, v1, v3
00155e: d803 0401               |00bd: add-int/lit8 v3, v4, #int 1 // #01
001562: 3900 0600               |00bf: if-nez v0, 00c5 // +0006
001566: 0721                    |00c1: move-object v1, v2
001568: 0134                    |00c2: move v4, v3
00156a: 0103                    |00c3: move v3, v0
00156c: 28ed                    |00c4: goto 00b1 // -0013
00156e: 0101                    |00c5: move v1, v0
001570: 0720                    |00c6: move-object v0, v2
001572: 3631 e5ff               |00c7: if-gt v1, v3, 00ac // -001b
001576: 2201 1f00               |00c9: new-instance v1, Ljava/lang/String;
                                |      // type@001f
00157a: 7020 4400 0100          |00cb: invoke-direct {v1, v0}, Ljava/lang/String;
                                |      .<init>:([C)V // method@0044
001580: 6e10 4600 0100          |00ce: invoke-virtual {v1}, Ljava/lang/String;
                                |      .intern:()Ljava/lang/String; // method@0046
001586: 0c00                    |00d1: move-result-object v0
001588: 4d00 0a06               |00d2: aput-object v0, v10, v6
00158c: 690a 0400               |00d4: sput-object v10, Ld;.z:[Ljava/lang/String;
                                |      // field@0004
001590: 0e00                    |00d6: return-void
001592: 1306 5f00               |00d7: const/16 v6, #int 95 // #5f
001596: 2900 49ff               |00d9: goto/16 0022 // -00b7
00159a: 0176                    |00db: move v6, v7
00159c: 2900 46ff               |00dc: goto/16 0022 // -00ba
0015a0: 1306 7700               |00de: const/16 v6, #int 119 // #77
0015a4: 2900 42ff               |00e0: goto/16 0022 // -00be
0015a8: 0186                    |00e2: move v6, v8
```

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0015aa: 2900 3fff                          |00e3: goto/16 0022 // -00c1
0015ae: 1306 5f00                          |00e5: const/16 v6, #int 95 // #5f
0015b2: 2900 6dff                          |00e7: goto/16 0054 // -0093
0015b6: 0176                               |00e9: move v6, v7
0015b8: 2900 6aff                          |00ea: goto/16 0054 // -0096
0015bc: 1306 7700                          |00ec: const/16 v6, #int 119 // #77
0015c0: 2900 66ff                          |00ee: goto/16 0054 // -009a
0015c4: 0186                               |00f0: move v6, v8
0015c6: 2900 63ff                          |00f1: goto/16 0054 // -009d
0015ca: 1306 5f00                          |00f3: const/16 v6, #int 95 // #5f
0015ce: 2892                               |00f5: goto 0087 // -006e
0015d0: 0176                               |00f6: move v6, v7
0015d2: 2890                               |00f7: goto 0087 // -0070
0015d4: 1306 7700                          |00f8: const/16 v6, #int 119 // #77
0015d8: 288d                               |00fa: goto 0087 // -0073
0015da: 0186                               |00fb: move v6, v8
0015dc: 288b                               |00fc: goto 0087 // -0075
0015de: 1305 5f00                          |00fd: const/16 v5, #int 95 // #5f
0015e2: 28ba                               |00ff: goto 00b9 // -0046
0015e4: 0175                               |0100: move v5, v7
0015e6: 28b8                               |0101: goto 00b9 // -0048
0015e8: 1305 7700                          |0102: const/16 v5, #int 119 // #77
0015ec: 28b5                               |0104: goto 00b9 // -004b
0015ee: 0185                               |0105: move v5, v8
0015f0: 28b3                               |0106: goto 00b9 // -004d
0015f2: 0132                               |0107: move v2, v3
0015f4: 288d                               |0108: goto 0095 // -0073
0015f6: 0132                               |0109: move v2, v3
0015f8: 2900 58ff                          |010a: goto/16 0062 // -00a8
0015fc: 0132                               |010c: move v2, v3
0015fe: 2900 23ff                          |010d: goto/16 0030 // -00dd
001602: 0000                               |010f: nop // spacer
001604: 0001 0400 0000 0000 b900 0000 bd00 ... |0110: packed-switch-data (12 units)
00161c: 0001 0400 0000 0000 9500 0000 9900 ... |011c: packed-switch-data (12 units)
001634: 0001 0400 0000 0000 7000 0000 7300 ... |0128: packed-switch-data (12 units)
00164c: 0001 0400 0000 0000 4800 0000 4b00 ... |0134: packed-switch-data (12 units)
        catches        : (none)
        positions      :
        locals         :

    #1              : (in Ld;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001664:                     |[001664] d.<init>:()V
001674: 7010 0400 0000      |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V // method@0004
00167a: 0e00                |0003: return-void
        catches        : (none)
        positions      :
        locals         :

  Virtual methods -
    #0              : (in Ld;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0004 (PROTECTED)
      code          -
      registers     : 9
      ins           : 2
      outs          : 2
      insns size    : 97 16-bit code units
00167c:                     |[00167c] d.onCreate:(Landroid/os/Bundle;)V
00168c: 6000 0000           |0000: sget v0, Lb;.a:I // field@0000
```

```
001690: 6f20 0500 8700                    |0002: invoke-super {v7, v8}, Landroid/app/Activity;.onCreate:
                                                  (Landroid/os/Bundle;)V // method@0005
001696: 1401 0100 037f                    |0005: const v1, #float 174128887730233583002069148843976425472.00
                                                  // #7f030001
00169c: 6e20 2600 1700                    |0008: invoke-virtual {v7, v1}, Ld;.setContentView:(I)V
                                                  // method@0026
0016a2: 6e10 2300 0700                    |000b: invoke-virtual {v7}, Ld;.getIntent:
                                                  ()Landroid/content/Intent; // method@0023
0016a8: 0c01                              |000e: move-result-object v1


0016aa: 6202 0400                         |000f: sget-object v2, Ld;.z:[Ljava/lang/String; // field@0004
0016ae: 1233                              |0011: const/4 v3, #int 3 // #3
0016b0: 4602 0203                         |0012: aget-object v2, v2, v3
0016b4: 6e20 0a00 2100                    |0014: invoke-virtual {v1, v2}, Landroid/content/Intent;
                                                  .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                                  // method@000a
0016ba: 0c01                              |0017: move-result-object v1
0016bc: 6202 0400                         |0018: sget-object v2, Ld;.z:[Ljava/lang/String; // field@0004
0016c0: 1203                              |001a: const/4 v3, #int 0 // #0
0016c2: 4602 0203                         |001b: aget-object v2, v2, v3
0016c6: 2203 0f00                         |001d: new-instance v3, Landroid/widget/TextView; // type@000f
0016ca: 7020 1200 7300                    |001f: invoke-direct {v3, v7}, Landroid/widget/TextView;.<init>:
                                                  (Landroid/content/Context;)V // method@0012
0016d0: 1504 a041                         |0022: const/high16 v4, #int 1101004800 // #41a0
0016d4: 6e20 1400 4300                    |0024: invoke-virtual {v3, v4}, Landroid/widget/TextView;
                                                  .setTextSize:(F)V // method@0014
0016da: 7110 1d00 0100                    |0027: invoke-static {v1}, Lc;.a:(Ljava/lang/String;)
                                                  Ljava/lang/String; // method@001d
0016e0: 0c04                              |002a: move-result-object v4
0016e2: 7120 1e00 4200                    |002b: invoke-static {v2, v4}, Lc;.a:(Ljava/lang/String;
                                                  Ljava/lang/String;)Ljava/lang/String; // method@001e
0016e8: 0c02                              |002e: move-result-object v2
0016ea: 2204 2100                         |002f: new-instance v4, Ljava/lang/StringBuilder; // type@0021
0016ee: 7010 4c00 0400                    |0031: invoke-direct {v4}, Ljava/lang/StringBuilder;.<init>:()V
                                                  // method@004c
0016f4: 6205 0400                         |0034: sget-object v5, Ld;.z:[Ljava/lang/String; // field@0004
0016f8: 1226                              |0036: const/4 v6, #int 2 // #2
0016fa: 4605 0506                         |0037: aget-object v5, v5, v6
0016fe: 6e20 4e00 5400                    |0039: invoke-virtual {v4, v5}, Ljava/lang/StringBuilder;.append:
                                                  (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                                  // method@004e
001704: 0c04                              |003c: move-result-object v4
001706: 6e20 4e00 1400                    |003d: invoke-virtual {v4, v1}, Ljava/lang/StringBuilder;.append:
                                                  (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                                  // method@004e
00170c: 0c01                              |0040: move-result-object v1
00170e: 6204 0400                         |0041: sget-object v4, Ld;.z:[Ljava/lang/String; // field@0004
001712: 1215                              |0043: const/4 v5, #int 1 // #1
001714: 4604 0405                         |0044: aget-object v4, v4, v5
001718: 6e20 4e00 4100                    |0046: invoke-virtual {v1, v4}, Ljava/lang/StringBuilder;.append:
                                                  (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                                  // method@004e
00171e: 0c01                              |0049: move-result-object v1
001720: 6e20 4e00 2100                    |004a: invoke-virtual {v1, v2}, Ljava/lang/StringBuilder;.append:
                                                  (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                                  // method@004e
001726: 0c01                              |004d: move-result-object v1
001728: 6e10 4f00 0100                    |004e: invoke-virtual {v1}, Ljava/lang/StringBuilder;.toString:
                                                  ()Ljava/lang/String; // method@004f
00172e: 0c01                              |0051: move-result-object v1
001730: 6e20 1300 1300                    |0052: invoke-virtual {v3, v1}, Landroid/widget/TextView;.setText:
                                                  (Ljava/lang/CharSequence;)V // method@0013
001736: 6e20 2700 3700                    |0055: invoke-virtual {v7, v3}, Ld;.setContentView:
                                                  (Landroid/view/View;)V // method@0027
00173c: 6001 0200                         |0058: sget v1, Lc;.a:I // field@0002
001740: 3801 0600                         |005a: if-eqz v1, 0060 // +0006
```

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001744: d800 0001            |005c: add-int/lit8 v0, v0, #int 1 // #01
001748: 6700 0000            |005e: sput v0, Lb;.a:I // field@0000
00174c: 0e00                 |0060: return-void
        catches      : (none)
        positions    :
        locals       :

    #1               : (in Ld;)
        name         : 'onOptionsItemSelected'
        type         : '(Landroid/view/MenuItem;)Z'
        access       : 0x0001 (PUBLIC)
        code         -
        registers    : 4
        ins          : 2
        outs         : 2
        insns size   : 20 16-bit code units
001750:                      |[001750] d.onOptionsItemSelected:(Landroid/view/MenuItem;)Z
001760: 7210 1000 0300       |0000: invoke-interface {v3}, Landroid/view/MenuItem;
                                     .getItemId:()I // method@0010
001766: 0a00                 |0003: move-result v0
001768: 6001 0000            |0004: sget v1, Lb;.a:I // field@0000
00176c: 3901 0800            |0006: if-nez v1, 000e // +0008
001770: 1401 0400 087f       |0008: const v1, #float 180775088556386973321599455987132006400.00
                                     // #7f080004
001776: 3310 0400            |000b: if-ne v0, v1, 000f // +0004
00177a: 1210                 |000d: const/4 v0, #int 1 // #1
00177c: 0f00                 |000e: return v0
00177e: 6f20 0700 3200       |000f: invoke-super {v2, v3}, Landroid/app/Activity;
                                     .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                     // method@0007
001784: 0a00                 |0012: move-result v0
001786: 28fb                 |0013: goto 000e // -0005
        catches      : (none)
        positions    :
        locals       :

  source_file_idx    : -1 (unknown)

Class #4 header:
class_idx            : 19
access_flags         : 1 (0x0001)
superclass_idx       : 3
interfaces_off       : 0 (0x000000)
source_file_idx      : -1
annotations_off      : 0 (0x000000)
class_data_off       : 9721 (0x0025f9)
static_fields_size   : 1
instance_fields_size : 0
direct_methods_size  : 2
virtual_methods_size : 6

Class #4             -
  Class descriptor   : 'Le;'
  Access flags       : 0x0001 (PUBLIC)
  Superclass         : 'Landroid/app/Activity;'
  Interfaces         -
  Static fields      -
    #0               : (in Le;)
        name         : 'z'
        type         : '[Ljava/lang/String;'
        access       : 0x001a (PRIVATE STATIC FINAL)
  Instance fields    -
  Direct methods     -
    #0               : (in Le;)
        name         : '<clinit>'
        type         : '()V'
        access       : 0x10008 (STATIC CONSTRUCTOR)
        code         -
```

```
        registers     : 14
        ins           : 0
        outs          : 2
        insns size    : 240 16-bit code units
001788:                                         |[001788] e.<clinit>:()V
001798: 1307 2e00                               |0000: const/16 v7, #int 46 // #2e
00179c: 1309 1e00                               |0002: const/16 v9, #int 30 // #1e
0017a0: 1308 0a00                               |0004: const/16 v8, #int 10 // #a
0017a4: 121c                                    |0006: const/4 v12, #int 1 // #1
0017a6: 1203                                    |0007: const/4 v3, #int 0 // #0
0017a8: 1230                                    |0008: const/4 v0, #int 3 // #3
0017aa: 230a 3300                               |0009: new-array v10, v0, [Ljava/lang/String;
                                                |      // type@0033
0017ae: 1a00 3d00                               |000b: const-string v0, "MeU0Ol?s?Z˜?j?]˜Wp?AG}
                                                |      M-oM}" // string@003d
0017b2: 6e10 4800 0000                          |000d: invoke-virtual {v0}, Ljava/lang/String;
                                                |      .toCharArray:()[C // method@0048
0017b8: 0c00                                    |0010: move-result-object v0
0017ba: 2101                                    |0011: array-length v1, v0
0017bc: 36c1 b600                               |0012: if-gt v1, v12, 00c8 // +00b6
0017c0: 0132                                    |0014: move v2, v3
0017c2: 0704                                    |0015: move-object v4, v0
0017c4: 0125                                    |0016: move v5, v2
0017c6: 011d                                    |0017: move v13, v1
0017c8: 0701                                    |0018: move-object v1, v0
0017ca: 01d0                                    |0019: move v0, v13
0017cc: 490b 0102                               |001a: aget-char v11, v1, v2
0017d0: dc06 0505                               |001c: rem-int/lit8 v6, v5, #int 5 // #05
0017d4: 2b06 ae00 0000                          |001e: packed-switch v6, 000000cc // +000000ae
0017da: 1306 7e00                               |0021: const/16 v6, #int 126 // #7e
0017de: b7b6                                    |0023: xor-int/2addr v6, v11
0017e0: 8e66                                    |0024: int-to-char v6, v6
0017e2: 5006 0102                               |0025: aput-char v6, v1, v2
0017e6: d802 0501                               |0027: add-int/lit8 v2, v5, #int 1 // #01
0017ea: 3900 0600                               |0029: if-nez v0, 002f // +0006
0017ee: 0741                                    |002b: move-object v1, v4
0017f0: 0125                                    |002c: move v5, v2
0017f2: 0102                                    |002d: move v2, v0
0017f4: 28ec                                    |002e: goto 001a // -0014
0017f6: 0101                                    |002f: move v1, v0
0017f8: 0740                                    |0030: move-object v0, v4
0017fa: 3621 e4ff                               |0031: if-gt v1, v2, 0015 // -001c
0017fe: 2201 1f00                               |0033: new-instance v1, Ljava/lang/String;
                                                |      // type@001f
001802: 7020 4400 0100                          |0035: invoke-direct {v1, v0}, Ljava/lang/String;
                                                |      .<init>:([C)V // method@0044
001808: 6e10 4600 0100                          |0038: invoke-virtual {v1}, Ljava/lang/String;
                                                |      .intern:()Ljava/lang/String; // method@0046
00180e: 0c00                                    |003b: move-result-object v0
001810: 4d00 0a03                               |003c: aput-object v0, v10, v3
001814: 1a00 3d00                               |003e: const-string v0, "MeU0Ol?s?Z˜?j?]˜Wp?AG}
                                                |      M-oM}" // string@003d
001818: 6e10 4800 0000                          |0040: invoke-virtual {v0}, Ljava/lang/String;
                                                |      .toCharArray:()[C // method@0048
00181e: 0c00                                    |0043: move-result-object v0
001820: 2101                                    |0044: array-length v1, v0
001822: 36c1 8100                               |0045: if-gt v1, v12, 00c6 // +0081
001826: 0132                                    |0047: move v2, v3
001828: 0704                                    |0048: move-object v4, v0
00182a: 0125                                    |0049: move v5, v2
00182c: 011d                                    |004a: move v13, v1
00182e: 0701                                    |004b: move-object v1, v0
001830: 01d0                                    |004c: move v0, v13
001832: 490b 0102                               |004d: aget-char v11, v1, v2
001836: dc06 0505                               |004f: rem-int/lit8 v6, v5, #int 5 // #05
00183a: 2b06 8700 0000                          |0051: packed-switch v6, 000000d8 // +00000087
001840: 1306 7e00                               |0054: const/16 v6, #int 126 // #7e
001844: b7b6                                    |0056: xor-int/2addr v6, v11
```

```
001846: 8e66                      |0057: int-to-char v6, v6
001848: 5006 0102                 |0058: aput-char v6, v1, v2
00184c: d802 0501                 |005a: add-int/lit8 v2, v5, #int 1 // #01
001850: 3900 0600                 |005c: if-nez v0, 0062 // +0006
001854: 0741                      |005e: move-object v1, v4
001856: 0125                      |005f: move v5, v2
001858: 0102                      |0060: move v2, v0
00185a: 28ec                      |0061: goto 004d // -0014
00185c: 0101                      |0062: move v1, v0
00185e: 0740                      |0063: move-object v0, v4
001860: 3621 e4ff                 |0064: if-gt v1, v2, 0048 // -001c
001864: 2201 1f00                 |0066: new-instance v1, Ljava/lang/String;
                                  |      // type@001f
001868: 7020 4400 0100            |0068: invoke-direct {v1, v0}, Ljava/lang/String;
                                  |      .<init>:([C)V // method@0044
00186e: 6e10 4600 0100            |006b: invoke-virtual {v1}, Ljava/lang/String;
                                  |      .intern:()Ljava/lang/String; // method@0046
001874: 0c00                      |006e: move-result-object v0
001876: 4d00 0a0c                 |006f: aput-object v0, v10, v12
00187a: 1226                      |0071: const/4 v6, #int 2 // #2
00187c: 1a00 3d00                 |0072: const-string v0, "MeU0Ol?s?Z˜?j?]˜Wp?AG}
                                  |      M-oM}" // string@003d
001880: 6e10 4800 0000            |0074: invoke-virtual {v0}, Ljava/lang/String;
                                  |      .toCharArray:()[C // method@0048
001886: 0c00                      |0077: move-result-object v0
001888: 2101                      |0078: array-length v1, v0
00188a: 36c1 1e00                 |0079: if-gt v1, v12, 0097 // +001e
00188e: 0702                      |007b: move-object v2, v0
001890: 0134                      |007c: move v4, v3
001892: 011d                      |007d: move v13, v1
001894: 0701                      |007e: move-object v1, v0
001896: 01d0                      |007f: move v0, v13
001898: 490b 0103                 |0080: aget-char v11, v1, v3
00189c: dc05 0405                 |0082: rem-int/lit8 v5, v4, #int 5 // #05
0018a0: 2b05 6000 0000            |0084: packed-switch v5, 000000e4 // +00000060
0018a6: 1305 7e00                 |0087: const/16 v5, #int 126 // #7e
0018aa: b7b5                      |0089: xor-int/2addr v5, v11
0018ac: 8e55                      |008a: int-to-char v5, v5
0018ae: 5005 0103                 |008b: aput-char v5, v1, v3
0018b2: d803 0401                 |008d: add-int/lit8 v3, v4, #int 1 // #01
0018b6: 3900 0600                 |008f: if-nez v0, 0095 // +0006
0018ba: 0721                      |0091: move-object v1, v2
0018bc: 0134                      |0092: move v4, v3
0018be: 0103                      |0093: move v3, v0
0018c0: 28ec                      |0094: goto 0080 // -0014
0018c2: 0101                      |0095: move v1, v0
0018c4: 0720                      |0096: move-object v0, v2
0018c6: 3631 e4ff                 |0097: if-gt v1, v3, 007b // -001c
0018ca: 2201 1f00                 |0099: new-instance v1, Ljava/lang/String;
                                  |      // type@001f
0018ce: 7020 4400 0100            |009b: invoke-direct {v1, v0}, Ljava/lang/String;
                                  |      .<init>:([C)V // method@0044
0018d4: 6e10 4600 0100            |009e: invoke-virtual {v1}, Ljava/lang/String;
                                  |      .intern:()Ljava/lang/String; // method@0046
0018da: 0c00                      |00a1: move-result-object v0
0018dc: 4d00 0a06                 |00a2: aput-object v0, v10, v6
0018e0: 690a 0500                 |00a4: sput-object v10, Le;.z:[Ljava/lang/String;
                                  |      // field@0005
0018e4: 0e00                      |00a6: return-void
0018e6: 0176                      |00a7: move v6, v7
0018e8: 2900 7bff                 |00a8: goto/16 0023 // -0085
0018ec: 0186                      |00aa: move v6, v8
0018ee: 2900 78ff                 |00ab: goto/16 0023 // -0088
0018f2: 1306 3800                 |00ad: const/16 v6, #int 56 // #38
0018f6: 2900 74ff                 |00af: goto/16 0023 // -008c
0018fa: 0196                      |00b1: move v6, v9
0018fc: 2900 71ff                 |00b2: goto/16 0023 // -008f
001900: 0176                      |00b4: move v6, v7
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001902: 28a1                            |00b5: goto 0056 // -005f
001904: 0186                            |00b6: move v6, v8
001906: 289f                            |00b7: goto 0056 // -0061
001908: 1306 3800                       |00b8: const/16 v6, #int 56 // #38
00190c: 289c                            |00ba: goto 0056 // -0064
00190e: 0196                            |00bb: move v6, v9
001910: 289a                            |00bc: goto 0056 // -0066
001912: 0175                            |00bd: move v5, v7
001914: 28cb                            |00be: goto 0089 // -0035
001916: 0185                            |00bf: move v5, v8
001918: 28c9                            |00c0: goto 0089 // -0037
00191a: 1305 3800                       |00c1: const/16 v5, #int 56 // #38
00191e: 28c6                            |00c3: goto 0089 // -003a
001920: 0195                            |00c4: move v5, v9
001922: 28c4                            |00c5: goto 0089 // -003c
001924: 0132                            |00c6: move v2, v3
001926: 289d                            |00c7: goto 0064 // -0063
001928: 0132                            |00c8: move v2, v3
00192a: 2900 68ff                       |00c9: goto/16 0031 // -0098
00192e: 0000                            |00cb: nop // spacer
001930: 0001 0400 0000 0000 8900 0000 8c00 ... |00cc: packed-switch-data (12 units)
001948: 0001 0400 0000 0000 6300 0000 6500 ... |00d8: packed-switch-data (12 units)
001960: 0001 0400 0000 0000 3900 0000 3b00 ... |00e4: packed-switch-data (12 units)
      catches        : (none)
      positions      :
      locals         :

    #1              : (in Le;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001978:                                 |[001978] e.<init>:()V
001988: 7010 0400 0000                  |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                             // method@0004
00198e: 0e00                            |0003: return-void
      catches        : (none)
      positions      :
      locals         :

  Virtual methods   -
    #0              : (in Le;)
      name          : 'doMaths'
      type          : '(Landroid/view/View;)V'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 40 16-bit code units
001990:                                 |[001990] e.doMaths:(Landroid/view/View;)V
0019a0: 2201 0500                       |0000: new-instance v1, Landroid/content/Intent; // type@0005
0019a4: 1c00 1400                       |0002: const-class v0, Lf; // type@0014
0019a8: 7030 0800 4100                  |0004: invoke-direct {v1, v4, v0}, Landroid/content/Intent;
                                             .<init>:(Landroid/content/Context;
                                             Ljava/lang/Class;)V // method@0008
0019ae: 1400 0100 087f                  |0007: const v0, #float 180775027709158162366588184145378148352.00
                                             // #7f080001
0019b4: 6e20 2c00 0400                  |000a: invoke-virtual {v4, v0}, Le;.findViewById:
                                             (I)Landroid/view/View; // method@002c
0019ba: 0c00                            |000d: move-result-object v0
0019bc: 1f00 0e00                       |000e: check-cast v0, Landroid/widget/EditText; // type@000e
0019c0: 6e10 1100 0000                  |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                             ()Landroid/text/Editable; // method@0011
```

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0019c6: 0c00                          |0013: move-result-object v0
0019c8: 6e10 4300 0000                |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                             ()Ljava/lang/String; // method@0043
0019ce: 0c00                          |0017: move-result-object v0
0019d0: 7110 4100 0000                |0018: invoke-static {v0}, Ljava/lang/Integer;.parseInt:
                                             (Ljava/lang/String;)I // method@0041
0019d6: 0a00                          |001b: move-result v0
0019d8: 6202 0500                     |001c: sget-object v2, Le;.z:[Ljava/lang/String; // field@0005
0019dc: 1203                          |001e: const/4 v3, #int 0 // #0
0019de: 4602 0203                     |001f: aget-object v2, v2, v3
0019e2: 6e30 0b00 2100                |0021: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                             .putExtra:(Ljava/lang/String;I)Landroid/content/Intent;
                                             // method@000b
0019e8: 6e20 3300 1400                |0024: invoke-virtual {v4, v1}, Le;.startActivity:
                                             (Landroid/content/Intent;)V // method@0033
0019ee: 0e00                          |0027: return-void
        catches        : (none)
        positions      :
        locals         :

    #1                 : (in Le;)
      name             : 'encryptMessage'
      type             : '(Landroid/view/View;)V'
      access           : 0x0001 (PUBLIC)
      code             -
      registers        : 6
      ins              : 2
      outs             : 3
      insns size       : 35 16-bit code units
0019f0:                               |[0019f0] e.encryptMessage:(Landroid/view/View;)V
001a00: 2201 0500                     |0000: new-instance v1, Landroid/content/Intent; // type@0005
001a04: 1c00 1200                     |0002: const-class v0, Ld; // type@0012
001a08: 7030 0800 4100                |0004: invoke-direct {v1, v4, v0}, Landroid/content/Intent;
                                             .<init>:(Landroid/content/Context;
                                             Ljava/lang/Class;)V // method@0008
001a0e: 1500 087f                     |0007: const/high16 v0, #int 2131230720 // #7f08
001a12: 6e20 2c00 0400                |0009: invoke-virtual {v4, v0}, Le;.findViewById:(I)
                                             Landroid/view/View; // method@002c
001a18: 0c00                          |000c: move-result-object v0
001a1a: 1f00 0e00                     |000d: check-cast v0, Landroid/widget/EditText; // type@000e
001a1e: 6e10 1100 0000                |000f: invoke-virtual {v0}, Landroid/widget/EditText;
                                             .getText:()Landroid/text/Editable; // method@0011
001a24: 0c00                          |0012: move-result-object v0
001a26: 6e10 4300 0000                |0013: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                             ()Ljava/lang/String; // method@0043
001a2c: 0c00                          |0016: move-result-object v0
001a2e: 6202 0500                     |0017: sget-object v2, Le;.z:[Ljava/lang/String;
                                             // field@0005
001a32: 1223                          |0019: const/4 v3, #int 2 // #2
001a34: 4602 0203                     |001a: aget-object v2, v2, v3
001a38: 6e30 0c00 2100                |001c: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                             .putExtra:(Ljava/lang/String;
                                             Ljava/lang/String;)Landroid/content/Intent;
                                             // method@000c
001a3e: 6e20 3300 1400                |001f: invoke-virtual {v4, v1}, Le;.startActivity:
                                             (Landroid/content/Intent;)V // method@0033
001a44: 0e00                          |0022: return-void
        catches        : (none)
        positions      :
        locals         :

    #2                 : (in Le;)
      name             : 'getWebPage'
      type             : '(Landroid/view/View;)V'
      access           : 0x0001 (PUBLIC)
      code             -
      registers        : 6
      ins              : 2
```

```
        outs            : 3
        insns size      : 36 16-bit code units
001a48:                         |[001a48] e.getWebPage:(Landroid/view/View;)V
001a58: 2201 0500              |0000: new-instance v1, Landroid/content/Intent; // type@0005
001a5c: 1c00 1000              |0002: const-class v0, Lb; // type@0010
001a60: 7030 0800 4100         |0004: invoke-direct {v1, v4, v0}, Landroid/content/Intent;
                                        .<init>:(Landroid/content/Context;Ljava/lang/Class;)V
                                        // method@0008
001a66: 1400 0200 087f         |0007: const v0, #float 1807750479915677660182586080926294434368.00
                                        // #7f080002
001a6c: 6e20 2c00 0400         |000a: invoke-virtual {v4, v0}, Le;.findViewById:(I)
                                        Landroid/view/View; // method@002c
001a72: 0c00                   |000d: move-result-object v0
001a74: 1f00 0e00              |000e: check-cast v0, Landroid/widget/EditText; // type@000e
001a78: 6e10 1100 0000         |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                        ()Landroid/text/Editable; // method@0011
001a7e: 0c00                   |0013: move-result-object v0
001a80: 6e10 4300 0000         |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                        ()Ljava/lang/String; // method@0043
001a86: 0c00                   |0017: move-result-object v0
001a88: 6202 0500              |0018: sget-object v2, Le;.z:[Ljava/lang/String; // field@0005
001a8c: 1213                   |001a: const/4 v3, #int 1 // #1
001a8e: 4602 0203             |001b: aget-object v2, v2, v3
001a92: 6e30 0c00 2100         |001d: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                        .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                        Landroid/content/Intent; // method@000c
001a98: 6e20 3300 1400         |0020: invoke-virtual {v4, v1}, Le;.startActivity:
                                        (Landroid/content/Intent;)V // method@0033
001a9e: 0e00                   |0023: return-void
        catches         : (none)
        positions       :
        locals          :

    #3              : (in Le;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 3
      ins           : 2
      outs          : 2
      insns size    : 10 16-bit code units
001aa0:                         |[001aa0] e.onCreate:(Landroid/os/Bundle;)V
001ab0: 6f20 0500 2100         |0000: invoke-super {v1, v2}, Landroid/app/Activity;.onCreate:
                                        (Landroid/os/Bundle;)V // method@0005
001ab6: 1400 0300 037f         |0003: const v0, #float 1741289282950527903054099967384789975040 // #7f030003
                                        // #7f030003
001abc: 6e20 3200 0100         |0006: invoke-virtual {v1, v0}, Le;.setContentView:(I)V // method@0032
001ac2: 0e00                   |0009: return-void
        catches         : (none)
        positions       :
        locals          :

    #4              : (in Le;)
      name          : 'onCreateOptionsMenu'
      type          : '(Landroid/view/Menu;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 3
      insns size    : 14 16-bit code units
001ac4:                         |[001ac4] e.onCreateOptionsMenu:(Landroid/view/Menu;)Z
001ad4: 6e10 2d00 0200         |0000: invoke-virtual {v2}, Le;.getMenuInflater:
                                        ()Landroid/view/MenuInflater; // method@002d
001ada: 0c00                   |0003: move-result-object v0
001adc: 1501 077f              |0004: const/high16 v1, #int 2131165184 // #7f07
001ae0: 6e30 0f00 1003         |0006: invoke-virtual {v0, v1, v3}, Landroid/view/MenuInflater;
```

```
                                              .inflate:(ILandroid/view/Menu;)V // method@000f
001ae6: 6f20 0600 3200            |0009: invoke-super {v2, v3}, Landroid/app/Activity;
                                              .onCreateOptionsMenu:(Landroid/view/Menu;)Z
                                              // method@0006
001aec: 0a00                      |000c: move-result v0
001aee: 0f00                      |000d: return v0
      catches       : (none)
      positions     :
      locals        :

   #5               : (in Le;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x0001 (PUBLIC)
      code          -
      registers     : 5
      ins           : 2
      outs          : 2
      insns size    : 30 16-bit code units
001af0:                                        |[001af0] e.onOptionsItemSelected:
                                                          (Landroid/view/MenuItem;)Z
001b00: 1211                      |0000: const/4 v1, #int 1 // #1
001b02: 7210 1000 0400            |0001: invoke-interface {v4}, Landroid/view/MenuItem;
                                              .getItemId:()I // method@0010
001b08: 0a00                      |0004: move-result v0
001b0a: 6002 0000                 |0005: sget v2, Lb;.a:I // field@0000
001b0e: 3902 0900                 |0007: if-nez v2, 0010 // +0009
001b12: 2b00 0d00 0000            |0009: packed-switch v0, 00000016 // +0000000d
001b18: 6f20 0700 4300            |000c: invoke-super {v3, v4}, Landroid/app/Activity;
                                              .onOptionsItemSelected:
                                              (Landroid/view/MenuItem;)Z  // method@0007
001b1e: 0a00                      |000f: move-result v0
001b20: 0f00                      |0010: return v0
001b22: 0110                      |0011: move v0, v1
001b24: 28fe                      |0012: goto 0010 // -0002
001b26: 0110                      |0013: move v0, v1
001b28: 28fc                      |0014: goto 0010 // -0004
001b2a: 0000                      |0015: nop // spacer
001b2c: 0001 0200 0300 087f 0800 0000 0a00 |0016: packed-switch-data (8 units)
      catches       : (none)
      positions     :
      locals        :

   source_file_idx   : -1 (unknown)

Class #5 header:
class_idx           : 20
access_flags        : 1 (0x0001)
superclass_idx      : 3
interfaces_off      : 0 (0x000000)
source_file_idx     : -1
annotations_off     : 0 (0x000000)
class_data_off      : 9763 (0x002623)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 3
virtual_methods_size: 2

Class #5            -
  Class descriptor  : 'Lf;'
  Access flags      : 0x0001 (PUBLIC)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
    #0              : (in Lf;)
      name          : 'a'
      type          : 'Ljava/util/ArrayList;'
      access        : 0x000a (PRIVATE STATIC)
```

```
   #1                : (in Lf;)
      name           : 'z'
      type           : 'Ljava/lang/String;'
      access         : 0x001a (PRIVATE STATIC FINAL)
  Instance fields    -
  Direct methods     -
      #0             : (in Lf;)
      name           : '<clinit>'
      type           : '()V'
      access         : 0x10008 (STATIC CONSTRUCTOR)
      code           -
      registers      : 8
      ins            : 0
      outs           : 2
      insns size     : 98 16-bit code units
001b3c:                                       |[001b3c] f.<clinit>:()V
001b4c: 1a00 4800                             |0000: const-string v0, "X>eY*Z7&?>O%&?:H%g?:??M$z?M"
                                              //  string@0048
001b50: 6e10 4800 0000                        |0002: invoke-virtual {v0}, Ljava/lang/String;
                                              .toCharArray:()[C // method@0048
001b56: 0c00                                  |0005: move-result-object v0
001b58: 2101                                  |0006: array-length v1, v0
001b5a: 1202                                  |0007: const/4 v2, #int 0 // #0
001b5c: 1213                                  |0008: const/4 v3, #int 1 // #1
001b5e: 3631 1e00                             |0009: if-gt v1, v3, 0027 // +001e
001b62: 0703                                  |000b: move-object v3, v0
001b64: 0124                                  |000c: move v4, v2
001b66: 0117                                  |000d: move v7, v1
001b68: 0701                                  |000e: move-object v1, v0
001b6a: 0170                                  |000f: move v0, v7
001b6c: 4906 0102                             |0010: aget-char v6, v1, v2
001b70: dc05 0405                             |0012: rem-int/lit8 v5, v4, #int 5 // #05
001b74: 2b05 4200 0000                        |0014: packed-switch v5, 00000056 // +00000042
001b7a: 1305 5f00                             |0017: const/16 v5, #int 95 // #5f
001b7e: b765                                  |0019: xor-int/2addr v5, v6
001b80: 8e55                                  |001a: int-to-char v5, v5
001b82: 5005 0102                             |001b: aput-char v5, v1, v2
001b86: d802 0401                             |001d: add-int/lit8 v2, v4, #int 1 // #01
001b8a: 3900 0600                             |001f: if-nez v0, 0025 // +0006
001b8e: 0731                                  |0021: move-object v1, v3
001b90: 0124                                  |0022: move v4, v2
001b92: 0102                                  |0023: move v2, v0
001b94: 28ec                                  |0024: goto 0010 // -0014
001b96: 0101                                  |0025: move v1, v0
001b98: 0730                                  |0026: move-object v0, v3
001b9a: 3621 e4ff                             |0027: if-gt v1, v2, 000b // -001c
001b9e: 2201 1f00                             |0029: new-instance v1, Ljava/lang/String;
                                              //  type@001f
001ba2: 7020 4400 0100                        |002b: invoke-direct {v1, v0}, Ljava/lang/String;
                                              .<init>:([C)V // method@0044
001ba8: 6e10 4600 0100                        |002e: invoke-virtual {v1}, Ljava/lang/String;
                                              .intern:()Ljava/lang/String; // method@0046
001bae: 0c00                                  |0031: move-result-object v0
001bb0: 6900 0700                             |0032: sput-object v0, Lf;.z:Ljava/lang/String;
                                              //  field@0007
001bb4: 2200 2900                             |0034: new-instance v0, Ljava/util/ArrayList;
                                              //  type@0029
001bb8: 7010 5900 0000                        |0036: invoke-direct {v0}, Ljava/util/ArrayList;
                                              .<init>:()V // method@0059
001bbe: 6900 0600                             |0039: sput-object v0, Lf;.a:Ljava/util/ArrayList;
                                              //  field@0006
001bc2: 6200 0600                             |003b: sget-object v0, Lf;.a:Ljava/util/ArrayList;
                                              //  field@0006
001bc6: 6201 0900                             |003d: sget-object v1, Ljava/math/BigInteger;
                                              .ZERO:Ljava/math/BigInteger; // field@0009
001bca: 6e20 5b00 1000                        |003f: invoke-virtual {v0, v1}, Ljava/util/ArrayList;
                                              .add:(Ljava/lang/Object;)Z // method@005b
001bd0: 6200 0600                             |0042: sget-object v0, Lf;.a:Ljava/util/ArrayList;
```

```
                                                     // field@0006
001bd4: 6201 0800                        |0044: sget-object v1, Ljava/math/BigInteger;
                                                     .ONE:Ljava/math/BigInteger; // field@0008
001bd8: 6e20 5b00 1000                   |0046: invoke-virtual {v0, v1}, Ljava/util/ArrayList;
                                                     .add:(Ljava/lang/Object;)Z // method@005b
001bde: 0e00                             |0049: return-void
001be0: 1305 3b00                        |004a: const/16 v5, #int 59 // #3b
001be4: 28cd                             |004c: goto 0019 // -0033
001be6: 1305 5100                        |004d: const/16 v5, #int 81 // #51
001bea: 28ca                             |004f: goto 0019 // -0036
001bec: 1305 0800                        |0050: const/16 v5, #int 8 // #8
001bf0: 28c7                             |0052: goto 0019 // -0039
001bf2: 1305 7700                        |0053: const/16 v5, #int 119 // #77
001bf6: 28c4                             |0055: goto 0019 // -003c
001bf8: 0001 0400 0000 0000 3600 0000 3900  |0056: packed-switch-data (12 units)
        catches        : (none)
        positions      :
        locals         :

    #1              : (in Lf;)
      name          : '<init>'
      type          : '()V'
      access        : 0x10001 (PUBLIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001c10:                         |[001c10] f.<init>:()V
001c20: 7010 0400 0000     |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V // method@0004
001c26: 0e00               |0003: return-void
        catches        : (none)
        positions      :
        locals         :

    #2              : (in Lf;)
      name          : 'a'
      type          : '(I)Ljava/math/BigInteger;'
      access        : 0x0009 (PUBLIC STATIC)
      code          -
      registers     : 4
      ins           : 1
      outs          : 3
      insns size    : 38 16-bit code units
001c28:                             |[001c28] f.a:(I)Ljava/math/BigInteger;
001c38: 6200 0600               |0000: sget-object v0, Lf;.a:Ljava/util/ArrayList; // field@0006
001c3c: 6e10 5d00 0000         |0002: invoke-virtual {v0}, Ljava/util/ArrayList;.size:()I
                                       // method@005d
001c42: 0a00                   |0005: move-result v0
001c44: 3403 1700             |0006: if-lt v3, v0, 001d // +0017




001c48: 6200 0600               |0008: sget-object v0, Lf;.a:Ljava/util/ArrayList; // field@0006
001c4c: d801 03ff               |000a: add-int/lit8 v1, v3, #int -1 // #ff
001c50: 7110 3600 0100         |000c: invoke-static {v1}, Lf;.a:(I)Ljava/math/BigInteger;
                                       // method@0036
001c56: 0c01                   |000f: move-result-object v1
001c58: d802 03fe               |0010: add-int/lit8 v2, v3, #int -2 // #fe
001c5c: 7110 3600 0200         |0012: invoke-static {v2}, Lf;.a:(I)Ljava/math/BigInteger;
                                       // method@0036
001c62: 0c02                   |0015: move-result-object v2
001c64: 6e20 5000 2100         |0016: invoke-virtual {v1, v2}, Ljava/math/BigInteger;.add:
                                       (Ljava/math/BigInteger;)Ljava/math/BigInteger;
                                       // method@0050
001c6a: 0c01                   |0019: move-result-object v1
```

```
001c6c: 6e30 5a00 3001          |001a: invoke-virtual {v0, v3, v1}, Ljava/util/ArrayList;.add:
                                       (ILjava/lang/Object;)V // method@005a
001c72: 6200 0600               |001d: sget-object v0, Lf;.a:Ljava/util/ArrayList; // field@0006
001c76: 6e20 5c00 3000          |001f: invoke-virtual {v0, v3}, Ljava/util/ArrayList;.get:
                                       (I)Ljava/lang/Object; // method@005c
001c7c: 0c00                    |0022: move-result-object v0
001c7e: 1f00 2300               |0023: check-cast v0, Ljava/math/BigInteger; // type@0023
001c82: 1100                    |0025: return-object v0
      catches       : (none)
      positions     :
      locals        :

  Virtual methods   -
    #0              : (in Lf;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x0004 (PROTECTED)
      code          -
      registers     : 6
      ins           : 2
      outs          : 3
      insns size    : 59 16-bit code units
001c84:                         |[001c84] f.onCreate:(Landroid/os/Bundle;)V
001c94: 6f20 0500 5400          |0000: invoke-super {v4, v5}, Landroid/app/Activity;.onCreate:
                                       (Landroid/os/Bundle;)V // method@0005
001c9a: 1500 037f               |0003: const/high16 v0, #int 2130903040 // #7f03
001c9e: 6e20 3a00 0400          |0005: invoke-virtual {v4, v0}, Lf;.setContentView:(I)V // method@003a
001ca4: 6e10 3700 0400          |0008: invoke-virtual {v4}, Lf;.getIntent:
                                       ()Landroid/content/Intent; // method@0037
001caa: 0c00                    |000b: move-result-object v0
001cac: 6201 0700               |000c: sget-object v1, Lf;.z:Ljava/lang/String; // field@0007
001cb0: 1202                    |000e: const/4 v2, #int 0 // #0
001cb2: 6e30 0900 1002          |000f: invoke-virtual {v0, v1, v2}, Landroid/content/Intent;
                                       .getIntExtra:(Ljava/lang/String;I)I // method@0009
001cb8: 0a00                    |0012: move-result v0
001cba: 2201 0f00               |0013: new-instance v1, Landroid/widget/TextView; // type@000f
001cbe: 7020 1200 4100          |0015: invoke-direct {v1, v4}, Landroid/widget/TextView;.<init>:
                                       (Landroid/content/Context;)V // method@0012
001cc4: 1502 2042               |0018: const/high16 v2, #int 1109393408 // #4220
001cc8: 6e20 1400 2100          |001a: invoke-virtual {v1, v2}, Landroid/widget/TextView;.setTextSize:
                                       (F)V // method@0014
001cce: 2202 2100               |001d: new-instance v2, Ljava/lang/StringBuilder; // type@0021
001cd2: 7010 4c00 0200          |001f: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:()V
                                       // method@004c
001cd8: 1a03 0000               |0022: const-string v3, "" // string@0000
001cdc: 6e20 4e00 3200          |0024: invoke-virtual {v2, v3}, Ljava/lang/StringBuilder;.append:
                                       (Ljava/lang/String;)Ljava/lang/StringBuilder; // method@004e
001ce2: 0c02                    |0027: move-result-object v2
001ce4: 7110 3600 0000          |0028: invoke-static {v0}, Lf;.a:(I)Ljava/math/BigInteger;
                                       // method@0036
001cea: 0c00                    |002b: move-result-object v0
001cec: 6e20 4d00 0200          |002c: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;.append:
                                       (Ljava/lang/Object;)Ljava/lang/StringBuilder; // method@004d
001cf2: 0c00                    |002f: move-result-object v0
001cf4: 6e10 4f00 0000          |0030: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                       ()Ljava/lang/String; // method@004f
001cfa: 0c00                    |0033: move-result-object v0
001cfc: 6e20 1300 0100          |0034: invoke-virtual {v1, v0}, Landroid/widget/TextView;.setText:
                                       (Ljava/lang/CharSequence;)V // method@0013
001d02: 6e20 3b00 1400          |0037: invoke-virtual {v4, v1}, Lf;.setContentView:
                                       (Landroid/view/View;)V // method@003b
001d08: 0e00                    |003a: return-void
      catches       : (none)
      positions     :
      locals        :

    #1              : (in Lf;)
      name          : 'onOptionsItemSelected'
```

```
            type          : '(Landroid/view/MenuItem;)Z'
            access        : 0x0001 (PUBLIC)
            code          -
            registers     : 4
            ins           : 2
            outs          : 2
            insns size    : 20 16-bit code units
001d0c:                           |[001d0c] f.onOptionsItemSelected:(Landroid/view/MenuItem;)Z
001d1c: 7210 1000 0300            |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                          ()I // method@0010
001d22: 0a00                      |0003: move-result v0
001d24: 6001 0000                 |0004: sget v1, Lb;.a:I // field@0000
001d28: 3901 0800                 |0006: if-nez v1, 000e // +0008
001d2c: 1401 0400 087f            |0008: const v1, #float 1807750885563869733215994559871320064000.00
                                          // #7f080004
001d32: 3310 0400                 |000b: if-ne v0, v1, 000f // +0004
001d36: 1210                      |000d: const/4 v0, #int 1 // #1
001d38: 0f00                      |000e: return v0
001d3a: 6f20 0700 3200            |000f: invoke-super {v2, v3}, Landroid/app/Activity;
                                          .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                          // method@0007
001d40: 0a00                      |0012: move-result v0
001d42: 28fb                      |0013: goto 000e // -0005
            catches       : (none)
            positions     :
            locals        :

    source_file_idx   : -1 (unknown)
```

C.5 Allatori

```
Processing 'classes.dex'...
Opened 'classes.dex', DEX version '035'
DEX file header:
magic              : 'dex\n035\0'
checksum           : 6706eb4a
signature          : c695...7930
file_size          : 10900
header_size        : 112
link_size          : 0
link_off           : 0 (0x000000)
string_ids_size    : 172
string_ids_off     : 112 (0x000070)
type_ids_size      : 69
type_ids_off       : 800 (0x000320)
proto_ids_size     : 59
proto_ids_off      : 1076 (0x000434)
field_ids_size     : 36
field_ids_off      : 1784 (0x0006f8)
method_ids_size    : 124
method_ids_off     : 2072 (0x000818)
class_defs_size    : 16
class_defs_off     : 3064 (0x000bf8)
data_size          : 7324
data_off           : 3576 (0x000df8)

Class #0 header:
class_idx          : 16
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10292 (0x002834)
static_fields_size : 11
instance_fields_size: 0
direct_methods_size : 1
```

```
virtual_methods_size: 0

Class #0              -
  Class descriptor  : 'Lcom/package/E;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/E;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/E;)
      name          : 'D'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #2              : (in Lcom/package/E;)
      name          : 'H'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #3              : (in Lcom/package/E;)
      name          : 'I'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #4              : (in Lcom/package/E;)
      name          : 'J'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #5              : (in Lcom/package/E;)
      name          : 'K'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #6              : (in Lcom/package/E;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #7              : (in Lcom/package/E;)
      name          : 'f'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #8              : (in Lcom/package/E;)
      name          : 'g'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #9              : (in Lcom/package/E;)
      name          : 'i'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #10             : (in Lcom/package/E;)
      name          : 'm'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/E;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000e14:                   |[000e14] com.package.E.<init>:()V
000e24: 7010 5400 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000e2a: 0e00              |0003: return-void
      catches       : (none)
      positions     :
```

```
          0x0000 line=205
        locals        :
          0x0000 - 0x0004 reg=0 this Lcom/package/E;

    Virtual methods   -
    source_file_idx   : 140 (i)

Class #1 header:
class_idx           : 17
access_flags        : 17 (0x0011)
superclass_idx      : 45
interfaces_off      : 0 (0x000000)
source_file_idx     : 140
annotations_off     : 6548 (0x001994)
class_data_off      : 10335 (0x00285f)
static_fields_size  : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #1              -
  Class descriptor  : 'Lcom/package/G;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/G;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/G;)
      name          : 'H'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #2              : (in Lcom/package/G;)
      name          : 'K'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #3              : (in Lcom/package/G;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #4              : (in Lcom/package/G;)
      name          : 'g'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/G;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000e2c:                       |[000e2c] com.package.G.<init>:()V
000e3c: 7010 5400 0000        |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000e42: 0e00                  |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=135
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/package/G;

    Virtual methods   -
    source_file_idx   : 140 (i)
```

```
Class #2 header:
class_idx          : 18
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10360 (0x002878)
static_fields_size : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #2            -
  Class descriptor  : 'Lcom/package/H;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/H;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/H;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/H;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000e44:                   |[000e44] com.package.H.<init>:()V
000e54: 7010 5400 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000e5a: 0e00              |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=133
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/package/H;

  Virtual methods   -
  source_file_idx   : 140 (i)

Class #3 header:
class_idx          : 19
access_flags       : 17 (0x0011)
superclass_idx     : 6
interfaces_off     : 0 (0x000000)
source_file_idx    : 108
annotations_off    : 0 (0x000000)
class_data_off     : 10376 (0x002888)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #3            -
  Class descriptor  : 'Lcom/package/M;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/os/AsyncTask;'
```

```
   Interfaces          -
   Static fields       -
   Instance fields     -
   Direct methods      -
     #0              : (in Lcom/package/M;)
        name         : '<init>'
        type         : '()V'
        access       : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
        code         -
        registers    : 1
        ins          : 1
        outs         : 1
        insns size   : 4 16-bit code units
000e5c:                                 |[000e5c] com.package.M.<init>:()V
000e6c: 7010 0900 0000                  |0000: invoke-direct {v0}, Landroid/os/AsyncTask;.<init>:()V
                                             // method@0009
000e72: 0e00                            |0003: return-void
        catches      : (none)
        positions    :
          0x0000 line=204
        locals       :
          0x0000 - 0x0004 reg=0 this Lcom/package/M;

   Virtual methods     -
     #0              : (in Lcom/package/M;)
        name         : 'ALLATORIxDEMO'
        type         : '([Ljava/lang/String;)Ljava/lang/Void;'
        access       : 0x1081 (PUBLIC VARARGS SYNTHETIC)
        code         -
        registers    : 7
        ins          : 2
        outs         : 2
        insns size   : 63 16-bit code units
000e74:                                 |[000e74] com.package.M.ALLATORIxDEMO:([Ljava/lang/String;)
                                             Ljava/lang/Void;
000e84: 2200 3400                       |0000: new-instance v0, Ljava/net/URL; // type@0034
000e88: 1201                            |0002: const/4 v1, #int 0 // #0
000e8a: 4601 0601                       |0003: aget-object v1, v6, v1
000e8e: 7020 6700 1000                  |0005: invoke-direct {v0, v1}, Ljava/net/URL;.<init>:
                                             (Ljava/lang/String;)V // method@0067
000e94: 6e10 6800 0000                  |0008: invoke-virtual {v0}, Ljava/net/URL;.openConnection:
                                             ()Ljava/net/URLConnection; // method@0068
000e9a: 0c00                            |000b: move-result-object v0
000e9c: 2201 2400                       |000c: new-instance v1, Ljava/io/BufferedReader; // type@0024
000ea0: 2202 2700                       |000e: new-instance v2, Ljava/io/InputStreamReader; // type@0027
000ea4: 6e10 6900 0000                  |0010: invoke-virtual {v0}, Ljava/net/URLConnection;
                                             .getInputStream:()Ljava/io/InputStream; // method@0069
000eaa: 0c00                            |0013: move-result-object v0
000eac: 7020 4e00 0200                  |0014: invoke-direct {v2, v0}, Ljava/io/InputStreamReader;
                                             .<init>:(Ljava/io/InputStream;)V // method@004e
000eb2: 7020 4b00 2100                  |0017: invoke-direct {v1, v2}, Ljava/io/BufferedReader;.<init>:
                                             (Ljava/io/Reader;)V // method@004b
000eb8: 1a00 0000                       |001a: const-string v0, "" // string@0000
000ebc: 6e10 4c00 0100                  |001c: invoke-virtual {v1}, Ljava/io/BufferedReader;.readLine:
                                             ()Ljava/lang/String; // method@004c
000ec2: 0c00                            |001f: move-result-object v0
000ec4: 3800 1d00                       |0020: if-eqz v0, 003d // +001d
000ec8: 2202 3100                       |0022: new-instance v2, Ljava/lang/StringBuilder; // type@0031
000ecc: 7010 6100 0200                  |0024: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:
                                             ()V // method@0061
000ed2: 1213                            |0027: const/4 v3, #int 1 // #1
000ed4: 4604 0603                       |0028: aget-object v4, v6, v3
000ed8: 6e20 6300 4200                  |002a: invoke-virtual {v2, v4}, Ljava/lang/StringBuilder;
                                             .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                             // method@0063
000ede: 0c02                            |002d: move-result-object v2
000ee0: 6e20 6300 0200                  |002e: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;
                                             .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
```

```
                                           // method@0063
000ee6: 0c00                   |0031: move-result-object v0
000ee8: 6e10 6500 0000         |0032: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                      ()Ljava/lang/String; // method@0065
000eee: 0c00                   |0035: move-result-object v0
000ef0: 4d00 0603              |0036: aput-object v0, v6, v3
000ef4: 28e4                   |0038: goto 001c // -001c
000ef6: 0d00                   |0039: move-exception v0
000ef8: 6e10 4d00 0000         |003a: invoke-virtual {v0}, Ljava/io/IOException;
                                      .printStackTrace:()V // method@004d
000efe: 1200                   |003d: const/4 v0, #int 0 // #0
000f00: 1100                   |003e: return-object v0
      catches       : 1
        0x0000 - 0x0038
          Ljava/io/IOException; -> 0x0039
      positions     :
        0x0000 line=182
        0x0008 line=92
        0x000c line=42
        0x001a line=188
        0x001c line=70
        0x0022 line=44
        0x0039 line=28
        0x003a line=104
        0x003d line=122
      locals        :
        0x0000 - 0x003f reg=5 this Lcom/package/M;
        0x0000 - 0x003f reg=6 arg0 [Ljava/lang/String;


    #1              : (in Lcom/package/M;)
      name          : 'doInBackground'
      type          : '([Ljava/lang/Object;)Ljava/lang/Object;'
      access        : 0x1041 (PUBLIC BRIDGE SYNTHETIC)
      code          -
      registers     : 3
      ins           : 2
      outs          : 2
      insns size    : 7 16-bit code units
000f10:                        |[000f10] com.package.M.doInBackground:([Ljava/lang/Object;)
                                              Ljava/lang/Object;
000f20: 1f02 4400              |0000: check-cast v2, [Ljava/lang/String; // type@0044
000f24: 6e20 1600 2100         |0002: invoke-virtual {v1, v2}, Lcom/package/M;.ALLATORIxDEMO:
                                      ([Ljava/lang/String;)Ljava/lang/Void; // method@0016
000f2a: 0c00                   |0005: move-result-object v0
000f2c: 1100                   |0006: return-object v0
      catches       : (none)
      positions     :
        0x0000 line=204
      locals        :
        0x0000 - 0x0002 reg=2 arg0 [Ljava/lang/Object;
        0x0000 - 0x0007 reg=1 this Lcom/package/M;

  source_file_idx   : 108 (c)

Class #4 header:
class_idx          : 20
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 166
annotations_off    : 0 (0x000000)
class_data_off     : 10396 (0x00289c)
static_fields_size : 1
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #4              -
```

```
   Class descriptor  : 'Lcom/package/b;'
   Access flags      : 0x0011 (PUBLIC FINAL)
   Superclass        : 'Ljava/lang/Object;'
   Interfaces        -
   Static fields     -
     #0              : (in Lcom/package/b;)
       name          : 'ALLATORIxDEMO'
       type          : 'Z'
       access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
   Instance fields   -
   Direct methods    -
     #0              : (in Lcom/package/b;)
       name          : '<init>'
       type          : '()V'
       access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
       code          -
       registers     : 1
       ins           : 1
       outs          : 1
       insns size    : 4 16-bit code units
000f30:                   |[000f30] com.package.b.<init>:()V
000f40: 7010 5400 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000f46: 0e00              |0003: return-void
       catches       : (none)
       positions     :
         0x0000 line=207
       locals        :
         0x0000 - 0x0004 reg=0 this Lcom/package/b;

   Virtual methods   -
   source_file_idx   : 166 (t)

Class #5 header:
class_idx           : 21
access_flags        : 17 (0x0011)
superclass_idx      : 45
interfaces_off      : 0 (0x000000)
source_file_idx     : 140
annotations_off     : 6548 (0x001994)
class_data_off      : 10409 (0x0028a9)
static_fields_size  : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #5             -
   Class descriptor  : 'Lcom/package/c;'
   Access flags      : 0x0011 (PUBLIC FINAL)
   Superclass        : 'Ljava/lang/Object;'
   Interfaces        -
   Static fields     -
     #0              : (in Lcom/package/c;)
       name          : 'ALLATORIxDEMO'
       type          : 'I'
       access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
     #1              : (in Lcom/package/c;)
       name          : 'H'
       type          : 'I'
       access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
     #2              : (in Lcom/package/c;)
       name          : 'K'
       type          : 'I'
       access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
     #3              : (in Lcom/package/c;)
       name          : 'd'
       type          : 'I'
       access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
     #4              : (in Lcom/package/c;)
```

```
            name          : 'g'
            type          : 'I'
            access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
      Instance fields   -
      Direct methods    -
        #0              : (in Lcom/package/c;)
            name          : '<init>'
            type          : '()V'
            access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
            code          -
            registers     : 1
            ins           : 1
            outs          : 1
            insns size    : 4 16-bit code units
000f48:                        |[000f48] com.package.c.<init>:()V
000f58: 7010 5400 0000        |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000f5e: 0e00                   |0003: return-void
            catches       : (none)
            positions     :
              0x0000 line=70
            locals        :
              0x0000 - 0x0004 reg=0 this Lcom/package/c;

      Virtual methods   -
      source_file_idx   : 140 (i)

Class #6 header:
class_idx           : 22
access_flags        : 17 (0x0011)
superclass_idx      : 45
interfaces_off      : 0 (0x000000)
source_file_idx     : 148
annotations_off     : 6564 (0x0019a4)
class_data_off      : 10434 (0x0028c2)
static_fields_size  : 0
instance_fields_size: 0
direct_methods_size : 8
virtual_methods_size: 0

Class #6             -
  Class descriptor  : 'Lcom/package/e;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/e;)
        name          : '<init>'
        type          : '()V'
        access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
        code          -
        registers     : 1
        ins           : 1
        outs          : 1
        insns size    : 4 16-bit code units
000f60:                        |[000f60] com.package.e.<init>:()V
000f70: 7010 5400 0000        |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000f76: 0e00                   |0003: return-void
        catches       : (none)
        positions     :
          0x0000 line=215
        locals        :
          0x0000 - 0x0004 reg=0 this Lcom/package/e;

    #1              : (in Lcom/package/e;)
        name          : 'ALLATORIxDEMO'
        type          : '(Ljava/lang/String;)Ljava/lang/String;'
```

```
        access          : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
        code            -
        registers       : 8
        ins             : 1
        outs            : 3
        insns size      : 96 16-bit code units
000f78:                              |[000f78] com.package.e.ALLATORIxDEMO:(Ljava/lang/String;)
                                     |        Ljava/lang/String;
000f88: 1200                         |0000: const/4 v0, #int 0 // #0
000f8a: 1a01 0a00                    |0001: const-string v1, "B?q" // string@000a
000f8e: 7110 2000 0100               |0003: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                     |        Ljava/lang/String; // method@0020
000f94: 0c01                         |0006: move-result-object v1
000f96: 7110 6b00 0100               |0007: invoke-static {v1}, Ljava/security/MessageDigest;
                                     |        .getInstance:(Ljava/lang/String;)
                                     |        Ljava/security/MessageDigest; // method@006b
000f9c: 0c01                         |000a: move-result-object v1
000f9e: 6e10 5b00 0700               |000b: invoke-virtual {v7}, Ljava/lang/String;.getBytes:()[B
                                     |        // method@005b
000fa4: 0c02                         |000e: move-result-object v2
000fa6: 6e20 6c00 2100               |000f: invoke-virtual {v1, v2}, Ljava/security/MessageDigest;
                                     |        .update:([B)V // method@006c
000fac: 6e10 6a00 0100               |0012: invoke-virtual {v1}, Ljava/security/MessageDigest;.digest:
                                     |        ()[B // method@006a
000fb2: 0c03                         |0015: move-result-object v3
000fb4: 2204 3000                    |0016: new-instance v4, Ljava/lang/StringBuffer; // type@0030
000fb8: 7010 5d00 0400               |0018: invoke-direct {v4}, Ljava/lang/StringBuffer;.<init>:()V
                                     |        // method@005d
000fbe: 0101                         |001b: move v1, v0
000fc0: 2132                         |001c: array-length v2, v3
000fc2: 3520 3300                    |001d: if-ge v0, v2, 0050 // +0033
000fc6: 4800 0301                    |001f: aget-byte v0, v3, v1
000fca: d500 ff00                    |0021: and-int/lit16 v0, v0, #int 255 // #00ff
000fce: 7110 5300 0000               |0023: invoke-static {v0}, Ljava/lang/Integer;.toHexString:
                                     |        (I)Ljava/lang/String; // method@0053
000fd4: 0c00                         |0026: move-result-object v0
000fd6: 0702                         |0027: move-object v2, v0
000fd8: 6e10 5c00 0000               |0028: invoke-virtual {v0}, Ljava/lang/String;.length:()I
                                     |        // method@005c
000fde: 0a00                         |002b: move-result v0
000fe0: 1225                         |002c: const/4 v5, #int 2 // #2
000fe2: 3550 1c00                    |002d: if-ge v0, v5, 0049 // +001c
000fe6: 2200 3100                    |002f: new-instance v0, Ljava/lang/StringBuilder; // type@0031
000fea: 7010 6100 0000               |0031: invoke-direct {v0}, Ljava/lang/StringBuilder;.<init>:
                                     |        ()V // method@0061
000ff0: 1205                         |0034: const/4 v5, #int 0 // #0
000ff2: 1a06 a600                    |0035: const-string v6, "t" // string@00a6
000ff6: 7110 2000 0600               |0037: invoke-static {v6}, Lcom/package/e;.d:(Ljava/lang/String;)
                                     |        Ljava/lang/String; // method@0020
000ffc: 0c06                         |003a: move-result-object v6
000ffe: 6e30 6400 5006               |003b: invoke-virtual {v0, v5, v6}, Ljava/lang/StringBuilder;
                                     |        .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                     |        // method@0064
001004: 0c00                         |003e: move-result-object v0
001006: 6e20 6300 2000               |003f: invoke-virtual {v0, v2}, Ljava/lang/StringBuilder;.append:
                                     |        (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                     |        // method@0063
00100c: 0c00                         |0042: move-result-object v0
00100e: 6e10 6500 0000               |0043: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                     |        ()Ljava/lang/String; // method@0065
001014: 0c00                         |0046: move-result-object v0
001016: 0702                         |0047: move-object v2, v0
001018: 28e0                         |0048: goto 0028 // -0020
00101a: d800 0101                    |0049: add-int/lit8 v0, v1, #int 1 // #01
00101e: 6e20 5f00 2400               |004b: invoke-virtual {v4, v2}, Ljava/lang/StringBuffer;.append:
                                     |        (Ljava/lang/String;)Ljava/lang/StringBuffer;
                                     |        // method@005f
001024: 0101                         |004e: move v1, v0
```

```
001026: 28cd                          |004f: goto 001c // -0033
001028: 6e10 6000 0400                |0050: invoke-virtual {v4}, Ljava/lang/StringBuffer;.toString:
                                             ()Ljava/lang/String; // method@0060
00102e: 0c00                          |0053: move-result-object v0
001030: 1100                          |0054: return-object v0
001032: 0d00                          |0055: move-exception v0
001034: 1a01 0500                     |0056: const-string v1, "!i}?6" // string@0005
001038: 6e10 5100 0000                |0058: invoke-virtual {v0}, Ljava/lang/Exception;
                                             .printStackTrace:()V // method@0051
00103e: 7110 2000 0100                |005b: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                             Ljava/lang/String; // method@0020
001044: 0c00                          |005e: move-result-object v0
001046: 28f5                          |005f: goto 0054 // -000b
        catches        : 1
          0x0001 - 0x0053
            Ljava/lang/Exception; -> 0x0055
        positions      :
          0x0001 line=148
          0x000b line=34
          0x0012 line=192
          0x0016 line=0
          0x001c line=50
          0x001f line=65
          0x0028 line=16
          0x002f line=60
          0x0049 line=162
          0x004f line=50
          0x0050 line=20
          0x0054 line=90
          0x0055 line=216
          0x0058 line=130
          0x005b line=90
        locals         :
          0x0000 - 0x0060 reg=7 arg0 Ljava/lang/String;

    #2                 : (in Lcom/package/e;)
      name             : 'ALLATORIxDEMO'
      type             : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access           : 0x1009 (PUBLIC STATIC SYNTHETIC)
      code             -
      registers        : 4
      ins              : 2
      outs             : 2
      insns size       : 33 16-bit code units
001054:                               |[001054] com.package.e.ALLATORIxDEMO:(Ljava/lang/String;
                                             Ljava/lang/String;)Ljava/lang/String;
001064: 6e10 5b00 0200                |0000: invoke-virtual {v2}, Ljava/lang/String;.getBytes:()[B
                                             // method@005b
00106a: 0c00                          |0003: move-result-object v0
00106c: 7110 1e00 0000                |0004: invoke-static {v0}, Lcom/package/e;.ALLATORIxDEMO:
                                             ([B)[B // method@001e
001072: 0c00                          |0007: move-result-object v0
001074: 6e10 5b00 0300                |0008: invoke-virtual {v3}, Ljava/lang/String;.getBytes:()[B
                                             // method@005b
00107a: 0c01                          |000b: move-result-object v1
00107c: 7120 2200 1000                |000c: invoke-static {v0, v1}, Lcom/package/e;.d:([B[B)[B
                                             // method@0022
001082: 0c00                          |000f: move-result-object v0
001084: 1201                          |0010: const/4 v1, #int 0 // #0
001086: 7120 0b00 1000                |0011: invoke-static {v0, v1}, Landroid/util/Base64;
                                             .encodeToString:([BI)Ljava/lang/String; // method@000b
00108c: 0c00                          |0014: move-result-object v0
00108e: 1100                          |0015: return-object v0
001090: 0d00                          |0016: move-exception v0
001092: 1a01 0500                     |0017: const-string v1, "!i}?6" // string@0005
001096: 6e10 5100 0000                |0019: invoke-virtual {v0}, Ljava/lang/Exception;
                                             .printStackTrace:()V // method@0051
00109c: 7110 2000 0100                |001c: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
```

```
                                      Ljava/lang/String; // method@0020
0010a2: 0c00                     |001f: move-result-object v0
0010a4: 28f5                     |0020: goto 0015 // -000b
      catches       : 1
        0x0000 - 0x0014
          Ljava/lang/Exception; -> 0x0016
      positions     :
        0x0000 line=15
        0x0008 line=211
        0x0010 line=182
        0x0016 line=42
        0x0019 line=70
        0x001c line=140
      locals        :
        0x0000 - 0x0021 reg=2 arg0 Ljava/lang/String;
        0x0000 - 0x0021 reg=3 arg1 Ljava/lang/String;

    #3              : (in Lcom/package/e;)
      name          : 'ALLATORIxDEMO'
      type          : '([B)[B'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 1
      outs          : 3
      insns size    : 37 16-bit code units
0010b4:                          |[0010b4] com.package.e.ALLATORIxDEMO:([B)[B
0010c4: 1a00 5700                |0000: const-string v0, "N??" // string@0057
0010c8: 7110 2000 0000           |0002: invoke-static {v0}, Lcom/package/e;.d:(Ljava/lang/String;)
                                      Ljava/lang/String; // method@0020
0010ce: 0c00                     |0005: move-result-object v0
0010d0: 7110 7800 0000           |0006: invoke-static {v0}, Ljavax/crypto/KeyGenerator;
                                      .getInstance:(Ljava/lang/String;)
                                      Ljavax/crypto/KeyGenerator; // method@0078
0010d6: 0c00                     |0009: move-result-object v0
0010d8: 1a01 0100                |000a: const-string v1, "???uK]??" // string@0001
0010dc: 7110 2000 0100           |000c: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                      Ljava/lang/String; // method@0020
0010e2: 0c01                     |000f: move-result-object v1
0010e4: 7110 6d00 0100           |0010: invoke-static {v1}, Ljava/security/SecureRandom;
                                      .getInstance:(Ljava/lang/String;)
                                      Ljava/security/SecureRandom; // method@006d
0010ea: 0c01                     |0013: move-result-object v1
0010ec: 6e20 6e00 3100           |0014: invoke-virtual {v1, v3}, Ljava/security/SecureRandom;
                                      .setSeed:([B)V // method@006e
0010f2: 1302 8000                |0017: const/16 v2, #int 128 // #80
0010f6: 6e30 7900 2001           |0019: invoke-virtual {v0, v2, v1}, Ljavax/crypto/KeyGenerator;
                                      .init:(ILjava/security/SecureRandom;)V // method@0079
0010fc: 6e10 7700 0000           |001c: invoke-virtual {v0}, Ljavax/crypto/KeyGenerator;
                                      .generateKey:()Ljavax/crypto/SecretKey; // method@0077
001102: 0c00                     |001f: move-result-object v0
001104: 7210 7a00 0000           |0020: invoke-interface {v0}, Ljavax/crypto/SecretKey;
                                      .getEncoded:()[B // method@007a
00110a: 0c00                     |0023: move-result-object v0
00110c: 1100                     |0024: return-object v0
      catches       : (none)
      positions     :
        0x0000 line=184
        0x000a line=174
        0x0014 line=198
        0x0017 line=227
        0x001c line=193
        0x0020 line=126
        0x0024 line=4
      locals        :
        0x0000 - 0x0025 reg=3 arg0 [B

    #4              : (in Lcom/package/e;)
```

```
          name          : 'ALLATORIxDEMO'
          type          : '([B[B)[B'
          access        : 0x100a (PRIVATE STATIC SYNTHETIC)
          code          -
          registers     : 5
          ins           : 2
          outs          : 3
          insns size    : 30 16-bit code units
001110:                         |[001110] com.package.e.ALLATORIxDEMO:([B[B)[B
001120: 2200 3d00               |0000: new-instance v0, Ljavax/crypto/spec/SecretKeySpec; // type@003d
001124: 1a01 5700               |0002: const-string v1, "N??" // string@0057
001128: 7110 2000 0100          |0004: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                          Ljava/lang/String; // method@0020
00112e: 0c01                    |0007: move-result-object v1
001130: 7030 7b00 3001          |0008: invoke-direct {v0, v3, v1}, Ljavax/crypto/spec/SecretKeySpec;
                                          .<init>:([BLjava/lang/String;)V // method@007b
001136: 1a01 5700               |000b: const-string v1, "N??" // string@0057
00113a: 7110 2000 0100          |000d: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                          Ljava/lang/String; // method@0020
001140: 0c01                    |0010: move-result-object v1
001142: 7110 7500 0100          |0011: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                          (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@0075
001148: 0c01                    |0014: move-result-object v1
00114a: 1222                    |0015: const/4 v2, #int 2 // #2
00114c: 6e30 7600 2100          |0016: invoke-virtual {v1, v2, v0}, Ljavax/crypto/Cipher;.init:
                                          (ILjava/security/Key;)V // method@0076
001152: 6e20 7400 4100          |0019: invoke-virtual {v1, v4}, Ljavax/crypto/Cipher;.doFinal:
                                          ([B)[B // method@0074
001158: 0c00                    |001c: move-result-object v0
00115a: 1100                    |001d: return-object v0
          catches       : (none)
          positions     :
            0x0000 line=222
            0x000b line=78
            0x0015 line=37
            0x0019 line=51
            0x001d line=206
          locals        :
            0x0000 - 0x001e reg=3 arg0 [B
            0x0000 - 0x001e reg=4 arg1 [B

    #5                : (in Lcom/package/e;)
       name           : 'd'
       type           : '(Ljava/lang/String;)Ljava/lang/String;'
       access         : 0x1009 (PUBLIC STATIC SYNTHETIC)
       code           -
       registers      : 9
       ins            : 1
       outs           : 2
       insns size     : 99 16-bit code units
00115c:                           |[00115c] com.package.e.d:(Ljava/lang/String;)Ljava/lang/String;
00116c: 2200 3000                 |0000: new-instance v0, Ljava/lang/StringBuffer; // type@0030
001170: 2201 2b00                 |0002: new-instance v1, Ljava/lang/Exception; // type@002b
001174: 7010 4f00 0100            |0004: invoke-direct {v1}, Ljava/lang/Exception;.<init>:()V
                                            // method@004f
00117a: 6e10 5000 0100            |0007: invoke-virtual {v1}, Ljava/lang/Exception;.getStackTrace:
                                            ()[Ljava/lang/StackTraceElement; // method@0050
001180: 0c01                      |000a: move-result-object v1
001182: 1212                      |000b: const/4 v2, #int 1 // #1
001184: 4601 0102                 |000c: aget-object v1, v1, v2
001188: 6e10 5700 0100            |000e: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                            .getMethodName:()Ljava/lang/String; // method@0057
00118e: 0c02                      |0011: move-result-object v2
001190: 7020 5e00 2000            |0012: invoke-direct {v0, v2}, Ljava/lang/StringBuffer;.<init>:
                                            (Ljava/lang/String;)V // method@005e
001196: 6e10 5600 0100            |0015: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                            .getClassName:()Ljava/lang/String; // method@0056
00119c: 0c01                      |0018: move-result-object v1
```

```
00119e: 6e20 5f00 1000         |0019: invoke-virtual {v0, v1}, Ljava/lang/StringBuffer;.append:
                                       (Ljava/lang/String;)Ljava/lang/StringBuffer;
                                       // method@005f
0011a4: 0c00                   |001c: move-result-object v0
0011a6: 6e10 6000 0000         |001d: invoke-virtual {v0}, Ljava/lang/StringBuffer;.toString:
                                       ()Ljava/lang/String; // method@0060
0011ac: 0c04                   |0020: move-result-object v4
0011ae: 6e10 5c00 0400         |0021: invoke-virtual {v4}, Ljava/lang/String;.length:()I
                                       // method@005c
0011b4: 0a00                   |0024: move-result v0
0011b6: d801 00ff              |0025: add-int/lit8 v1, v0, #int -1 // #ff
0011ba: 6e10 5c00 0800         |0027: invoke-virtual {v8}, Ljava/lang/String;.length:()I
                                       // method@005c
0011c0: 0a00                   |002a: move-result v0
0011c2: 2305 4100              |002b: new-array v5, v0, [C // type@0041
0011c6: d800 00ff              |002d: add-int/lit8 v0, v0, #int -1 // #ff
0011ca: 0113                   |002f: move v3, v1
0011cc: 0102                   |0030: move v2, v0
0011ce: 3b00 0800              |0031: if-gez v0, 0039 // +0008
0011d2: 2200 2f00              |0033: new-instance v0, Ljava/lang/String; // type@002f
0011d6: 7020 5900 5000         |0035: invoke-direct {v0, v5}, Ljava/lang/String;.<init>:
                                       ([C)V // method@0059
0011dc: 1100                   |0038: return-object v0
0011de: d806 02ff              |0039: add-int/lit8 v6, v2, #int -1 // #ff
0011e2: 6e20 5a00 2800         |003b: invoke-virtual {v8, v2}, Ljava/lang/String;.charAt:
                                       (I)C // method@005a
0011e8: 0a00                   |003e: move-result v0
0011ea: 6e20 5a00 3400         |003f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:
                                       (I)C // method@005a
0011f0: 0a07                   |0042: move-result v7
0011f2: b770                   |0043: xor-int/2addr v0, v7
0011f4: df00 0021              |0044: xor-int/lit8 v0, v0, #int 33 // #21
0011f8: 8e00                   |0046: int-to-char v0, v0
0011fa: 5000 0502              |0047: aput-char v0, v5, v2
0011fe: 3a06 eaff              |0049: if-ltz v6, 0033 // -0016
001202: 6e20 5a00 6800         |004b: invoke-virtual {v8, v6}, Ljava/lang/String;.charAt:
                                       (I)C // method@005a
001208: 0a00                   |004e: move-result v0
00120a: 6e20 5a00 3400         |004f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:
                                       (I)C // method@005a
001210: 0a02                   |0052: move-result v2
001212: b720                   |0053: xor-int/2addr v0, v2
001214: df00 0035              |0054: xor-int/lit8 v0, v0, #int 53 // #35
001218: 8e07                   |0056: int-to-char v7, v0
00121a: d802 06ff              |0057: add-int/lit8 v2, v6, #int -1 // #ff
00121e: d800 03ff              |0059: add-int/lit8 v0, v3, #int -1 // #ff
001222: 5007 0506              |005b: aput-char v7, v5, v6
001226: 3b00 0300              |005d: if-gez v0, 0060 // +0003
00122a: 0110                   |005f: move v0, v1
00122c: 0103                   |0060: move v3, v0
00122e: 0120                   |0061: move v0, v2
001230: 28cf                   |0062: goto 0031 // -0031
      catches        : (none)
      positions      :
      locals         :
        0x0000 - 0x0063 reg=8 arg0 Ljava/lang/String;

    #6              : (in Lcom/package/e;)
      name          : 'd'
      type          : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x1009 (PUBLIC STATIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 34 16-bit code units
001234:                        |[001234] com.package.e.d:(Ljava/lang/String;Ljava/lang/String;)
                                       Ljava/lang/String;
```

```
001244: 6e10 5b00 0200          |0000: invoke-virtual {v2}, Ljava/lang/String;.getBytes:()[B
                                          // method@005b
00124a: 0c00                    |0003: move-result-object v0
00124c: 7110 1e00 0000          |0004: invoke-static {v0}, Lcom/package/e;.ALLATORIxDEMO:
                                          ([B)[B // method@001e
001252: 0c00                    |0007: move-result-object v0
001254: 1201                    |0008: const/4 v1, #int 0 // #0
001256: 7120 0a00 1300          |0009: invoke-static {v3, v1}, Landroid/util/Base64;.decode:
                                          (Ljava/lang/String;I)[B // method@000a
00125c: 0c01                    |000c: move-result-object v1
00125e: 7120 1f00 1000          |000d: invoke-static {v0, v1}, Lcom/package/e;.ALLATORIxDEMO:
                                          ([B[B)[B // method@001f
001264: 0c01                    |0010: move-result-object v1
001266: 2200 2f00               |0011: new-instance v0, Ljava/lang/String; // type@002f
00126a: 7020 5800 1000          |0013: invoke-direct {v0, v1}, Ljava/lang/String;.<init>:([B)V
                                          // method@0058
001270: 1100                    |0016: return-object v0
001272: 0d00                    |0017: move-exception v0
001274: 1a01 0500               |0018: const-string v1, "!i}?6" // string@0005
001278: 6e10 5100 0000          |001a: invoke-virtual {v0}, Ljava/lang/Exception;
                                          .printStackTrace:()V // method@0051
00127e: 7110 2000 0100          |001d: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                          Ljava/lang/String; // method@0020
001284: 0c00                    |0020: move-result-object v0
001286: 28f5                    |0021: goto 0016 // -000b
        catches        : 1
          0x0000 - 0x0016
            Ljava/lang/Exception; -> 0x0017
        positions      :
          0x0000 line=87
          0x0008 line=35
          0x000d line=128
          0x0011 line=106
          0x0017 line=40
          0x001a line=123
          0x001d line=19
        locals         :
          0x0000 - 0x0022 reg=2 arg0 Ljava/lang/String;
          0x0000 - 0x0022 reg=3 arg1 Ljava/lang/String;

    #7              : (in Lcom/package/e;)
      name          : 'd'
      type          : '([B[B)[B'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 5
      ins           : 2
      outs          : 3
      insns size    : 30 16-bit code units
001294:                         |[001294] com.package.e.d:([B[B)[B
0012a4: 2200 3d00               |0000: new-instance v0, Ljavax/crypto/spec/SecretKeySpec;
                                          // type@003d
0012a8: 1a01 5700               |0002: const-string v1, "N??" // string@0057
0012ac: 7110 2000 0100          |0004: invoke-static {v1}, Lcom/package/e;.d:
                                          (Ljava/lang/String;)Ljava/lang/String; // method@0020
0012b2: 0c01                    |0007: move-result-object v1
0012b4: 7030 7b00 3001          |0008: invoke-direct {v0, v3, v1}, Ljavax/crypto/spec/SecretKeySpec;
                                          .<init>:([BLjava/lang/String;)V // method@007b
0012ba: 1a01 5700               |000b: const-string v1, "N??" // string@0057
0012be: 7110 2000 0100          |000d: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                          Ljava/lang/String; // method@0020
0012c4: 0c01                    |0010: move-result-object v1
0012c6: 7110 7500 0100          |0011: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                          (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@0075
0012cc: 0c01                    |0014: move-result-object v1
0012ce: 1212                    |0015: const/4 v2, #int 1 // #1
0012d0: 6e30 7600 2100          |0016: invoke-virtual {v1, v2, v0}, Ljavax/crypto/Cipher;.init:
                                          (ILjava/security/Key;)V // method@0076
```

```
0012d6: 6e20 7400 4100          |0019: invoke-virtual {v1, v4}, Ljavax/crypto/Cipher;.doFinal:
                                         ([B)[B // method@0074
0012dc: 0c00                     |001c: move-result-object v0
0012de: 1100                     |001d: return-object v0
        catches        : (none)
        positions      :
          0x0000 line=131
          0x000b line=108
          0x0015 line=161
          0x0019 line=32
          0x001d line=203
        locals         :
          0x0000 - 0x001e reg=3 arg0 [B
          0x0000 - 0x001e reg=4 arg1 [B

  Virtual methods   -
  source_file_idx   : 148 (o)

Class #7 header:
class_idx            : 23
access_flags         : 17 (0x0011)
superclass_idx       : 45
interfaces_off       : 0 (0x000000)
source_file_idx      : 140
annotations_off      : 6548 (0x001994)
class_data_off       : 10479 (0x0028ef)
static_fields_size   : 4
instance_fields_size : 0
direct_methods_size  : 1
virtual_methods_size : 0

Class #7              -
  Class descriptor  : 'Lcom/package/f;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/f;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/f;)
      name          : 'K'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #2              : (in Lcom/package/f;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #3              : (in Lcom/package/f;)
      name          : 'g'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/f;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0012e0:                          |[0012e0] com.package.f.<init>:()V
0012f0: 7010 5400 0000           |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                         // method@0054
0012f6: 0e00                     |0003: return-void
```

```
          catches        : (none)
          positions      :
            0x0000 line=14
          locals         :
            0x0000 - 0x0004 reg=0 this Lcom/package/f;

    Virtual methods   -
    source_file_idx   : 140 (i)

Class #8 header:
class_idx          : 24
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10501 (0x002905)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #8            -
   Class descriptor : 'Lcom/package/h;'
   Access flags     : 0x0011 (PUBLIC FINAL)
   Superclass       : 'Ljava/lang/Object;'
   Interfaces        -
   Static fields     -
   Instance fields   -
   Direct methods    -
     #0              : (in Lcom/package/h;)
       name         : '<init>'
       type         : '()V'
       access       : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
       code          -
       registers    : 1
       ins          : 1
       outs         : 1
       insns size   : 4 16-bit code units
0012f8:                         |[0012f8] com.package.h.<init>:()V
001308: 7010 5400 0000          |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                       // method@0054
00130e: 0e00                    |0003: return-void
          catches        : (none)
          positions      :
            0x0000 line=215
          locals         :
            0x0000 - 0x0004 reg=0 this Lcom/package/h;

    Virtual methods   -
    source_file_idx   : 140 (i)

Class #9 header:
class_idx          : 25
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10511 (0x00290f)
static_fields_size : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #9            -
   Class descriptor : 'Lcom/package/i;'
   Access flags     : 0x0011 (PUBLIC FINAL)
```

```
    Superclass        : 'Ljava/lang/Object;'
    Interfaces        -
    Static fields     -
      #0              : (in Lcom/package/i;)
        name          : 'ALLATORIxDEMO'
        type          : 'I'
        access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
      #1              : (in Lcom/package/i;)
        name          : 'd'
        type          : 'I'
        access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    Instance fields   -
    Direct methods    -
      #0              : (in Lcom/package/i;)
        name          : '<init>'
        type          : '()V'
        access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
        code          -
        registers     : 1
        ins           : 1
        outs          : 1
        insns size    : 4 16-bit code units
001310:                            |[001310] com.package.i.<init>:()V
001320: 7010 5400 0000             |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                          // method@0054
001326: 0e00                       |0003: return-void
        catches       : (none)
        positions     :
          0x0000 line=2
        locals        :
          0x0000 - 0x0004 reg=0 this Lcom/package/i;

    Virtual methods   -
    source_file_idx   : 140 (i)

Class #10 header:
class_idx            : 26
access_flags         : 17 (0x0011)
superclass_idx       : 45
interfaces_off       : 0 (0x000000)
source_file_idx      : 140
annotations_off      : 6548 (0x001994)
class_data_off       : 10527 (0x00291f)
static_fields_size   : 2
instance_fields_size : 0
direct_methods_size  : 1
virtual_methods_size : 0

Class #10             -
  Class descriptor  : 'Lcom/package/j;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/j;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/j;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/j;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
```

```
      code          -
      registers    : 1
      ins          : 1
      outs         : 1
      insns size   : 4 16-bit code units
001328:                         |[001328] com.package.j.<init>:()V
001338: 7010 5400 0000          |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                               // method@0054
00133e: 0e00                    |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=182
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/package/j;

  Virtual methods   -
  source_file_idx   : 140 (i)

Class #11 header:
class_idx             : 27
access_flags          : 17 (0x0011)
superclass_idx        : 45
interfaces_off        : 0 (0x000000)
source_file_idx       : 140
annotations_off       : 6604 (0x0019cc)
class_data_off        : 10543 (0x00292f)
static_fields_size    : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 0

Class #11              -
  Class descriptor  : 'Lcom/package/l;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/l;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers    : 1
      ins          : 1
      outs         : 1
      insns size   : 4 16-bit code units
001340:                         |[001340] com.package.l.<init>:()V
001350: 7010 5400 0000          |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                               // method@0054
001356: 0e00                    |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=127
        0x0003 line=2
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/package/l;

    #1              : (in Lcom/package/l;)
      name          : 'ALLATORIxDEMO'
      type          : '(Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x1009 (PUBLIC STATIC SYNTHETIC)
      code          -
      registers    : 9
      ins          : 1
      outs         : 2
      insns size   : 99 16-bit code units
```

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```
001358:                              |[001358] com.package.l.ALLATORIxDEMO:(Ljava/lang/String;)
                                          Ljava/lang/String;
001368: 2200 3000                    |0000: new-instance v0, Ljava/lang/StringBuffer; // type@0030
00136c: 2201 2b00                    |0002: new-instance v1, Ljava/lang/Exception; // type@002b
001370: 7010 4f00 0100               |0004: invoke-direct {v1}, Ljava/lang/Exception;.<init>:()V
                                          // method@004f
001376: 6e10 5000 0100               |0007: invoke-virtual {v1}, Ljava/lang/Exception;.getStackTrace:
                                          ()[Ljava/lang/StackTraceElement; // method@0050
00137c: 0c01                         |000a: move-result-object v1
00137e: 1212                         |000b: const/4 v2, #int 1 // #1
001380: 4601 0102                    |000c: aget-object v1, v1, v2
001384: 6e10 5700 0100               |000e: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                          .getMethodName:()Ljava/lang/String; // method@0057
00138a: 0c02                         |0011: move-result-object v2
00138c: 7020 5e00 2000               |0012: invoke-direct {v0, v2}, Ljava/lang/StringBuffer;.<init>:
                                          (Ljava/lang/String;)V // method@005e
001392: 6e10 5600 0100               |0015: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                          .getClassName:()Ljava/lang/String; // method@0056
001398: 0c01                         |0018: move-result-object v1
00139a: 6e20 5f00 1000               |0019: invoke-virtual {v0, v1}, Ljava/lang/StringBuffer;.append:
                                          (Ljava/lang/String;)Ljava/lang/StringBuffer; // method@005f
0013a0: 0c00                         |001c: move-result-object v0
0013a2: 6e10 6000 0000               |001d: invoke-virtual {v0}, Ljava/lang/StringBuffer;.toString:
                                          ()Ljava/lang/String; // method@0060
0013a8: 0c04                         |0020: move-result-object v4
0013aa: 6e10 5c00 0400               |0021: invoke-virtual {v4}, Ljava/lang/String;.length:()I
                                          // method@005c
0013b0: 0a00                         |0024: move-result v0
0013b2: d801 00ff                    |0025: add-int/lit8 v1, v0, #int -1 // #ff
0013b6: 6e10 5c00 0800               |0027: invoke-virtual {v8}, Ljava/lang/String;.length:()I
                                          // method@005c
0013bc: 0a00                         |002a: move-result v0
0013be: 2305 4100                    |002b: new-array v5, v0, [C // type@0041
0013c2: d800 00ff                    |002d: add-int/lit8 v0, v0, #int -1 // #ff
0013c6: 0113                         |002f: move v3, v1
0013c8: 0102                         |0030: move v2, v0
0013ca: 3b00 0800                    |0031: if-gez v0, 0039 // +0008
0013ce: 2200 2f00                    |0033: new-instance v0, Ljava/lang/String; // type@002f
0013d2: 7020 5900 5000               |0035: invoke-direct {v0, v5}, Ljava/lang/String;.<init>:([C)V
                                          // method@0059
0013d8: 1100                         |0038: return-object v0
0013da: d806 02ff                    |0039: add-int/lit8 v6, v2, #int -1 // #ff
0013de: 6e20 5a00 2800               |003b: invoke-virtual {v8, v2}, Ljava/lang/String;.charAt:(I)C
                                          // method@005a
0013e4: 0a00                         |003e: move-result v0
0013e6: 6e20 5a00 3400               |003f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:(I)C
                                          // method@005a
0013ec: 0a07                         |0042: move-result v7
0013ee: b770                         |0043: xor-int/2addr v0, v7
0013f0: df00 007a                    |0044: xor-int/lit8 v0, v0, #int 122 // #7a
0013f4: 8e00                         |0046: int-to-char v0, v0
0013f6: 5000 0502                    |0047: aput-char v0, v5, v2
0013fa: 3a06 eaff                    |0049: if-ltz v6, 0033 // -0016
0013fe: 6e20 5a00 6800               |004b: invoke-virtual {v8, v6}, Ljava/lang/String;.charAt:(I)C
                                          // method@005a
001404: 0a00                         |004e: move-result v0
001406: 6e20 5a00 3400               |004f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:(I)C
                                          // method@005a
00140c: 0a02                         |0052: move-result v2
00140e: b720                         |0053: xor-int/2addr v0, v2
001410: df00 004f                    |0054: xor-int/lit8 v0, v0, #int 79 // #4f
001414: 8e07                         |0056: int-to-char v7, v0
001416: d802 06ff                    |0057: add-int/lit8 v2, v6, #int -1 // #ff
00141a: d800 03ff                    |0059: add-int/lit8 v0, v3, #int -1 // #ff
00141e: 5007 0506                    |005b: aput-char v7, v5, v6
001422: 3b00 0300                    |005d: if-gez v0, 0060 // +0003
001426: 0110                         |005f: move v0, v1
001428: 0103                         |0060: move v3, v0
```

```
00142a: 0120                    |0061: move v0, v2
00142c: 28cf                    |0062: goto 0031 // -0031
      catches       : (none)
      positions     :
      locals        :
        0x0000 - 0x0063 reg=8 arg0 Ljava/lang/String;

  Virtual methods   -
  source_file_idx   : 140 (i)

Class #12 header:
class_idx           : 28
access_flags        : 17 (0x0011)
superclass_idx      : 3
interfaces_off      : 0 (0x000000)
source_file_idx     : 157
annotations_off     : 0 (0x000000)
class_data_off      : 10558 (0x00293e)
static_fields_size  : 1
instance_fields_size: 0
direct_methods_size : 4
virtual_methods_size: 2

Class #12            -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMathsActivity;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'ALLATORIxDEMO'
      type          : 'Ljava/util/ArrayList;'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : '<clinit>'
      type          : '()V'
      access        : 0x11009 (PUBLIC STATIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 2
      ins           : 0
      outs          : 2
      insns size    : 22 16-bit code units
001430:                         |[001430] com.uaf.matt.testone.DisplayMathsActivity.<clinit>:()V
001440: 2200 3900               |0000: new-instance v0, Ljava/util/ArrayList; // type@0039
001444: 7010 6f00 0000          |0002: invoke-direct {v0}, Ljava/util/ArrayList;.<init>:()V
                                 // method@006f
00144a: 6900 2000               |0005: sput-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                       .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
00144e: 6200 2000               |0007: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                       .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
001452: 6201 2300               |0009: sget-object v1, Ljava/math/BigInteger;.ZERO:
                                       Ljava/math/BigInteger; // field@0023
001456: 6e20 7100 1000          |000b: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                       (Ljava/lang/Object;)Z // method@0071
00145c: 6200 2000               |000e: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                       .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
001460: 6201 2200               |0010: sget-object v1, Ljava/math/BigInteger;.ONE:
                                       Ljava/math/BigInteger; // field@0022
001464: 6e20 7100 1000          |0012: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                       (Ljava/lang/Object;)Z // method@0071
00146a: 0e00                    |0015: return-void
      catches       : (none)
      positions     :
        0x0000 line=70
        0x0007 line=140
        0x000e line=28
```

```
              0x0015 line=104
          locals         :


      #1                 : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
        name           : '<init>'
        type           : '()V'
        access         : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
        code           -
        registers      : 1
        ins            : 1
        outs           : 1
        insns size     : 4 16-bit code units
00146c:                            |[00146c] com.uaf.matt.testone.DisplayMathsActivity.<init>:()V
00147c: 7010 0000 0000             |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                        // method@0000
001482: 0e00                       |0003: return-void
        catches        : (none)
        positions      :
          0x0000 line=141
        locals         :
          0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayMathsActivity;


      #2                 : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
        name           : 'ALLATORIxDEMO'
        type           : '(I)Ljava/math/BigInteger;'
        access         : 0x1009 (PUBLIC STATIC SYNTHETIC)
        code           -
        registers      : 4
        ins            : 1
        outs           : 3
        insns size     : 38 16-bit code units
001484:                            |[001484] com.uaf.matt.testone.DisplayMathsActivity.ALLATORIxDEMO:
                                        (I)Ljava/math/BigInteger;
001494: 6200 2000                  |0000: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                        .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
001498: 6e10 7300 0000             |0002: invoke-virtual {v0}, Ljava/util/ArrayList;.size:()I
                                        // method@0073
00149e: 0a00                       |0005: move-result v0
0014a0: 3403 1700                  |0006: if-lt v3, v0, 001d // +0017
0014a4: 6200 2000                  |0008: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                        .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
0014a8: d801 03ff                  |000a: add-int/lit8 v1, v3, #int -1 // #ff
0014ac: 7110 2b00 0100             |000c: invoke-static {v1}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.ALLATORIxDEMO:
                                        (I)Ljava/math/BigInteger; // method@002b
0014b2: 0c01                       |000f: move-result-object v1
0014b4: d802 03fe                  |0010: add-int/lit8 v2, v3, #int -2 // #fe
0014b8: 7110 2b00 0200             |0012: invoke-static {v2}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.ALLATORIxDEMO:
                                        (I)Ljava/math/BigInteger; // method@002b
0014be: 0c02                       |0015: move-result-object v2
0014c0: 6e20 6600 2100             |0016: invoke-virtual {v1, v2}, Ljava/math/BigInteger;.add:
                                        (Ljava/math/BigInteger;)Ljava/math/BigInteger;
                                        // method@0066
0014c6: 0c01                       |0019: move-result-object v1
0014c8: 6e30 7000 3001             |001a: invoke-virtual {v0, v3, v1}, Ljava/util/ArrayList;.add:
                                        (ILjava/lang/Object;)V // method@0070
0014ce: 6200 2000                  |001d: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                        .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
0014d2: 6e20 7200 3000             |001f: invoke-virtual {v0, v3}, Ljava/util/ArrayList;.get:
                                        (I)Ljava/lang/Object; // method@0072
0014d8: 0c00                       |0022: move-result-object v0
0014da: 1f00 3300                  |0023: check-cast v0, Ljava/math/BigInteger; // type@0033
0014de: 1100                       |0025: return-object v0
        catches        : (none)
        positions      :
          0x0000 line=122
          0x0008 line=14
```

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```
        0x001d line=87
      locals        :
        0x0000 - 0x0026 reg=3 arg0 I

    #3              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'ALLATORIxDEMO'
      type          : '()V'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 1
      ins           : 0
      outs          : 1
      insns size    : 6 16-bit code units
0014e0:                         |[0014e0] com.uaf.matt.testone.DisplayMathsActivity.ALLATORIxDEMO:()V
0014f0: 1a00 a400               |0000: const-string v0, "skJV,ugIgXd" // string@00a4
0014f4: 7110 2800 0000          |0002: invoke-static {v0}, Lcom/package/l;.ALLATORIxDEMO:
                                        (Ljava/lang/String;)Ljava/lang/String; // method@0028
0014fa: 0e00                    |0005: return-void
      catches       : (none)
      positions     :
        0x0000 line=92
        0x0005 line=42
      locals        :

  Virtual methods  -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 7
      ins           : 2
      outs          : 3
      insns size    : 59 16-bit code units
0014fc:                         |[0014fc] com.uaf.matt.testone.DisplayMathsActivity.onCreate:
                                        (Landroid/os/Bundle;)V
00150c: 1204                    |0000: const/4 v4, #int 0 // #0
00150e: 1500 037f               |0001: const/high16 v0, #int 2130903040 // #7f03
001512: 6f20 0100 6500          |0003: invoke-super {v5, v6}, Landroid/app/Activity;.onCreate:
                                        (Landroid/os/Bundle;)V // method@0001
001518: 6e20 3000 0500          |0006: invoke-virtual {v5, v0}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.setContentView:(I)V // method@0030
00151e: 6e10 2d00 0500          |0009: invoke-virtual {v5}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.getIntent:()Landroid/content/Intent;
                                        // method@002d
001524: 0c00                    |000c: move-result-object v0
001526: 1a01 6e00               |000d: const-string v1, "com.uaf.matt.testone.MESSAGE"
                                        // string@006e
00152a: 6e30 0500 1004          |000f: invoke-virtual {v0, v1, v4}, Landroid/content/Intent;
                                        .getIntExtra:(Ljava/lang/String;I)I // method@0005
001530: 0a00                    |0012: move-result v0
001532: 2201 0f00               |0013: new-instance v1, Landroid/widget/TextView; // type@000f
001536: 7020 0f00 5100          |0015: invoke-direct {v1, v5}, Landroid/widget/TextView;.<init>:
                                        (Landroid/content/Context;)V // method@000f
00153c: 1502 2042               |0018: const/high16 v2, #int 1109393408 // #4220
001540: 6e20 1100 2100          |001a: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                        .setTextSize:(F)V // method@0011
001546: 2202 3100               |001d: new-instance v2, Ljava/lang/StringBuilder; // type@0031
00154a: 7010 6100 0200          |001f: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:
                                        ()V // method@0061
001550: 1a03 0000               |0022: const-string v3, "" // string@0000
001554: 6e30 6400 4203          |0024: invoke-virtual {v2, v4, v3}, Ljava/lang/StringBuilder;
                                        .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                        // method@0064
00155a: 0c02                    |0027: move-result-object v2
00155c: 7110 2b00 0000          |0028: invoke-static {v0}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.ALLATORIxDEMO:
                                        (I)Ljava/math/BigInteger; // method@002b
```

```
001562: 0c00                        |002b: move-result-object v0
001564: 6e20 6200 0200              |002c: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;.append:
                                            (Ljava/lang/Object;)Ljava/lang/StringBuilder;
                                            // method@0062
00156a: 0c00                        |002f: move-result-object v0
00156c: 6e10 6500 0000              |0030: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                            ()Ljava/lang/String; // method@0065
001572: 0c00                        |0033: move-result-object v0
001574: 6e20 1000 0100              |0034: invoke-virtual {v1, v0}, Landroid/widget/TextView;
                                            .setText:(Ljava/lang/CharSequence;)V // method@0010
00157a: 6e20 3100 1500              |0037: invoke-virtual {v5, v1}, Lcom/uaf/matt/testone/
                                            DisplayMathsActivity;.setContentView:
                                            (Landroid/view/View;)V // method@0031
001580: 0e00                        |003a: return-void
        catches       : (none)
        positions     :
          0x0001 line=174
          0x0006 line=198
          0x0009 line=193
          0x000d line=126
          0x0013 line=136
          0x0018 line=221
          0x001d line=165
          0x0037 line=131
          0x003a line=108
        locals        :
          0x0000 - 0x003b reg=5 this Lcom/uaf/matt/testone/DisplayMathsActivity;
          0x0000 - 0x003b reg=6 arg0 Landroid/os/Bundle;

    #1              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
001584:                             |[001584] com.uaf.matt.testone.DisplayMathsActivity.
                                              onOptionsItemSelected:(Landroid/view/MenuItem;)Z
001594: 7210 0d00 0300              |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                            ()I // method@000d
00159a: 0a00                        |0003: move-result v0
00159c: 1401 0400 087f              |0004: const v1, #float 1807750885563869733215994559871320064000.00
                                            // #7f080004
0015a2: 3310 0400                   |0007: if-ne v0, v1, 000b // +0004
0015a6: 1210                        |0009: const/4 v0, #int 1 // #1
0015a8: 0f00                        |000a: return v0
0015aa: 6f20 0300 3200              |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                            .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                            // method@0003
0015b0: 0a00                        |000e: move-result v0
0015b2: 28fb                        |000f: goto 000a // -0005
        catches       : (none)
        positions     :
          0x0000 line=69
          0x0004 line=37
          0x0009 line=51
          0x000a line=224
        locals        :
          0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayMathsActivity;
          0x0000 - 0x0010 reg=3 arg0 Landroid/view/MenuItem;

  source_file_idx   : 157 (r)

Class #13 header:
class_idx           : 29
access_flags        : 17 (0x0011)
```

```
superclass_idx      : 3
interfaces_off      : 0 (0x000000)
source_file_idx     : 153
annotations_off     : 0 (0x000000)
class_data_off      : 10597 (0x002965)
static_fields_size  : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2


Class #13               -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMessageActivity;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0015b4:                         |[0015b4] com.uaf.matt.testone.DisplayMessageActivity.<init>:()V
0015c4: 7010 0000 0000          |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                        // method@0000
0015ca: 0e00                    |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=127
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayMessageActivity;

    #1              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'ALLATORIxDEMO'
      type          : '()V'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 1
      ins           : 0
      outs          : 1
      insns size    : 6 16-bit code units
0015cc:                         |[0015cc] com.uaf.matt.testone.DisplayMessageActivity
                                          .ALLATORIxDEMO:()V
0015dc: 1a00 0300               |0000: const-string v0, "        00$,w?<3<"?" // string@0003
0015e0: 7110 2000 0000          |0002: invoke-static {v0}, Lcom/package/e;.d:
                                        (Ljava/lang/String;)Ljava/lang/String; // method@0020
0015e6: 0e00                    |0005: return-void
      catches       : (none)
      positions     :
        0x0000 line=211
        0x0005 line=182
      locals        :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 8
      ins           : 2
      outs          : 3
      insns size    : 88 16-bit code units
```

```
0015e8:                              |[0015e8] com.uaf.matt.testone.DisplayMessageActivity.onCreate:
                                         (Landroid/os/Bundle;)V
0015f8: 1400 0100 037f              |0000: const v0, #float 174128887730233583002069148843976425472.00
                                         // #7f030001
0015fe: 6f20 0100 7600              |0003: invoke-super {v6, v7}, Landroid/app/Activity;.onCreate:
                                         (Landroid/os/Bundle;)V // method@0001
001604: 6e20 3700 0600              |0006: invoke-virtual {v6, v0}, Lcom/uaf/matt/testone/
                                         DisplayMessageActivity;.setContentView:(I)V // method@0037
00160a: 6e10 3400 0600              |0009: invoke-virtual {v6}, Lcom/uaf/matt/testone/
                                         DisplayMessageActivity;.getIntent:
                                         ()Landroid/content/Intent; // method@0034
001610: 0c00                        |000c: move-result-object v0
001612: 1a01 6e00                   |000d: const-string v1, "com.uaf.matt.testone.MESSAGE"
                                         // string@006e
001616: 6e20 0600 1000              |000f: invoke-virtual {v0, v1}, Landroid/content/Intent;
                                         .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                         // method@0006



00161c: 0c00                        |0012: move-result-object v0
00161e: 1a01 0400                   |0013: const-string v1, "?'656Y33!30(e?6/;6:><" // string@0004
001622: 7110 2000 0100              |0015: invoke-static {v1}, Lcom/package/e;.d:
                                         (Ljava/lang/String;)Ljava/lang/String; // method@0020
001628: 0c01                        |0018: move-result-object v1
00162a: 2202 0f00                   |0019: new-instance v2, Landroid/widget/TextView; // type@000f
00162e: 7020 0f00 6200              |001b: invoke-direct {v2, v6}, Landroid/widget/TextView;.<init>:
                                         (Landroid/content/Context;)V // method@000f
001634: 1503 a041                   |001e: const/high16 v3, #int 1101004800 // #41a0
001638: 6e20 1100 3200              |0020: invoke-virtual {v2, v3}, Landroid/widget/TextView;
                                         .setTextSize:(F)V // method@0011
00163e: 7110 1c00 0000              |0023: invoke-static {v0}, Lcom/package/e;.ALLATORIxDEMO:
                                         (Ljava/lang/String;)Ljava/lang/String; // method@001c
001644: 0c03                        |0026: move-result-object v3
001646: 7120 1d00 3100              |0027: invoke-static {v1, v3}, Lcom/package/e;.ALLATORIxDEMO:
                                         (Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;
                                         // method@001d
00164c: 0c01                        |002a: move-result-object v1
00164e: 2203 3100                   |002b: new-instance v3, Ljava/lang/StringBuilder; // type@0031
001652: 7010 6100 0300              |002d: invoke-direct {v3}, Ljava/lang/StringBuilder;.<init>:()V
                                         // method@0061
001658: 1204                        |0030: const/4 v4, #int 0 // #0
00165a: 1a05 0200                   |0031: const-string v5, "        #!533%r$5"??3b$;?::'(!.;vx"
                                         // string@0002
00165e: 7110 2000 0500              |0033: invoke-static {v5}, Lcom/package/e;.d:
                                         (Ljava/lang/String;)Ljava/lang/String; // method@0020
001664: 0c05                        |0036: move-result-object v5
001666: 6e30 6400 4305              |0037: invoke-virtual {v3, v4, v5}, Ljava/lang/StringBuilder;
                                         .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                         // method@0064
00166c: 0c03                        |003a: move-result-object v3
00166e: 6e20 6300 0300              |003b: invoke-virtual {v3, v0}, Ljava/lang/StringBuilder;.append:
                                         (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                         // method@0063
001674: 0c00                        |003e: move-result-object v0
001676: 1a03 5600                   |003f: const-string v3, "N75!5'7f1"A?$b$;?::'(!.;vx"
                                         // string@0056
00167a: 7110 2000 0300              |0041: invoke-static {v3}, Lcom/package/e;.d:
                                         (Ljava/lang/String;)Ljava/lang/String; // method@0020
001680: 0c03                        |0044: move-result-object v3
001682: 6e20 6300 3000              |0045: invoke-virtual {v0, v3}, Ljava/lang/StringBuilder;.append:
                                         (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                         // method@0063
001688: 0c00                        |0048: move-result-object v0
00168a: 6e20 6300 1000              |0049: invoke-virtual {v0, v1}, Ljava/lang/StringBuilder;.append:
```

```
                                          (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@0063
001690: 0c00              |004c: move-result-object v0
001692: 6e10 6500 0000    |004d: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                          ()Ljava/lang/String; // method@0065
001698: 0c00              |0050: move-result-object v0
00169a: 6e20 1000 0200    |0051: invoke-virtual {v2, v0}, Landroid/widget/TextView;.setText:
                                          (Ljava/lang/CharSequence;)V // method@0010
0016a0: 6e20 3800 2600    |0054: invoke-virtual {v6, v2}, Lcom/uaf/matt/testone/
                                          DisplayMessageActivity;.setContentView:
                                          (Landroid/view/View;)V // method@0038
0016a6: 0e00              |0057: return-void
      catches       : (none)
      positions     :
        0x0000 line=70
        0x0006 line=44
        0x0009 line=28
        0x000d line=104
        0x0013 line=190
        0x0019 line=14
        0x001e line=22
        0x0023 line=87
        0x0027 line=35
        0x002b line=128
        0x0054 line=106
        0x0057 line=135
      locals        :
        0x0000 - 0x0058 reg=6 this Lcom/uaf/matt/testone/DisplayMessageActivity;
        0x0000 - 0x0058 reg=7 arg0 Landroid/os/Bundle;

    #1              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
0016a8:                   |[0016a8] com.uaf.matt.testone.DisplayMessageActivity
                                          .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
0016b8: 7210 0d00 0300    |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:()I
                                          // method@000d
0016be: 0a00              |0003: move-result v0
0016c0: 1401 0400 087f    |0004: const v1, #float 180775088556386973321599455987132006400.00
                                          // #7f080004
0016c6: 3310 0400         |0007: if-ne v0, v1, 000b // +0004
0016ca: 1210              |0009: const/4 v0, #int 1 // #1
0016cc: 0f00              |000a: return v0
0016ce: 6f20 0300 3200    |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                          .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                          // method@0003
0016d4: 0a00              |000e: move-result v0
0016d6: 28fb              |000f: goto 000a // -0005
      catches       : (none)
      positions     :
        0x0000 line=205
        0x0004 line=184
        0x0009 line=174
        0x000a line=193
      locals        :
        0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayMessageActivity;
        0x0000 - 0x0010 reg=3 arg0 Landroid/view/MenuItem;

  source_file_idx   : 153 (p)

Class #14 header:
class_idx           : 30
```

```
access_flags       : 17 (0x0011)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : 108
annotations_off    : 0 (0x000000)
class_data_off     : 10622 (0x00297e)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2


Class #14            -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayWebPageActivity;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0016d8:                         |[0016d8] com.uaf.matt.testone.DisplayWebPageActivity.<init>:()V
0016e8: 7010 0000 0000          |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                     // method@0000
0016ee: 0e00                    |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=128
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayWebPageActivity;

    #1              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : 'ALLATORIxDEMO'
      type          : '()V'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 1
      ins           : 0
      outs          : 1
      insns size    : 6 16-bit code units
0016f0:                         |[0016f0] com.uaf.matt.testone.DisplayWebPageActivity.ALLATORIxDEMO:()V
001700: 1a00 0300               |0000: const-string v0, "    00$,w?<3<"?" // string@0003
001704: 7110 2000 0000          |0002: invoke-static {v0}, Lcom/package/e;.d:(Ljava/lang/String;)
                                     Ljava/lang/String; // method@0020
00170a: 0e00                    |0005: return-void
      catches       : (none)
      positions     :
        0x0000 line=33
        0x0005 line=205
      locals        :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 10
      ins           : 2
      outs          : 3
      insns size    : 82 16-bit code units
```

```
00170c:                             |[00170c] com.uaf.matt.testone.DisplayWebPageActivity.onCreate:
                                         (Landroid/os/Bundle;)V
00171c: 1400 0200 037f              |0000: const v0, #float 174128908012643186653739572791227711488.00
                                         // #7f030002
001722: 6f20 0100 9800              |0003: invoke-super {v8, v9}, Landroid/app/Activity;.onCreate:
                                         (Landroid/os/Bundle;)V // method@0001
001728: 6e20 3e00 0800              |0006: invoke-virtual {v8, v0}, Lcom/uaf/matt/testone/
                                         DisplayWebPageActivity;.setContentView:(I)V // method@003e
00172e: 6e10 3b00 0800              |0009: invoke-virtual {v8}, Lcom/uaf/matt/testone/
                                         DisplayWebPageActivity;.getIntent:
                                         ()Landroid/content/Intent; // method@003b
001734: 0c00                        |000c: move-result-object v0
001736: 2201 0f00                   |000d: new-instance v1, Landroid/widget/TextView; // type@000f
00173a: 7020 0f00 8100              |000f: invoke-direct {v1, v8}, Landroid/widget/TextView;.<init>:
                                         (Landroid/content/Context;)V // method@000f
001740: 1a02 6e00                   |0012: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                         // string@006e
001744: 1503 2041                   |0014: const/high16 v3, #int 1092616192 // #4120
001748: 6e20 1100 3100              |0016: invoke-virtual {v1, v3}, Landroid/widget/TextView;
                                         .setTextSize:(F)V // method@0011
00174e: 6e20 0600 2000              |0019: invoke-virtual {v0, v2}, Landroid/content/Intent;
                                         .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                         // method@0006
001754: 0c00                        |001c: move-result-object v0
001756: 1a02 8b00                   |001d: const-string v2, "h" // string@008b
00175a: 7110 2000 0200              |001f: invoke-static {v2}, Lcom/package/e;.d:
                                         (Ljava/lang/String;)Ljava/lang/String; // method@0020
001760: 0c02                        |0022: move-result-object v2
001762: 2203 1300                   |0023: new-instance v3, Lcom/package/M; // type@0013
001766: 7010 1500 0300              |0025: invoke-direct {v3}, Lcom/package/M;.<init>:()V
                                         // method@0015
00176c: 1224                        |0028: const/4 v4, #int 2 // #2
00176e: 2344 4400                   |0029: new-array v4, v4, [Ljava/lang/String; // type@0044
001772: 2205 3100                   |002b: new-instance v5, Ljava/lang/StringBuilder; // type@0031
001776: 7010 6100 0500              |002d: invoke-direct {v5}, Ljava/lang/StringBuilder;.<init>:()V
                                         // method@0061
00177c: 1206                        |0030: const/4 v6, #int 0 // #0
00177e: 1a07 0600                   |0031: const-string v7, "0?? ˜xl??#n5)?#??x!.8s;&6.+)j=e"
                                         // string@0006
001782: 7110 2000 0700              |0033: invoke-static {v7}, Lcom/package/e;.d:(Ljava/lang/String;)
                                         Ljava/lang/String; // method@0020
001788: 0c07                        |0036: move-result-object v7
00178a: 6e30 6400 6507              |0037: invoke-virtual {v5, v6, v7}, Ljava/lang/StringBuilder;
                                         .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                         // method@0064
001790: 0c05                        |003a: move-result-object v5
001792: 6e20 6300 0500              |003b: invoke-virtual {v5, v0}, Ljava/lang/StringBuilder;.append:
                                         (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                         // method@0063
001798: 0c00                        |003e: move-result-object v0
00179a: 6e10 6500 0000              |003f: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                         ()Ljava/lang/String; // method@0065
0017a0: 0c00                        |0042: move-result-object v0
0017a2: 4d00 0406                   |0043: aput-object v0, v4, v6
0017a6: 1210                        |0045: const/4 v0, #int 1 // #1
0017a8: 4d02 0400                   |0046: aput-object v2, v4, v0
0017ac: 6e20 1800 4300              |0048: invoke-virtual {v3, v4}, Lcom/package/M;.execute:
                                         ([Ljava/lang/Object;)Landroid/os/AsyncTask; // method@0018
0017b2: 6e20 1000 2100              |004b: invoke-virtual {v1, v2}, Landroid/widget/TextView;.setText:
                                         (Ljava/lang/CharSequence;)V // method@0010
0017b8: 6e20 3f00 1800              |004e: invoke-virtual {v8, v1}, Lcom/uaf/matt/testone/
                                         DisplayWebPageActivity;.setContentView:
                                         (Landroid/view/View;)V // method@003f
0017be: 0e00                        |0051: return-void
        catches       : (none)
        positions     :
          0x0000 line=174
          0x0006 line=198
```

```
        0x0009 line=227
        0x000d line=193
        0x0014 line=126
        0x0019 line=4
        0x001d line=136
        0x0023 line=221
        0x004b line=165
        0x004e line=2
        0x0051 line=131
      locals        :
        0x0000 - 0x0052 reg=8 this Lcom/uaf/matt/testone/DisplayWebPageActivity;
        0x0000 - 0x0052 reg=9 arg0 Landroid/os/Bundle;

    #1                 : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name           : 'onOptionsItemSelected'
      type           : '(Landroid/view/MenuItem;)Z'
      access         : 0x1001 (PUBLIC SYNTHETIC)
      code           -
      registers      : 4
      ins            : 2
      outs           : 2
      insns size     : 16 16-bit code units
0017c0:                         |[0017c0] com.uaf.matt.testone.DisplayWebPageActivity.
                                        onOptionsItemSelected:(Landroid/view/MenuItem;)Z
0017d0: 7210 0d00 0300          |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                        ()I // method@000d
0017d6: 0a00                    |0003: move-result v0
0017d8: 1401 0400 087f          |0004: const v1, #float 180775088556386973321599455987132006400.00
                                        // #7f080004
0017de: 3310 0400               |0007: if-ne v0, v1, 000b // +0004
0017e2: 1210                    |0009: const/4 v0, #int 1 // #1
0017e4: 0f00                    |000a: return v0
0017e6: 6f20 0300 3200          |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                        .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                        // method@0003
0017ec: 0a00                    |000e: move-result v0
0017ee: 28fb                    |000f: goto 000a // -0005
      catches        : (none)
      positions      :
        0x0000 line=213
        0x0004 line=78
        0x0009 line=37
        0x000b line=31
      locals         :
        0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayWebPageActivity;
        0x0000 - 0x0010 reg=3 arg0 Landroid/view/MenuItem;

  source_file_idx    : 108 (c)

Class #15 header:
class_idx          : 31
access_flags       : 17 (0x0011)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : 144
annotations_off    : 0 (0x000000)
class_data_off     : 10647 (0x002997)
static_fields_size : 1
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 6

Class #15            -
  Class descriptor  : 'Lcom/uaf/matt/testone/TestOneActivity;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
```

```
      #0                 : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name            : 'ALLATORIxDEMO'
        type            : 'Ljava/lang/String;'
        access          : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
   Instance fields   -
   Direct methods    -
      #0                 : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name            : '<init>'
        type            : '()V'
        access          : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
        code            -
        registers       : 1
        ins             : 1
        outs            : 1
        insns size      : 4 16-bit code units
0017f0:                                 |[0017f0] com.uaf.matt.testone.TestOneActivity.<init>:()V
001800: 7010 0000 0000                  |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                         |       // method@0000
001806: 0e00                            |0003: return-void
        catches        : (none)
        positions      :
          0x0000 line=9
        locals         :
          0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/TestOneActivity;

   Virtual methods   -
      #0                 : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name            : 'doMaths'
        type            : '(Landroid/view/View;)V'
        access          : 0x1001 (PUBLIC SYNTHETIC)
        code            -
        registers       : 5
        ins             : 2
        outs            : 3
        insns size      : 37 16-bit code units
001808:                                 |[001808] com.uaf.matt.testone.TestOneActivity.doMaths:
                                         |          (Landroid/view/View;)V
001818: 2201 0500                       |0000: new-instance v1, Landroid/content/Intent; // type@0005
00181c: 1c00 1c00                       |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                         |       // type@001c
001820: 7030 0400 3100                  |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;
                                         |       .<init>:(Landroid/content/Context;Ljava/lang/Class;)V
                                         |       // method@0004
001826: 1400 0100 087f                  |0007: const v0, #float 180775027709158162366588184145378148352.00
                                         |       // #7f080001
00182c: 6e20 4300 0300                  |000a: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                         |          TestOneActivity;.findViewById:(I)Landroid/view/View;
                                         |          // method@0043
001832: 0c00                            |000d: move-result-object v0
001834: 1f00 0e00                       |000e: check-cast v0, Landroid/widget/EditText; // type@000e
001838: 6e10 0e00 0000                  |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                         |          ()Landroid/text/Editable; // method@000e
00183e: 0c00                            |0013: move-result-object v0
001840: 6e10 5500 0000                  |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                         |          ()Ljava/lang/String; // method@0055
001846: 0c00                            |0017: move-result-object v0
001848: 7110 5200 0000                  |0018: invoke-static {v0}, Ljava/lang/Integer;.parseInt:
                                         |          (Ljava/lang/String;)I // method@0052
00184e: 0a00                            |001b: move-result v0
001850: 1a02 6e00                       |001c: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                         |          // string@006e
001854: 6e30 0700 2100                  |001e: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                         |          .putExtra:(Ljava/lang/String;I)Landroid/content/Intent;
                                         |          // method@0007
00185a: 6e20 4a00 1300                  |0021: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                         |          TestOneActivity;.startActivity:
                                         |          (Landroid/content/Intent;)V // method@004a
001860: 0e00                            |0024: return-void
```

```
              catches       : (none)
              positions     :
                0x0000 line=203
                0x0007 line=173
                0x0010 line=144
                0x001c line=213
                0x0021 line=69
                0x0024 line=222
              locals        :
                0x0000 - 0x0025 reg=3 this Lcom/uaf/matt/testone/TestOneActivity;
                0x0000 - 0x0025 reg=4 arg0 Landroid/view/View;

      #1              : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name          : 'encryptMessage'
        type          : '(Landroid/view/View;)V'
        access        : 0x1001 (PUBLIC SYNTHETIC)
        code          -
        registers     : 5
        ins           : 2
        outs          : 3
        insns size    : 32 16-bit code units
001864:                        |[001864] com.uaf.matt.testone.TestOneActivity.encryptMessage:
                                  (Landroid/view/View;)V
001874: 2201 0500             |0000: new-instance v1, Landroid/content/Intent; // type@0005
001878: 1c00 1d00             |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMessageActivity;
                                  // type@001d
00187c: 7030 0400 3100        |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                  (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
001882: 1500 087f             |0007: const/high16 v0, #int 2131230720 // #7f08
001886: 6e20 4300 0300        |0009: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                  TestOneActivity;.findViewById:(I)Landroid/view/View;
                                  // method@0043
00188c: 0c00                  |000c: move-result-object v0
00188e: 1f00 0e00             |000d: check-cast v0, Landroid/widget/EditText; // type@000e
001892: 6e10 0e00 0000        |000f: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                  ()Landroid/text/Editable; // method@000e
001898: 0c00                  |0012: move-result-object v0
00189a: 6e10 5500 0000        |0013: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                  ()Ljava/lang/String; // method@0055
0018a0: 0c00                  |0016: move-result-object v0
0018a2: 1a02 6e00             |0017: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                  // string@006e
0018a6: 6e30 0800 2100        |0019: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                  .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                  Landroid/content/Intent; // method@0008
0018ac: 6e20 4a00 1300        |001c: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                  TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                  // method@004a
0018b2: 0e00                  |001f: return-void
              catches       : (none)
              positions     :
                0x0000 line=4
                0x0007 line=136
                0x000f line=221
                0x0017 line=165
                0x001c line=2
                0x001f line=131
              locals        :
                0x0000 - 0x0020 reg=3 this Lcom/uaf/matt/testone/TestOneActivity;
                0x0000 - 0x0020 reg=4 arg0 Landroid/view/View;

      #2              : (in Lcom/uaf/matt/testone/TestOneActivity;)
        name          : 'getWebPage'
        type          : '(Landroid/view/View;)V'
        access        : 0x1001 (PUBLIC SYNTHETIC)
        code          -
        registers     : 5
        ins           : 2
```

```
        outs            : 3
        insns size      : 33 16-bit code units
0018b4:                         |[0018b4] com.uaf.matt.testone.TestOneActivity.getWebPage:
                                        (Landroid/view/View;)V
0018c4: 2201 0500              |0000: new-instance v1, Landroid/content/Intent; // type@0005
0018c8: 1c00 1e00              |0002: const-class v0, Lcom/uaf/matt/testone/DisplayWebPageActivity;
                                        // type@001e
0018cc: 7030 0400 3100         |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                        (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
0018d2: 1400 0200 087f         |0007: const v0, #float 180775047991567766018258608092629434368.00
                                        // #7f080002
0018d8: 6e20 4300 0300         |000a: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.findViewById:(I)Landroid/view/View;
                                        // method@0043
0018de: 0c00                   |000d: move-result-object v0
0018e0: 1f00 0e00              |000e: check-cast v0, Landroid/widget/EditText; // type@000e
0018e4: 6e10 0e00 0000         |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                        ()Landroid/text/Editable; // method@000e
0018ea: 0c00                   |0013: move-result-object v0
0018ec: 6e10 5500 0000         |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                        ()Ljava/lang/String; // method@0055
0018f2: 0c00                   |0017: move-result-object v0
0018f4: 1a02 6e00              |0018: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                        // string@006e
0018f8: 6e30 0800 2100         |001a: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                        .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                        Landroid/content/Intent; // method@0008
0018fe: 6e20 4a00 1300         |001d: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                        // method@004a
001904: 0e00                   |0020: return-void
      catches         : (none)
      positions       :
        0x0000 line=206
        0x0007 line=31
        0x0010 line=224
        0x0018 line=146
        0x001d line=137
        0x0020 line=58
      locals          :
        0x0000 - 0x0021 reg=3 this Lcom/uaf/matt/testone/TestOneActivity;
        0x0000 - 0x0021 reg=4 arg0 Landroid/view/View;

    #3                  : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name            : 'onCreate'
      type            : '(Landroid/os/Bundle;)V'
      access          : 0x1001 (PUBLIC SYNTHETIC)
      code            -
      registers       : 3
      ins             : 2
      outs            : 2
      insns size      : 10 16-bit code units
001908:                         |[001908] com.uaf.matt.testone.TestOneActivity.onCreate:
                                        (Landroid/os/Bundle;)V
001918: 1400 0300 037f         |0000: const v0, #float 1741289282950527903054099967384789997504.00
                                        // #7f030003
00191e: 6f20 0100 2100         |0003: invoke-super {v1, v2}, Landroid/app/Activity;.onCreate:
                                        (Landroid/os/Bundle;)V // method@0001
001924: 6e20 4900 0100         |0006: invoke-virtual {v1, v0}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.setContentView:(I)V // method@0049
00192a: 0e00                   |0009: return-void
      catches         : (none)
      positions       :
        0x0000 line=92
        0x0006 line=42
        0x0009 line=188
      locals          :
        0x0000 - 0x000a reg=1 this Lcom/uaf/matt/testone/TestOneActivity;
```

```
            0x0000 - 0x000a reg=2 arg0 Landroid/os/Bundle;

    #4              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'onCreateOptionsMenu'
      type          : '(Landroid/view/Menu;)Z'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 3
      insns size    : 14 16-bit code units
00192c:                         |[00192c] com.uaf.matt.testone.TestOneActivity.onCreateOptionsMenu:
                                    (Landroid/view/Menu;)Z
00193c: 6e10 4400 0200          |0000: invoke-virtual {v2}, Lcom/uaf/matt/testone/TestOneActivity;
                                    .getMenuInflater:()Landroid/view/MenuInflater; // method@0044
001942: 0c00                    |0003: move-result-object v0
001944: 1501 077f               |0004: const/high16 v1, #int 2131165184 // #7f07
001948: 6e30 0c00 1003          |0006: invoke-virtual {v0, v1, v3}, Landroid/view/MenuInflater;
                                    .inflate:(ILandroid/view/Menu;)V // method@000c
00194e: 6f20 0200 3200          |0009: invoke-super {v2, v3}, Landroid/app/Activity;
                                    .onCreateOptionsMenu:(Landroid/view/Menu;)Z // method@0002
001954: 0a00                    |000c: move-result v0
001956: 0f00                    |000d: return v0
      catches       : (none)
      positions     :
        0x0000 line=190
        0x0004 line=122
        0x0009 line=14
      locals        :
        0x0000 - 0x000e reg=2 this Lcom/uaf/matt/testone/TestOneActivity;
        0x0000 - 0x000e reg=3 arg0 Landroid/view/Menu;

    #5              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 22 16-bit code units
001958:                         |[001958] com.uaf.matt.testone.TestOneActivity.onOptionsItemSelected:
                                    (Landroid/view/MenuItem;)Z
001968: 1210                    |0000: const/4 v0, #int 1 // #1
00196a: 7210 0d00 0300          |0001: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                    ()I // method@000d
001970: 0a01                    |0004: move-result v1
001972: 2b01 0900 0000          |0005: packed-switch v1, 0000000e // +00000009
001978: 6f20 0300 3200          |0008: invoke-super {v2, v3}, Landroid/app/Activity;
                                    .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                    // method@0003
00197e: 0a00                    |000b: move-result v0
001980: 0f00                    |000c: return v0
001982: 0000                    |000d: nop // spacer
001984: 0001 0200 0300 087f 0700 0000 0700 ... |000e: packed-switch-data (8 units)
      catches       : (none)
      positions     :
        0x0001 line=85
        0x0008 line=184
        0x000d line=85
      locals        :
        0x0000 - 0x0016 reg=2 this Lcom/uaf/matt/testone/TestOneActivity;
        0x0000 - 0x0016 reg=3 arg0 Landroid/view/MenuItem;

  source_file_idx   : 144 (l)Processing 'classes.dex'...
Opened 'classes.dex', DEX version '035'
DEX file header:
magic               : 'dex\n035\0'
```

```
checksum           : 6706eb4a
signature          : c695...7930
file_size          : 10900
header_size        : 112
link_size          : 0
link_off           : 0 (0x000000)
string_ids_size    : 172
string_ids_off     : 112 (0x000070)
type_ids_size      : 69
type_ids_off       : 800 (0x000320)
proto_ids_size     : 59
proto_ids_off      : 1076 (0x000434)
field_ids_size     : 36
field_ids_off      : 1784 (0x0006f8)
method_ids_size    : 124
method_ids_off     : 2072 (0x000818)
class_defs_size    : 16
class_defs_off     : 3064 (0x000bf8)
data_size          : 7324
data_off           : 3576 (0x000df8)

Class #0 header:
class_idx          : 16
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10292 (0x002834)
static_fields_size : 11
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #0              -
  Class descriptor  : 'Lcom/package/E;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/E;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/E;)
      name          : 'D'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #2              : (in Lcom/package/E;)
      name          : 'H'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #3              : (in Lcom/package/E;)
      name          : 'I'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #4              : (in Lcom/package/E;)
      name          : 'J'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #5              : (in Lcom/package/E;)
      name          : 'K'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #6              : (in Lcom/package/E;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
```

```
   #7                 : (in Lcom/package/E;)
     name             : 'f'
     type             : 'I'
     access           : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
   #8                 : (in Lcom/package/E;)
     name             : 'g'
     type             : 'I'
     access           : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
   #9                 : (in Lcom/package/E;)
     name             : 'i'
     type             : 'I'
     access           : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
   #10                : (in Lcom/package/E;)
     name             : 'm'
     type             : 'I'
     access           : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields    -
  Direct methods     -
   #0                 : (in Lcom/package/E;)
     name             : '<init>'
     type             : '()V'
     access           : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
     code             -
     registers    : 1
     ins          : 1
     outs         : 1
     insns size   : 4 16-bit code units
000e14:                    |[000e14] com.package.E.<init>:()V
000e24: 7010 5400 0000     |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000e2a: 0e00               |0003: return-void
     catches      : (none)
     positions    :
       0x0000 line=205
     locals       :
       0x0000 - 0x0004 reg=0 this Lcom/package/E;

  Virtual methods    -
  source_file_idx    : 140 (i)

Class #1 header:
class_idx          : 17
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10335 (0x00285f)
static_fields_size : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #1            -
  Class descriptor  : 'Lcom/package/G;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
   #0                 : (in Lcom/package/G;)
     name             : 'ALLATORIxDEMO'
     type             : 'I'
     access           : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
   #1                 : (in Lcom/package/G;)
     name             : 'H'
     type             : 'I'
     access           : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
   #2                 : (in Lcom/package/G;)
     name             : 'K'
```

```
       type          : 'I'
       access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #3               : (in Lcom/package/G;)
      name           : 'd'
      type           : 'I'
      access         : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #4               : (in Lcom/package/G;)
      name           : 'g'
      type           : 'I'
      access         : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields    -
  Direct methods     -
    #0               : (in Lcom/package/G;)
      name           : '<init>'
      type           : '()V'
      access         : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code           -
      registers      : 1
      ins            : 1
      outs           : 1
      insns size     : 4 16-bit code units
000e2c:                    |[000e2c] com.package.G.<init>:()V
000e3c: 7010 5400 0000     |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000e42: 0e00               |0003: return-void
      catches        : (none)
      positions      :
        0x0000 line=135
      locals         :
        0x0000 - 0x0004 reg=0 this Lcom/package/G;

  Virtual methods    -
  source_file_idx    : 140 (i)

Class #2 header:
class_idx          : 18
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10360 (0x002878)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #2            -
  Class descriptor  : 'Lcom/package/H;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields      -
    #0               : (in Lcom/package/H;)
      name           : 'ALLATORIxDEMO'
      type           : 'I'
      access         : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1               : (in Lcom/package/H;)
      name           : 'd'
      type           : 'I'
      access         : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields    -
  Direct methods     -
    #0               : (in Lcom/package/H;)
      name           : '<init>'
      type           : '()V'
      access         : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code           -
      registers      : 1
```

```
      ins             : 1
      outs            : 1
      insns size      : 4 16-bit code units
000e44:                          |[000e44] com.package.H.<init>:()V
000e54: 7010 5400 0000     |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000e5a: 0e00               |0003: return-void
      catches         : (none)
      positions       :
        0x0000 line=133
      locals          :
        0x0000 - 0x0004 reg=0 this Lcom/package/H;

  Virtual methods   -
  source_file_idx   : 140 (i)

Class #3 header:
class_idx            : 19
access_flags         : 17 (0x0011)
superclass_idx       : 6
interfaces_off       : 0 (0x000000)
source_file_idx      : 108
annotations_off      : 0 (0x000000)
class_data_off       : 10376 (0x002888)
static_fields_size  : 0
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 2

Class #3              -
  Class descriptor  : 'Lcom/package/M;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/os/AsyncTask;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/M;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000e5c:                          |[000e5c] com.package.M.<init>:()V
000e6c: 7010 0900 0000           |0000: invoke-direct {v0}, Landroid/os/AsyncTask;.<init>:()V
                                          // method@0009
000e72: 0e00                     |0003: return-void
      catches         : (none)
      positions       :
        0x0000 line=204
      locals          :
        0x0000 - 0x0004 reg=0 this Lcom/package/M;

  Virtual methods   -
    #0              : (in Lcom/package/M;)
      name          : 'ALLATORIxDEMO'
      type          : '([Ljava/lang/String;)Ljava/lang/Void;'
      access        : 0x1081 (PUBLIC VARARGS SYNTHETIC)
      code          -
      registers     : 7
      ins           : 2
      outs          : 2
      insns size    : 63 16-bit code units
000e74:                          |[000e74] com.package.M.ALLATORIxDEMO:([Ljava/lang/String;)
                                          Ljava/lang/Void;
000e84: 2200 3400                |0000: new-instance v0, Ljava/net/URL; // type@0034
```

```
000e88: 1201                          |0002: const/4 v1, #int 0 // #0
000e8a: 4601 0601                     |0003: aget-object v1, v6, v1
000e8e: 7020 6700 1000                |0005: invoke-direct {v0, v1}, Ljava/net/URL;.<init>:
                                             (Ljava/lang/String;)V // method@0067
000e94: 6e10 6800 0000                |0008: invoke-virtual {v0}, Ljava/net/URL;.openConnection:
                                             ()Ljava/net/URLConnection; // method@0068
000e9a: 0c00                          |000b: move-result-object v0
000e9c: 2201 2400                     |000c: new-instance v1, Ljava/io/BufferedReader; // type@0024
000ea0: 2202 2700                     |000e: new-instance v2, Ljava/io/InputStreamReader; // type@0027
000ea4: 6e10 6900 0000                |0010: invoke-virtual {v0}, Ljava/net/URLConnection;
                                             .getInputStream:()Ljava/io/InputStream; // method@0069
000eaa: 0c00                          |0013: move-result-object v0
000eac: 7020 4e00 0200                |0014: invoke-direct {v2, v0}, Ljava/io/InputStreamReader;
                                             .<init>:(Ljava/io/InputStream;)V // method@004e
000eb2: 7020 4b00 2100                |0017: invoke-direct {v1, v2}, Ljava/io/BufferedReader;.<init>:
                                             (Ljava/io/Reader;)V // method@004b
000eb8: 1a00 0000                     |001a: const-string v0, "" // string@0000
000ebc: 6e10 4c00 0100                |001c: invoke-virtual {v1}, Ljava/io/BufferedReader;.readLine:
                                             ()Ljava/lang/String; // method@004c
000ec2: 0c00                          |001f: move-result-object v0
000ec4: 3800 1d00                     |0020: if-eqz v0, 003d // +001d
000ec8: 2202 3100                     |0022: new-instance v2, Ljava/lang/StringBuilder; // type@0031
000ecc: 7010 6100 0200                |0024: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:
                                             ()V // method@0061
000ed2: 1213                          |0027: const/4 v3, #int 1 // #1
000ed4: 4604 0603                     |0028: aget-object v4, v6, v3
000ed8: 6e20 6300 4200                |002a: invoke-virtual {v2, v4}, Ljava/lang/StringBuilder;
                                             .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                             // method@0063
000ede: 0c02                          |002d: move-result-object v2
000ee0: 6e20 6300 0200                |002e: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;
                                             .append:(Ljava/lang/String;)Ljava/lang/StringBuilder;
                                             // method@0063
000ee6: 0c00                          |0031: move-result-object v0
000ee8: 6e10 6500 0000                |0032: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                             ()Ljava/lang/String; // method@0065
000eee: 0c00                          |0035: move-result-object v0
000ef0: 4d00 0603                     |0036: aput-object v0, v6, v3
000ef4: 28e4                          |0038: goto 001c // -001c
000ef6: 0d00                          |0039: move-exception v0
000ef8: 6e10 4d00 0000                |003a: invoke-virtual {v0}, Ljava/io/IOException;
                                             .printStackTrace:()V // method@004d
000efe: 1200                          |003d: const/4 v0, #int 0 // #0
000f00: 1100                          |003e: return-object v0
        catches       : 1
          0x0000 - 0x0038
            Ljava/io/IOException; -> 0x0039
        positions     :
          0x0000 line=182
          0x0008 line=92
          0x000c line=42
          0x001a line=188
          0x001c line=70
          0x0022 line=44
          0x0039 line=28
          0x003a line=104
          0x003d line=122
        locals        :
          0x0000 - 0x003f reg=5 this Lcom/package/M;
          0x0000 - 0x003f reg=6 arg0 [Ljava/lang/String;

    #1                : (in Lcom/package/M;)
      name            : 'doInBackground'
      type            : '([Ljava/lang/Object;)Ljava/lang/Object;'
      access          : 0x1041 (PUBLIC BRIDGE SYNTHETIC)
      code            -
      registers       : 3
      ins             : 2
```

```
        outs            : 2
        insns size      : 7 16-bit code units
000f10:                              |[000f10] com.package.M.doInBackground:([Ljava/lang/Object;)
                                     Ljava/lang/Object;
000f20: 1f02 4400                    |0000: check-cast v2, [Ljava/lang/String; // type@0044
000f24: 6e20 1600 2100               |0002: invoke-virtual {v1, v2}, Lcom/package/M;.ALLATORIxDEMO:
                                     ([Ljava/lang/String;)Ljava/lang/Void; // method@0016
000f2a: 0c00                         |0005: move-result-object v0
000f2c: 1100                         |0006: return-object v0
        catches         : (none)
        positions       :
          0x0000 line=204
        locals          :
          0x0000 - 0x0002 reg=2 arg0 [Ljava/lang/Object;
          0x0000 - 0x0007 reg=1 this Lcom/package/M;

    source_file_idx     : 108 (c)

Class #4 header:
class_idx               : 20
access_flags            : 17 (0x0011)
superclass_idx          : 45
interfaces_off          : 0 (0x000000)
source_file_idx         : 166
annotations_off         : 0 (0x000000)
class_data_off          : 10396 (0x00289c)
static_fields_size      : 1
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #4              -
  Class descriptor  : 'Lcom/package/b;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/b;)
      name          : 'ALLATORIxDEMO'
      type          : 'Z'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/b;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000f30:                     |[000f30] com.package.b.<init>:()V
000f40: 7010 5400 0000      |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000f46: 0e00                |0003: return-void
        catches         : (none)
        positions       :
          0x0000 line=207
        locals          :
          0x0000 - 0x0004 reg=0 this Lcom/package/b;

  Virtual methods   -
  source_file_idx   : 166 (t)

Class #5 header:
class_idx               : 21
access_flags            : 17 (0x0011)
superclass_idx          : 45
```

```
interfaces_off      : 0 (0x000000)
source_file_idx     : 140
annotations_off     : 6548 (0x001994)
class_data_off      : 10409 (0x0028a9)
static_fields_size  : 5
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #5              -
  Class descriptor  : 'Lcom/package/c;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces         -
  Static fields      -
    #0              : (in Lcom/package/c;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/c;)
      name          : 'H'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #2              : (in Lcom/package/c;)
      name          : 'K'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #3              : (in Lcom/package/c;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #4              : (in Lcom/package/c;)
      name          : 'g'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields    -
  Direct methods     -
    #0              : (in Lcom/package/c;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code           -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000f48:                         |[000f48] com.package.c.<init>:()V
000f58: 7010 5400 0000    |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000f5e: 0e00              |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=70
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/package/c;

  Virtual methods    -
  source_file_idx   : 140 (i)

Class #6 header:
class_idx           : 22
access_flags        : 17 (0x0011)
superclass_idx      : 45
interfaces_off      : 0 (0x000000)
source_file_idx     : 148
annotations_off     : 6564 (0x0019a4)
class_data_off      : 10434 (0x0028c2)
static_fields_size  : 0
instance_fields_size: 0
```

```
direct_methods_size : 8
virtual_methods_size: 0


Class #6              -
  Class descriptor  : 'Lcom/package/e;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/e;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
000f60:                       |[000f60] com.package.e.<init>:()V
000f70: 7010 5400 0000        |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V // method@0054
000f76: 0e00                  |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=215
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/package/e;


    #1              : (in Lcom/package/e;)
      name          : 'ALLATORIxDEMO'
      type          : '(Ljava/lang/String;)Ljava/lang/String;'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
      code          -
      registers     : 8
      ins           : 1
      outs          : 3
      insns size    : 96 16-bit code units
000f78:                       |[000f78] com.package.e.ALLATORIxDEMO:(Ljava/lang/String;)
                                       Ljava/lang/String;
000f88: 1200                  |0000: const/4 v0, #int 0 // #0
000f8a: 1a01 0a00             |0001: const-string v1, "B?q" // string@000a
000f8e: 7110 2000 0100        |0003: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                       Ljava/lang/String; // method@0020
000f94: 0c01                  |0006: move-result-object v1
000f96: 7110 6b00 0100        |0007: invoke-static {v1}, Ljava/security/MessageDigest;
                                       .getInstance:(Ljava/lang/String;)
                                       Ljava/security/MessageDigest; // method@006b
000f9c: 0c01                  |000a: move-result-object v1
000f9e: 6e10 5b00 0700        |000b: invoke-virtual {v7}, Ljava/lang/String;.getBytes:()[B
                                       // method@005b
000fa4: 0c02                  |000e: move-result-object v2
000fa6: 6e20 6c00 2100        |000f: invoke-virtual {v1, v2}, Ljava/security/MessageDigest;
                                       .update:([B)V // method@006c
000fac: 6e10 6a00 0100        |0012: invoke-virtual {v1}, Ljava/security/MessageDigest;.digest:
                                       ()[B // method@006a
000fb2: 0c03                  |0015: move-result-object v3
000fb4: 2204 3000             |0016: new-instance v4, Ljava/lang/StringBuffer; // type@0030
000fb8: 7010 5d00 0400        |0018: invoke-direct {v4}, Ljava/lang/StringBuffer;.<init>:()V
                                       // method@005d
000fbe: 0101                  |001b: move v1, v0
000fc0: 2132                  |001c: array-length v2, v3
000fc2: 3520 3300             |001d: if-ge v0, v2, 0050 // +0033
000fc6: 4800 0301             |001f: aget-byte v0, v3, v1
000fca: d500 ff00             |0021: and-int/lit16 v0, v0, #int 255 // #00ff
000fce: 7110 5300 0000        |0023: invoke-static {v0}, Ljava/lang/Integer;.toHexString:
                                       (I)Ljava/lang/String; // method@0053
000fd4: 0c00                  |0026: move-result-object v0
```

```
000fd6: 0702                           |0027: move-object v2, v0
000fd8: 6e10 5c00 0000                 |0028: invoke-virtual {v0}, Ljava/lang/String;.length:()I
                                       |      // method@005c
000fde: 0a00                           |002b: move-result v0
000fe0: 1225                           |002c: const/4 v5, #int 2 // #2
000fe2: 3550 1c00                      |002d: if-ge v0, v5, 0049 // +001c
000fe6: 2200 3100                      |002f: new-instance v0, Ljava/lang/StringBuilder; // type@0031
000fea: 7010 6100 0000                 |0031: invoke-direct {v0}, Ljava/lang/StringBuilder;.<init>:
                                       |      ()V // method@0061
000ff0: 1205                           |0034: const/4 v5, #int 0 // #0
000ff2: 1a06 a600                      |0035: const-string v6, "t" // string@00a6
000ff6: 7110 2000 0600                 |0037: invoke-static {v6}, Lcom/package/e;.d:(Ljava/lang/String;)
                                       |      Ljava/lang/String; // method@0020
000ffc: 0c06                           |003a: move-result-object v6
000ffe: 6e30 6400 5006                 |003b: invoke-virtual {v0, v5, v6}, Ljava/lang/StringBuilder;
                                       |      .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                       |      // method@0064
001004: 0c00                           |003e: move-result-object v0
001006: 6e20 6300 2000                 |003f: invoke-virtual {v0, v2}, Ljava/lang/StringBuilder;.append:
                                       |      (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                       |      // method@0063
00100c: 0c00                           |0042: move-result-object v0
00100e: 6e10 6500 0000                 |0043: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                       |      ()Ljava/lang/String; // method@0065
001014: 0c00                           |0046: move-result-object v0
001016: 0702                           |0047: move-object v2, v0
001018: 28e0                           |0048: goto 0028 // -0020
00101a: d800 0101                      |0049: add-int/lit8 v0, v1, #int 1 // #01
00101e: 6e20 5f00 2400                 |004b: invoke-virtual {v4, v2}, Ljava/lang/StringBuffer;.append:
                                       |      (Ljava/lang/String;)Ljava/lang/StringBuffer;
                                       |      // method@005f
001024: 0101                           |004e: move v1, v0
001026: 28cd                           |004f: goto 001c // -0033
001028: 6e10 6000 0400                 |0050: invoke-virtual {v4}, Ljava/lang/StringBuffer;.toString:
                                       |      ()Ljava/lang/String; // method@0060
00102e: 0c00                           |0053: move-result-object v0
001030: 1100                           |0054: return-object v0
001032: 0d00                           |0055: move-exception v0
001034: 1a01 0500                      |0056: const-string v1, "!i}?6" // string@0005
001038: 6e10 5100 0000                 |0058: invoke-virtual {v0}, Ljava/lang/Exception;
                                       |      .printStackTrace:()V // method@0051
00103e: 7110 2000 0100                 |005b: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                       |      Ljava/lang/String; // method@0020
001044: 0c00                           |005e: move-result-object v0
001046: 28f5                           |005f: goto 0054 // -000b
      catches        : 1
        0x0001 - 0x0053
          Ljava/lang/Exception; -> 0x0055
      positions      :
        0x0001 line=148
        0x000b line=34
        0x0012 line=192
        0x0016 line=0
        0x001c line=50
        0x001f line=65
        0x0028 line=16
        0x002f line=60
        0x0049 line=162
        0x004f line=50
        0x0050 line=20
        0x0054 line=90
        0x0055 line=216
        0x0058 line=130
        0x005b line=90
      locals         :
        0x0000 - 0x0060 reg=7 arg0 Ljava/lang/String;

    #2                : (in Lcom/package/e;)
```

```
          name          : 'ALLATORIxDEMO'
          type          : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
          access        : 0x1009 (PUBLIC STATIC SYNTHETIC)
          code          -
          registers     : 4
          ins           : 2
          outs          : 2
          insns size    : 33 16-bit code units
001054:                               |[001054] com.package.e.ALLATORIxDEMO:(Ljava/lang/String;
                                       Ljava/lang/String;)Ljava/lang/String;
001064: 6e10 5b00 0200                |0000: invoke-virtual {v2}, Ljava/lang/String;.getBytes:()[B
                                       // method@005b
00106a: 0c00                          |0003: move-result-object v0
00106c: 7110 1e00 0000                |0004: invoke-static {v0}, Lcom/package/e;.ALLATORIxDEMO:
                                       ([B)[B // method@001e
001072: 0c00                          |0007: move-result-object v0
001074: 6e10 5b00 0300                |0008: invoke-virtual {v3}, Ljava/lang/String;.getBytes:()[B
                                       // method@005b
00107a: 0c01                          |000b: move-result-object v1
00107c: 7120 2200 1000                |000c: invoke-static {v0, v1}, Lcom/package/e;.d:([B[B)[B
                                       // method@0022
001082: 0c00                          |000f: move-result-object v0
001084: 1201                          |0010: const/4 v1, #int 0 // #0
001086: 7120 0b00 1000                |0011: invoke-static {v0, v1}, Landroid/util/Base64;
                                       .encodeToString:([BI)Ljava/lang/String; // method@000b
00108c: 0c00                          |0014: move-result-object v0
00108e: 1100                          |0015: return-object v0
001090: 0d00                          |0016: move-exception v0
001092: 1a01 0500                     |0017: const-string v1, "!i}?6" // string@0005
001096: 6e10 5100 0000                |0019: invoke-virtual {v0}, Ljava/lang/Exception;
                                       .printStackTrace:()V // method@0051
00109c: 7110 2000 0100                |001c: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                       Ljava/lang/String; // method@0020
0010a2: 0c00                          |001f: move-result-object v0
0010a4: 28f5                          |0020: goto 0015 // -000b
          catches       : 1
            0x0000 - 0x0014
              Ljava/lang/Exception; -> 0x0016
          positions     :
            0x0000 line=15
            0x0008 line=211
            0x0010 line=182
            0x0016 line=42
            0x0019 line=70
            0x001c line=140
          locals        :
            0x0000 - 0x0021 reg=2 arg0 Ljava/lang/String;
            0x0000 - 0x0021 reg=3 arg1 Ljava/lang/String;

    #3                : (in Lcom/package/e;)
      name          : 'ALLATORIxDEMO'
      type          : '([B)[B'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 1
      outs          : 3
      insns size    : 37 16-bit code units
0010b4:                               |[0010b4] com.package.e.ALLATORIxDEMO:([B)[B
0010c4: 1a00 5700                     |0000: const-string v0, "N??" // string@0057
0010c8: 7110 2000 0000                |0002: invoke-static {v0}, Lcom/package/e;.d:(Ljava/lang/String;)
                                       Ljava/lang/String; // method@0020
0010ce: 0c00                          |0005: move-result-object v0
0010d0: 7110 7800 0000                |0006: invoke-static {v0}, Ljavax/crypto/KeyGenerator;
                                       .getInstance:(Ljava/lang/String;)
                                       Ljavax/crypto/KeyGenerator; // method@0078
0010d6: 0c00                          |0009: move-result-object v0
0010d8: 1a01 0100                     |000a: const-string v1, "???uK]??" // string@0001
```

```
0010dc: 7110 2000 0100            |000c: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                          Ljava/lang/String; // method@0020
0010e2: 0c01                      |000f: move-result-object v1
0010e4: 7110 6d00 0100            |0010: invoke-static {v1}, Ljava/security/SecureRandom;
                                          .getInstance:(Ljava/lang/String;)
                                          Ljava/security/SecureRandom; // method@006d
0010ea: 0c01                      |0013: move-result-object v1
0010ec: 6e20 6e00 3100            |0014: invoke-virtual {v1, v3}, Ljava/security/SecureRandom;
                                          .setSeed:([B)V // method@006e
0010f2: 1302 8000                 |0017: const/16 v2, #int 128 // #80
0010f6: 6e30 7900 2001            |0019: invoke-virtual {v0, v2, v1}, Ljavax/crypto/KeyGenerator;
                                          .init:(ILjava/security/SecureRandom;)V // method@0079
0010fc: 6e10 7700 0000            |001c: invoke-virtual {v0}, Ljavax/crypto/KeyGenerator;
                                          .generateKey:()Ljavax/crypto/SecretKey; // method@0077
001102: 0c00                      |001f: move-result-object v0
001104: 7210 7a00 0000            |0020: invoke-interface {v0}, Ljavax/crypto/SecretKey;
                                          .getEncoded:()[B // method@007a
00110a: 0c00                      |0023: move-result-object v0
00110c: 1100                      |0024: return-object v0
      catches       : (none)
      positions     :
        0x0000 line=184
        0x000a line=174
        0x0014 line=198
        0x0017 line=227
        0x001c line=193
        0x0020 line=126
        0x0024 line=4
      locals        :
        0x0000 - 0x0025 reg=3 arg0 [B

    #4              : (in Lcom/package/e;)
      name          : 'ALLATORIxDEMO'
      type          : '([B[B)[B'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 5
      ins           : 2
      outs          : 3
      insns size    : 30 16-bit code units
001110:                           |[001110] com.package.e.ALLATORIxDEMO:([B[B)[B
001120: 2200 3d00                 |0000: new-instance v0, Ljavax/crypto/spec/SecretKeySpec; // type@003d
001124: 1a01 5700                 |0002: const-string v1, "N??" // string@0057
001128: 7110 2000 0100            |0004: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                          Ljava/lang/String; // method@0020
00112e: 0c01                      |0007: move-result-object v1
001130: 7030 7b00 3001            |0008: invoke-direct {v0, v3, v1}, Ljavax/crypto/spec/SecretKeySpec;
                                          .<init>:([BLjava/lang/String;)V // method@007b
001136: 1a01 5700                 |000b: const-string v1, "N??" // string@0057
00113a: 7110 2000 0100            |000d: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                          Ljava/lang/String; // method@0020
001140: 0c01                      |0010: move-result-object v1
001142: 7110 7500 0100            |0011: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                          (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@0075
001148: 0c01                      |0014: move-result-object v1
00114a: 1222                      |0015: const/4 v2, #int 2 // #2
00114c: 6e30 7600 2100            |0016: invoke-virtual {v1, v2, v0}, Ljavax/crypto/Cipher;.init:
                                          (ILjava/security/Key;)V // method@0076
001152: 6e20 7400 4100            |0019: invoke-virtual {v1, v4}, Ljavax/crypto/Cipher;.doFinal:
                                          ([B)[B // method@0074
001158: 0c00                      |001c: move-result-object v0
00115a: 1100                      |001d: return-object v0
      catches       : (none)
      positions     :
        0x0000 line=222
        0x000b line=78
        0x0015 line=37
        0x0019 line=51
```

```
        0x001d line=206
      locals        :
        0x0000 - 0x001e reg=3 arg0 [B
        0x0000 - 0x001e reg=4 arg1 [B

    #5                  : (in Lcom/package/e;)
      name            : 'd'
      type            : '(Ljava/lang/String;)Ljava/lang/String;'
      access          : 0x1009 (PUBLIC STATIC SYNTHETIC)
      code            -
      registers       : 9
      ins             : 1
      outs            : 2
      insns size      : 99 16-bit code units
00115c:                            |[00115c] com.package.e.d:(Ljava/lang/String;)Ljava/lang/String;
00116c: 2200 3000                  |0000: new-instance v0, Ljava/lang/StringBuffer; // type@0030
001170: 2201 2b00                  |0002: new-instance v1, Ljava/lang/Exception; // type@002b
001174: 7010 4f00 0100             |0004: invoke-direct {v1}, Ljava/lang/Exception;.<init>:()V
                                    |      // method@004f
00117a: 6e10 5000 0100             |0007: invoke-virtual {v1}, Ljava/lang/Exception;.getStackTrace:
                                    |      ()[Ljava/lang/StackTraceElement; // method@0050
001180: 0c01                       |000a: move-result-object v1
001182: 1212                       |000b: const/4 v2, #int 1 // #1
001184: 4601 0102                  |000c: aget-object v1, v1, v2
001188: 6e10 5700 0100             |000e: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                    |      .getMethodName:()Ljava/lang/String; // method@0057
00118e: 0c02                       |0011: move-result-object v2
001190: 7020 5e00 2000             |0012: invoke-direct {v0, v2}, Ljava/lang/StringBuffer;.<init>:
                                    |      (Ljava/lang/String;)V // method@005e
001196: 6e10 5600 0100             |0015: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                    |      .getClassName:()Ljava/lang/String; // method@0056
00119c: 0c01                       |0018: move-result-object v1
00119e: 6e20 5f00 1000             |0019: invoke-virtual {v0, v1}, Ljava/lang/StringBuffer;.append:
                                    |      (Ljava/lang/String;)Ljava/lang/StringBuffer;
                                    |      // method@005f
0011a4: 0c00                       |001c: move-result-object v0
0011a6: 6e10 6000 0000             |001d: invoke-virtual {v0}, Ljava/lang/StringBuffer;.toString:
                                    |      ()Ljava/lang/String; // method@0060
0011ac: 0c04                       |0020: move-result-object v4
0011ae: 6e10 5c00 0400             |0021: invoke-virtual {v4}, Ljava/lang/String;.length:()I
                                    |      // method@005c
0011b4: 0a00                       |0024: move-result v0
0011b6: d801 00ff                  |0025: add-int/lit8 v1, v0, #int -1 // #ff
0011ba: 6e10 5c00 0800             |0027: invoke-virtual {v8}, Ljava/lang/String;.length:()I
                                    |      // method@005c
0011c0: 0a00                       |002a: move-result v0
0011c2: 2305 4100                  |002b: new-array v5, v0, [C // type@0041
0011c6: d800 00ff                  |002d: add-int/lit8 v0, v0, #int -1 // #ff
0011ca: 0113                       |002f: move v3, v1
0011cc: 0102                       |0030: move v2, v0
0011ce: 3b00 0800                  |0031: if-gez v0, 0039 // +0008
0011d2: 2200 2f00                  |0033: new-instance v0, Ljava/lang/String; // type@002f
0011d6: 7020 5900 5000             |0035: invoke-direct {v0, v5}, Ljava/lang/String;.<init>:
                                    |      ([C)V // method@0059
0011dc: 1100                       |0038: return-object v0
0011de: d806 02ff                  |0039: add-int/lit8 v6, v2, #int -1 // #ff
0011e2: 6e20 5a00 2800             |003b: invoke-virtual {v8, v2}, Ljava/lang/String;.charAt:
                                    |      (I)C // method@005a
0011e8: 0a00                       |003e: move-result v0
0011ea: 6e20 5a00 3400             |003f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:
                                    |      (I)C // method@005a
0011f0: 0a07                       |0042: move-result v7
0011f2: b770                       |0043: xor-int/2addr v0, v7
0011f4: df00 0021                  |0044: xor-int/lit8 v0, v0, #int 33 // #21
0011f8: 8e00                       |0046: int-to-char v0, v0
0011fa: 5000 0502                  |0047: aput-char v0, v5, v2
0011fe: 3a06 eaff                  |0049: if-ltz v6, 0033 // -0016
001202: 6e20 5a00 6800             |004b: invoke-virtual {v8, v6}, Ljava/lang/String;.charAt:
```

```
                                                     (I)C // method@005a
001208: 0a00                        |004e: move-result v0
00120a: 6e20 5a00 3400              |004f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:
                                             (I)C // method@005a
001210: 0a02                        |0052: move-result v2
001212: b720                        |0053: xor-int/2addr v0, v2
001214: df00 0035                   |0054: xor-int/lit8 v0, v0, #int 53 // #35
001218: 8e07                        |0056: int-to-char v7, v0
00121a: d802 06ff                   |0057: add-int/lit8 v2, v6, #int -1 // #ff
00121e: d800 03ff                   |0059: add-int/lit8 v0, v3, #int -1 // #ff
001222: 5007 0506                   |005b: aput-char v7, v5, v6
001226: 3b00 0300                   |005d: if-gez v0, 0060 // +0003
00122a: 0110                        |005f: move v0, v1
00122c: 0103                        |0060: move v3, v0
00122e: 0120                        |0061: move v0, v2
001230: 28cf                        |0062: goto 0031 // -0031
        catches       : (none)
        positions     :
        locals        :
          0x0000 - 0x0063 reg=8 arg0 Ljava/lang/String;


    #6                 : (in Lcom/package/e;)
      name            : 'd'
      type            : '(Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;'
      access          : 0x1009 (PUBLIC STATIC SYNTHETIC)
      code            -
      registers       : 4
      ins             : 2
      outs            : 2
      insns size      : 34 16-bit code units
001234:                             |[001234] com.package.e.d:(Ljava/lang/String;Ljava/lang/String;)
                                             Ljava/lang/String;
001244: 6e10 5b00 0200              |0000: invoke-virtual {v2}, Ljava/lang/String;.getBytes:()[B
                                             // method@005b
00124a: 0c00                        |0003: move-result-object v0
00124c: 7110 1e00 0000              |0004: invoke-static {v0}, Lcom/package/e;.ALLATORIxDEMO:
                                             ([B)[B // method@001e
001252: 0c00                        |0007: move-result-object v0
001254: 1201                        |0008: const/4 v1, #int 0 // #0
001256: 7120 0a00 1300              |0009: invoke-static {v3, v1}, Landroid/util/Base64;.decode:
                                             (Ljava/lang/String;I)[B // method@000a
00125c: 0c01                        |000c: move-result-object v1
00125e: 7120 1f00 1000              |000d: invoke-static {v0, v1}, Lcom/package/e;.ALLATORIxDEMO:
                                             ([B[B)[B // method@001f
001264: 0c01                        |0010: move-result-object v1
001266: 2200 2f00                   |0011: new-instance v0, Ljava/lang/String; // type@002f
00126a: 7020 5800 1000              |0013: invoke-direct {v0, v1}, Ljava/lang/String;.<init>:([B)V
                                             // method@0058
001270: 1100                        |0016: return-object v0
001272: 0d00                        |0017: move-exception v0
001274: 1a01 0500                   |0018: const-string v1, "!i}?6" // string@0005
001278: 6e10 5100 0000              |001a: invoke-virtual {v0}, Ljava/lang/Exception;
                                             .printStackTrace:()V // method@0051
00127e: 7110 2000 0100              |001d: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                             Ljava/lang/String; // method@0020
001284: 0c00                        |0020: move-result-object v0
001286: 28f5                        |0021: goto 0016 // -000b
        catches       : 1
          0x0000 - 0x0016
            Ljava/lang/Exception; -> 0x0017
        positions     :
          0x0000 line=87
          0x0008 line=35
          0x000d line=128
          0x0011 line=106
          0x0017 line=40
          0x001a line=123
          0x001d line=19
```

```
        locals          :
          0x0000 - 0x0022 reg=2 arg0 Ljava/lang/String;
          0x0000 - 0x0022 reg=3 arg1 Ljava/lang/String;

     #7              : (in Lcom/package/e;)
        name          : 'd'
        type          : '([B[B)[B'
        access        : 0x100a (PRIVATE STATIC SYNTHETIC)
        code          -
        registers     : 5
        ins           : 2
        outs          : 3
        insns size    : 30 16-bit code units
001294:                         |[001294] com.package.e.d:([B[B)[B
0012a4: 2200 3d00               |0000: new-instance v0, Ljavax/crypto/spec/SecretKeySpec;
                                        // type@003d
0012a8: 1a01 5700               |0002: const-string v1, "N??" // string@0057
0012ac: 7110 2000 0100          |0004: invoke-static {v1}, Lcom/package/e;.d:
                                        (Ljava/lang/String;)Ljava/lang/String; // method@0020
0012b2: 0c01                    |0007: move-result-object v1
0012b4: 7030 7b00 3001          |0008: invoke-direct {v0, v3, v1}, Ljavax/crypto/spec/SecretKeySpec;
                                        .<init>:([BLjava/lang/String;)V // method@007b
0012ba: 1a01 5700               |000b: const-string v1, "N??" // string@0057
0012be: 7110 2000 0100          |000d: invoke-static {v1}, Lcom/package/e;.d:(Ljava/lang/String;)
                                        Ljava/lang/String; // method@0020
0012c4: 0c01                    |0010: move-result-object v1
0012c6: 7110 7500 0100          |0011: invoke-static {v1}, Ljavax/crypto/Cipher;.getInstance:
                                        (Ljava/lang/String;)Ljavax/crypto/Cipher; // method@0075
0012cc: 0c01                    |0014: move-result-object v1
0012ce: 1212                    |0015: const/4 v2, #int 1 // #1
0012d0: 6e30 7600 2100          |0016: invoke-virtual {v1, v2, v0}, Ljavax/crypto/Cipher;.init:
                                        (ILjava/security/Key;)V // method@0076
0012d6: 6e20 7400 4100          |0019: invoke-virtual {v1, v4}, Ljavax/crypto/Cipher;.doFinal:
                                        ([B)[B // method@0074
0012dc: 0c00                    |001c: move-result-object v0
0012de: 1100                    |001d: return-object v0
        catches       : (none)
        positions     :
          0x0000 line=131
          0x000b line=108
          0x0015 line=161
          0x0019 line=32
          0x001d line=203
        locals        :
          0x0000 - 0x001e reg=3 arg0 [B
          0x0000 - 0x001e reg=4 arg1 [B

  Virtual methods    -
  source_file_idx    : 148 (o)

Class #7 header:
class_idx           : 23
access_flags        : 17 (0x0011)
superclass_idx      : 45
interfaces_off      : 0 (0x000000)
source_file_idx     : 140
annotations_off     : 6548 (0x001994)
class_data_off      : 10479 (0x0028ef)
static_fields_size  : 4
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #7            -
  Class descriptor  : 'Lcom/package/f;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
```

```
    Static fields      -
      #0              : (in Lcom/package/f;)
        name          : 'ALLATORIxDEMO'
        type          : 'I'
        access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
      #1              : (in Lcom/package/f;)
        name          : 'K'
        type          : 'I'
        access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
      #2              : (in Lcom/package/f;)
        name          : 'd'
        type          : 'I'
        access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
      #3              : (in Lcom/package/f;)
        name          : 'g'
        type          : 'I'
        access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    Instance fields    -
    Direct methods     -
      #0              : (in Lcom/package/f;)
        name          : '<init>'
        type          : '()V'
        access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
        code          -
        registers     : 1
        ins           : 1
        outs          : 1
        insns size    : 4 16-bit code units
0012e0:                        |[0012e0] com.package.f.<init>:()V
0012f0: 7010 5400 0000         |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                       // method@0054
0012f6: 0e00                   |0003: return-void
        catches       : (none)
        positions     :
          0x0000 line=14
        locals        :
          0x0000 - 0x0004 reg=0 this Lcom/package/f;

    Virtual methods    -
    source_file_idx    : 140 (i)

Class #8 header:
class_idx             : 24
access_flags          : 17 (0x0011)
superclass_idx        : 45
interfaces_off        : 0 (0x000000)
source_file_idx       : 140
annotations_off       : 6548 (0x001994)
class_data_off        : 10501 (0x002905)
static_fields_size    : 0
instance_fields_size  : 0
direct_methods_size   : 1
virtual_methods_size  : 0

Class #8            -
  Class descriptor  : 'Lcom/package/h;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces         -
  Static fields      -
  Instance fields    -
  Direct methods     -
      #0              : (in Lcom/package/h;)
        name          : '<init>'
        type          : '()V'
        access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
        code          -
        registers     : 1
```

```
        ins             : 1
        outs            : 1
        insns size      : 4 16-bit code units
0012f8:                         |[0012f8] com.package.h.<init>:()V
001308: 7010 5400 0000          |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                        // method@0054
00130e: 0e00                    |0003: return-void
        catches         : (none)
        positions       :
          0x0000 line=215
        locals          :
          0x0000 - 0x0004 reg=0 this Lcom/package/h;

  Virtual methods   -
  source_file_idx   : 140 (i)

Class #9 header:
class_idx           : 25
access_flags        : 17 (0x0011)
superclass_idx      : 45
interfaces_off      : 0 (0x000000)
source_file_idx     : 140
annotations_off     : 6548 (0x001994)
class_data_off      : 10511 (0x00290f)
static_fields_size  : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #9             -
  Class descriptor  : 'Lcom/package/i;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Ljava/lang/Object;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/package/i;)
      name          : 'ALLATORIxDEMO'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1              : (in Lcom/package/i;)
      name          : 'd'
      type          : 'I'
      access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/package/i;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
001310:                         |[001310] com.package.i.<init>:()V
001320: 7010 5400 0000          |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                        // method@0054
001326: 0e00                    |0003: return-void
        catches         : (none)
        positions       :
          0x0000 line=2
        locals          :
          0x0000 - 0x0004 reg=0 this Lcom/package/i;

  Virtual methods   -
  source_file_idx   : 140 (i)

Class #10 header:
```

```
class_idx          : 26
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6548 (0x001994)
class_data_off     : 10527 (0x00291f)
static_fields_size : 2
instance_fields_size: 0
direct_methods_size : 1
virtual_methods_size: 0

Class #10              -
  Class descriptor : 'Lcom/package/j;'
  Access flags     : 0x0011 (PUBLIC FINAL)
  Superclass       : 'Ljava/lang/Object;'
  Interfaces       -
  Static fields    -
    #0             : (in Lcom/package/j;)
      name         : 'ALLATORIxDEMO'
      type         : 'I'
      access       : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
    #1             : (in Lcom/package/j;)
      name         : 'd'
      type         : 'I'
      access       : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
  Instance fields  -
  Direct methods   -
    #0             : (in Lcom/package/j;)
      name         : '<init>'
      type         : '()V'
      access       : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code         -
      registers    : 1
      ins          : 1
      outs         : 1
      insns size   : 4 16-bit code units
001328:                         |[001328] com.package.j.<init>:()V
001338: 7010 5400 0000          |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                        // method@0054
00133e: 0e00                    |0003: return-void
      catches      : (none)
      positions    :
        0x0000 line=182
      locals       :
        0x0000 - 0x0004 reg=0 this Lcom/package/j;

  Virtual methods  -
  source_file_idx  : 140 (i)

Class #11 header:
class_idx          : 27
access_flags       : 17 (0x0011)
superclass_idx     : 45
interfaces_off     : 0 (0x000000)
source_file_idx    : 140
annotations_off    : 6604 (0x0019cc)
class_data_off     : 10543 (0x00292f)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 0

Class #11              -
  Class descriptor : 'Lcom/package/l;'
  Access flags     : 0x0011 (PUBLIC FINAL)
  Superclass       : 'Ljava/lang/Object;'
  Interfaces       -
```

```
   Static fields     -
   Instance fields   -
   Direct methods    -
     #0              : (in Lcom/package/l;)
       name          : '<init>'
       type          : '()V'
       access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
       code          -
       registers     : 1
       ins           : 1
       outs          : 1
       insns size    : 4 16-bit code units
001340:                           |[001340] com.package.l.<init>:()V
001350: 7010 5400 0000            |0000: invoke-direct {v0}, Ljava/lang/Object;.<init>:()V
                                          // method@0054
001356: 0e00                      |0003: return-void
       catches       : (none)
       positions     :
         0x0000 line=127
         0x0003 line=2
       locals        :
         0x0000 - 0x0004 reg=0 this Lcom/package/l;

     #1              : (in Lcom/package/l;)
       name          : 'ALLATORIxDEMO'
       type          : '(Ljava/lang/String;)Ljava/lang/String;'
       access        : 0x1009 (PUBLIC STATIC SYNTHETIC)
       code          -
       registers     : 9
       ins           : 1
       outs          : 2
       insns size    : 99 16-bit code units
001358:                           |[001358] com.package.l.ALLATORIxDEMO:(Ljava/lang/String;)
                                              Ljava/lang/String;
001368: 2200 3000                 |0000: new-instance v0, Ljava/lang/StringBuffer; // type@0030
00136c: 2201 2b00                 |0002: new-instance v1, Ljava/lang/Exception; // type@002b
001370: 7010 4f00 0100            |0004: invoke-direct {v1}, Ljava/lang/Exception;.<init>:()V
                                          // method@004f
001376: 6e10 5000 0100            |0007: invoke-virtual {v1}, Ljava/lang/Exception;.getStackTrace:
                                          ()[Ljava/lang/StackTraceElement; // method@0050
00137c: 0c01                      |000a: move-result-object v1
00137e: 1212                      |000b: const/4 v2, #int 1 // #1
001380: 4601 0102                 |000c: aget-object v1, v1, v2
001384: 6e10 5700 0100            |000e: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                          .getMethodName:()Ljava/lang/String; // method@0057
00138a: 0c02                      |0011: move-result-object v2
00138c: 7020 5e00 2000            |0012: invoke-direct {v0, v2}, Ljava/lang/StringBuffer;.<init>:
                                          (Ljava/lang/String;)V // method@005e
001392: 6e10 5600 0100            |0015: invoke-virtual {v1}, Ljava/lang/StackTraceElement;
                                          .getClassName:()Ljava/lang/String; // method@0056
001398: 0c01                      |0018: move-result-object v1
00139a: 6e20 5f00 1000            |0019: invoke-virtual {v0, v1}, Ljava/lang/StringBuffer;.append:
                                          (Ljava/lang/String;)Ljava/lang/StringBuffer; // method@005f
0013a0: 0c00                      |001c: move-result-object v0
0013a2: 6e10 6000 0000            |001d: invoke-virtual {v0}, Ljava/lang/StringBuffer;.toString:
                                          ()Ljava/lang/String; // method@0060
0013a8: 0c04                      |0020: move-result-object v4
0013aa: 6e10 5c00 0400            |0021: invoke-virtual {v4}, Ljava/lang/String;.length:()I
                                          // method@005c
0013b0: 0a00                      |0024: move-result v0
0013b2: d801 00ff                 |0025: add-int/lit8 v1, v0, #int -1 // #ff
0013b6: 6e10 5c00 0800            |0027: invoke-virtual {v8}, Ljava/lang/String;.length:()I
                                          // method@005c
0013bc: 0a00                      |002a: move-result v0
0013be: 2305 4100                 |002b: new-array v5, v0, [C // type@0041
0013c2: d800 00ff                 |002d: add-int/lit8 v0, v0, #int -1 // #ff
0013c6: 0113                      |002f: move v3, v1
0013c8: 0102                      |0030: move v2, v0
```

```
0013ca: 3b00 0800            |0031: if-gez v0, 0039 // +0008
0013ce: 2200 2f00            |0033: new-instance v0, Ljava/lang/String; // type@002f
0013d2: 7020 5900 5000       |0035: invoke-direct {v0, v5}, Ljava/lang/String;.<init>:([C)V
                                        // method@0059
0013d8: 1100                 |0038: return-object v0
0013da: d806 02ff            |0039: add-int/lit8 v6, v2, #int -1 // #ff
0013de: 6e20 5a00 2800       |003b: invoke-virtual {v8, v2}, Ljava/lang/String;.charAt:(I)C
                                        // method@005a
0013e4: 0a00                 |003e: move-result v0
0013e6: 6e20 5a00 3400       |003f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:(I)C
                                        // method@005a
0013ec: 0a07                 |0042: move-result v7
0013ee: b770                 |0043: xor-int/2addr v0, v7
0013f0: df00 007a            |0044: xor-int/lit8 v0, v0, #int 122 // #7a
0013f4: 8e00                 |0046: int-to-char v0, v0
0013f6: 5000 0502            |0047: aput-char v0, v5, v2
0013fa: 3a06 eaff            |0049: if-ltz v6, 0033 // -0016
0013fe: 6e20 5a00 6800       |004b: invoke-virtual {v8, v6}, Ljava/lang/String;.charAt:(I)C
                                        // method@005a
001404: 0a00                 |004e: move-result v0
001406: 6e20 5a00 3400       |004f: invoke-virtual {v4, v3}, Ljava/lang/String;.charAt:(I)C
                                        // method@005a
00140c: 0a02                 |0052: move-result v2
00140e: b720                 |0053: xor-int/2addr v0, v2
001410: df00 004f            |0054: xor-int/lit8 v0, v0, #int 79 // #4f
001414: 8e07                 |0056: int-to-char v7, v0
001416: d802 06ff            |0057: add-int/lit8 v2, v6, #int -1 // #ff
00141a: d800 03ff            |0059: add-int/lit8 v0, v3, #int -1 // #ff
00141e: 5007 0506            |005b: aput-char v7, v5, v6
001422: 3b00 0300            |005d: if-gez v0, 0060 // +0003
001426: 0110                 |005f: move v0, v1
001428: 0103                 |0060: move v3, v0
00142a: 0120                 |0061: move v0, v2
00142c: 28cf                 |0062: goto 0031 // -0031
      catches       : (none)
      positions     :
      locals        :
        0x0000 - 0x0063 reg=8 arg0 Ljava/lang/String;

  Virtual methods   -
  source_file_idx   : 140 (i)

Class #12 header:
class_idx           : 28
access_flags        : 17 (0x0011)
superclass_idx      : 3
interfaces_off      : 0 (0x000000)
source_file_idx     : 157
annotations_off     : 0 (0x000000)
class_data_off      : 10558 (0x00293e)
static_fields_size  : 1
instance_fields_size: 0
direct_methods_size : 4
virtual_methods_size: 2

Class #12             -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMathsActivity;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'ALLATORIxDEMO'
      type          : 'Ljava/util/ArrayList;'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
```

```
      name          : '<clinit>'
      type          : '()V'
      access        : 0x11009 (PUBLIC STATIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 2
      ins           : 0
      outs          : 2
      insns size    : 22 16-bit code units
001430:                           |[001430] com.uaf.matt.testone.DisplayMathsActivity.<clinit>:()V
001440: 2200 3900                 |0000: new-instance v0, Ljava/util/ArrayList; // type@0039
001444: 7010 6f00 0000            |0002: invoke-direct {v0}, Ljava/util/ArrayList;.<init>:()V
                                           // method@006f
00144a: 6900 2000                 |0005: sput-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                           .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
00144e: 6200 2000                 |0007: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                           .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
001452: 6201 2300                 |0009: sget-object v1, Ljava/math/BigInteger;.ZERO:
                                           Ljava/math/BigInteger; // field@0023
001456: 6e20 7100 1000            |000b: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                           (Ljava/lang/Object;)Z // method@0071
00145c: 6200 2000                 |000e: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                           .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
001460: 6201 2200                 |0010: sget-object v1, Ljava/math/BigInteger;.ONE:
                                           Ljava/math/BigInteger; // field@0022
001464: 6e20 7100 1000            |0012: invoke-virtual {v0, v1}, Ljava/util/ArrayList;.add:
                                           (Ljava/lang/Object;)Z // method@0071
00146a: 0e00                      |0015: return-void
      catches       : (none)
      positions     :
        0x0000 line=70
        0x0007 line=140
        0x000e line=28
        0x0015 line=104
      locals        :

    #1              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
00146c:                           |[00146c] com.uaf.matt.testone.DisplayMathsActivity.<init>:()V
00147c: 7010 0000 0000            |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                           // method@0000
001482: 0e00                      |0003: return-void
      catches       : (none)
      positions     :
        0x0000 line=141
      locals        :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayMathsActivity;

    #2              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'ALLATORIxDEMO'
      type          : '(I)Ljava/math/BigInteger;'
      access        : 0x1009 (PUBLIC STATIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 1
      outs          : 3
      insns size    : 38 16-bit code units
001484:                           |[001484] com.uaf.matt.testone.DisplayMathsActivity.ALLATORIxDEMO:
                                           (I)Ljava/math/BigInteger;
001494: 6200 2000                 |0000: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                           .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
001498: 6e10 7300 0000            |0002: invoke-virtual {v0}, Ljava/util/ArrayList;.size:()I
```

```
                                            // method@0073
00149e: 0a00                    |0005: move-result v0
0014a0: 3403 1700               |0006: if-lt v3, v0, 001d // +0017
0014a4: 6200 2000               |0008: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                        .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
0014a8: d801 03ff               |000a: add-int/lit8 v1, v3, #int -1 // #ff
0014ac: 7110 2b00 0100          |000c: invoke-static {v1}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.ALLATORIxDEMO:
                                        (I)Ljava/math/BigInteger; // method@002b
0014b2: 0c01                    |000f: move-result-object v1
0014b4: d802 03fe               |0010: add-int/lit8 v2, v3, #int -2 // #fe
0014b8: 7110 2b00 0200          |0012: invoke-static {v2}, Lcom/uaf/matt/testone/
                                        DisplayMathsActivity;.ALLATORIxDEMO:
                                        (I)Ljava/math/BigInteger; // method@002b
0014be: 0c02                    |0015: move-result-object v2
0014c0: 6e20 6600 2100          |0016: invoke-virtual {v1, v2}, Ljava/math/BigInteger;.add:
                                        (Ljava/math/BigInteger;)Ljava/math/BigInteger;
                                        // method@0066
0014c6: 0c01                    |0019: move-result-object v1
0014c8: 6e30 7000 3001          |001a: invoke-virtual {v0, v3, v1}, Ljava/util/ArrayList;.add:
                                        (ILjava/lang/Object;)V // method@0070
0014ce: 6200 2000               |001d: sget-object v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                        .ALLATORIxDEMO:Ljava/util/ArrayList; // field@0020
0014d2: 6e20 7200 3000          |001f: invoke-virtual {v0, v3}, Ljava/util/ArrayList;.get:
                                        (I)Ljava/lang/Object; // method@0072
0014d8: 0c00                    |0022: move-result-object v0
0014da: 1f00 3300               |0023: check-cast v0, Ljava/math/BigInteger; // type@0033
0014de: 1100                    |0025: return-object v0
      catches        : (none)
      positions      :
        0x0000 line=122
        0x0008 line=14
        0x001d line=87
      locals         :
        0x0000 - 0x0026 reg=3 arg0 I

    #3              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'ALLATORIxDEMO'
      type          : '()V'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
      registers     : 1
      ins           : 0
      outs          : 1
      insns size    : 6 16-bit code units
0014e0:                         |[0014e0] com.uaf.matt.testone.DisplayMathsActivity.ALLATORIxDEMO:()V
0014f0: 1a00 a400               |0000: const-string v0, "skJV,ugIgXd" // string@00a4
0014f4: 7110 2800 0000          |0002: invoke-static {v0}, Lcom/package/l;.ALLATORIxDEMO:
                                        (Ljava/lang/String;)Ljava/lang/String; // method@0028
0014fa: 0e00                    |0005: return-void
      catches        : (none)
      positions      :
        0x0000 line=92
        0x0005 line=42
      locals         :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 7
      ins           : 2
      outs          : 3
      insns size    : 59 16-bit code units
0014fc:                         |[0014fc] com.uaf.matt.testone.DisplayMathsActivity.onCreate:
                                        (Landroid/os/Bundle;)V
```

```
00150c: 1204                      |0000: const/4 v4, #int 0 // #0
00150e: 1500 037f                 |0001: const/high16 v0, #int 2130903040 // #7f03
001512: 6f20 0100 6500            |0003: invoke-super {v5, v6}, Landroid/app/Activity;.onCreate:
                                          (Landroid/os/Bundle;)V // method@0001
001518: 6e20 3000 0500            |0006: invoke-virtual {v5, v0}, Lcom/uaf/matt/testone/
                                          DisplayMathsActivity;.setContentView:(I)V // method@0030
00151e: 6e10 2d00 0500            |0009: invoke-virtual {v5}, Lcom/uaf/matt/testone/
                                          DisplayMathsActivity;.getIntent:()Landroid/content/Intent;
                                          // method@002d
001524: 0c00                      |000c: move-result-object v0
001526: 1a01 6e00                 |000d: const-string v1, "com.uaf.matt.testone.MESSAGE"
                                          // string@006e
00152a: 6e30 0500 1004            |000f: invoke-virtual {v0, v1, v4}, Landroid/content/Intent;
                                          .getIntExtra:(Ljava/lang/String;I)I // method@0005
001530: 0a00                      |0012: move-result v0
001532: 2201 0f00                 |0013: new-instance v1, Landroid/widget/TextView; // type@000f
001536: 7020 0f00 5100            |0015: invoke-direct {v1, v5}, Landroid/widget/TextView;.<init>:
                                          (Landroid/content/Context;)V // method@000f
00153c: 1502 2042                 |0018: const/high16 v2, #int 1109393408 // #4220
001540: 6e20 1100 2100            |001a: invoke-virtual {v1, v2}, Landroid/widget/TextView;
                                          .setTextSize:(F)V // method@0011
001546: 2202 3100                 |001d: new-instance v2, Ljava/lang/StringBuilder; // type@0031
00154a: 7010 6100 0200            |001f: invoke-direct {v2}, Ljava/lang/StringBuilder;.<init>:
                                          ()V // method@0061
001550: 1a03 0000                 |0022: const-string v3, "" // string@0000
001554: 6e30 6400 4203            |0024: invoke-virtual {v2, v4, v3}, Ljava/lang/StringBuilder;
                                          .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@0064
00155a: 0c02                      |0027: move-result-object v2
00155c: 7110 2b00 0000            |0028: invoke-static {v0}, Lcom/uaf/matt/testone/
                                          DisplayMathsActivity;.ALLATORIxDEMO:
                                          (I)Ljava/math/BigInteger; // method@002b
001562: 0c00                      |002b: move-result-object v0
001564: 6e20 6200 0200            |002c: invoke-virtual {v2, v0}, Ljava/lang/StringBuilder;.append:
                                          (Ljava/lang/Object;)Ljava/lang/StringBuilder;
                                          // method@0062
00156a: 0c00                      |002f: move-result-object v0
00156c: 6e10 6500 0000            |0030: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                          ()Ljava/lang/String; // method@0065
001572: 0c00                      |0033: move-result-object v0
001574: 6e20 1000 0100            |0034: invoke-virtual {v1, v0}, Landroid/widget/TextView;
                                          .setText:(Ljava/lang/CharSequence;)V // method@0010
00157a: 6e20 3100 1500            |0037: invoke-virtual {v5, v1}, Lcom/uaf/matt/testone/
                                          DisplayMathsActivity;.setContentView:
                                          (Landroid/view/View;)V // method@0031
001580: 0e00                      |003a: return-void
      catches        : (none)
      positions      :
        0x0001 line=174
        0x0006 line=198
        0x0009 line=193
        0x000d line=126
        0x0013 line=136
        0x0018 line=221
        0x001d line=165
        0x0037 line=131
        0x003a line=108
      locals         :
        0x0000 - 0x003b reg=5 this Lcom/uaf/matt/testone/DisplayMathsActivity;
        0x0000 - 0x003b reg=6 arg0 Landroid/os/Bundle;

    #1              : (in Lcom/uaf/matt/testone/DisplayMathsActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
```

```
        outs            : 2
        insns size      : 16 16-bit code units
001584:                            |[001584] com.uaf.matt.testone.DisplayMathsActivity.
                                        onOptionsItemSelected:(Landroid/view/MenuItem;)Z
001594: 7210 0d00 0300             |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                        ()I // method@000d
00159a: 0a00                       |0003: move-result v0
00159c: 1401 0400 087f             |0004: const v1, #float 180775088556386973321599455987132006400.00
                                        // #7f080004
0015a2: 3310 0400                  |0007: if-ne v0, v1, 000b // +0004
0015a6: 1210                       |0009: const/4 v0, #int 1 // #1
0015a8: 0f00                       |000a: return v0
0015aa: 6f20 0300 3200             |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                        .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                        // method@0003
0015b0: 0a00                       |000e: move-result v0
0015b2: 28fb                       |000f: goto 000a // -0005
        catches         : (none)
        positions       :
          0x0000 line=69
          0x0004 line=37
          0x0009 line=51
          0x000a line=224
        locals          :
          0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayMathsActivity;
          0x0000 - 0x0010 reg=3 arg0 Landroid/view/MenuItem;

    source_file_idx   : 157 (r)

Class #13 header:
class_idx           : 29
access_flags        : 17 (0x0011)
superclass_idx      : 3
interfaces_off      : 0 (0x000000)
source_file_idx     : 153
annotations_off     : 0 (0x000000)
class_data_off      : 10597 (0x002965)
static_fields_size  : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2

Class #13           -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayMessageActivity;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0015b4:                            |[0015b4] com.uaf.matt.testone.DisplayMessageActivity.<init>:()V
0015c4: 7010 0000 0000             |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                        // method@0000
0015ca: 0e00                       |0003: return-void
        catches         : (none)
        positions       :
          0x0000 line=127
        locals          :
          0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayMessageActivity;
```

```
        #1              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
          name          : 'ALLATORIxDEMO'
          type          : '()V'
          access        : 0x100a (PRIVATE STATIC SYNTHETIC)
          code          -
          registers     : 1
          ins           : 0
          outs          : 1
          insns size    : 6 16-bit code units
0015cc:                             |[0015cc] com.uaf.matt.testone.DisplayMessageActivity
                                       .ALLATORIxDEMO:()V
0015dc: 1a00 0300           |0000: const-string v0, "        00$,w?<3<"?" // string@0003
0015e0: 7110 2000 0000      |0002: invoke-static {v0}, Lcom/package/e;.d:
                                       (Ljava/lang/String;)Ljava/lang/String; // method@0020
0015e6: 0e00               |0005: return-void
          catches       : (none)
          positions     :
            0x0000 line=211
            0x0005 line=182
          locals        :

  Virtual methods   -
      #0              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
          name          : 'onCreate'
          type          : '(Landroid/os/Bundle;)V'
          access        : 0x1001 (PUBLIC SYNTHETIC)
          code          -
          registers     : 8
          ins           : 2
          outs          : 3
          insns size    : 88 16-bit code units
0015e8:                             |[0015e8] com.uaf.matt.testone.DisplayMessageActivity.onCreate:
                                       (Landroid/os/Bundle;)V
0015f8: 1400 0100 037f      |0000: const v0, #float 1741288877302335830020691488439764254720.00
                                       // #7f030001
0015fe: 6f20 0100 7600      |0003: invoke-super {v6, v7}, Landroid/app/Activity;.onCreate:
                                       (Landroid/os/Bundle;)V // method@0001
001604: 6e20 3700 0600      |0006: invoke-virtual {v6, v0}, Lcom/uaf/matt/testone/
                                       DisplayMessageActivity;.setContentView:(I)V // method@0037
00160a: 6e10 3400 0600      |0009: invoke-virtual {v6}, Lcom/uaf/matt/testone/
                                       DisplayMessageActivity;.getIntent:
                                       ()Landroid/content/Intent; // method@0034
001610: 0c00               |000c: move-result-object v0
001612: 1a01 6e00          |000d: const-string v1, "com.uaf.matt.testone.MESSAGE"
                                       // string@006e
001616: 6e20 0600 1000      |000f: invoke-virtual {v0, v1}, Landroid/content/Intent;
                                       .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                       // method@0006
00161c: 0c00               |0012: move-result-object v0
00161e: 1a01 0400          |0013: const-string v1, "?'656Y33!30(e?6/;6:><" // string@0004
001622: 7110 2000 0100      |0015: invoke-static {v1}, Lcom/package/e;.d:
                                       (Ljava/lang/String;)Ljava/lang/String; // method@0020
001628: 0c01               |0018: move-result-object v1
00162a: 2202 0f00          |0019: new-instance v2, Landroid/widget/TextView; // type@000f
00162e: 7020 0f00 6200      |001b: invoke-direct {v2, v6}, Landroid/widget/TextView;.<init>:
                                       (Landroid/content/Context;)V // method@000f
001634: 1503 a041          |001e: const/high16 v3, #int 1101004800 // #41a0
001638: 6e20 1100 3200      |0020: invoke-virtual {v2, v3}, Landroid/widget/TextView;
                                       .setTextSize:(F)V // method@0011
00163e: 7110 1c00 0000      |0023: invoke-static {v0}, Lcom/package/e;.ALLATORIxDEMO:
                                       (Ljava/lang/String;)Ljava/lang/String; // method@001c
001644: 0c03               |0026: move-result-object v3
001646: 7120 1d00 3100      |0027: invoke-static {v1, v3}, Lcom/package/e;.ALLATORIxDEMO:
                                       (Ljava/lang/String;Ljava/lang/String;)Ljava/lang/String;
                                       // method@001d
00164c: 0c01               |002a: move-result-object v1
00164e: 2203 3100          |002b: new-instance v3, Ljava/lang/StringBuilder; // type@0031
```

```
001652: 7010 6100 0300            |002d: invoke-direct {v3}, Ljava/lang/StringBuilder;.<init>:()V
                                          // method@0061
001658: 1204                      |0030: const/4 v4, #int 0 // #0
00165a: 1a05 0200                 |0031: const-string v5, "       #!533%r$5"??3b$;?::'(!.;vx"
                                          // string@0002
00165e: 7110 2000 0500            |0033: invoke-static {v5}, Lcom/package/e;.d:
                                          (Ljava/lang/String;)Ljava/lang/String; // method@0020
001664: 0c05                      |0036: move-result-object v5
001666: 6e30 6400 4305            |0037: invoke-virtual {v3, v4, v5}, Ljava/lang/StringBuilder;
                                          .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@0064
00166c: 0c03                      |003a: move-result-object v3
00166e: 6e20 6300 0300            |003b: invoke-virtual {v3, v0}, Ljava/lang/StringBuilder;.append:
                                          (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@0063
001674: 0c00                      |003e: move-result-object v0
001676: 1a03 5600                 |003f: const-string v3, "N75!5'7f1"A?$b$;?::'(!.;vx"
                                          // string@0056
00167a: 7110 2000 0300            |0041: invoke-static {v3}, Lcom/package/e;.d:
                                          (Ljava/lang/String;)Ljava/lang/String; // method@0020
001680: 0c03                      |0044: move-result-object v3
001682: 6e20 6300 3000            |0045: invoke-virtual {v0, v3}, Ljava/lang/StringBuilder;.append:
                                          (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@0063
001688: 0c00                      |0048: move-result-object v0
00168a: 6e20 6300 1000            |0049: invoke-virtual {v0, v1}, Ljava/lang/StringBuilder;.append:
                                          (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                          // method@0063
001690: 0c00                      |004c: move-result-object v0
001692: 6e10 6500 0000            |004d: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                          ()Ljava/lang/String; // method@0065
001698: 0c00                      |0050: move-result-object v0
00169a: 6e20 1000 0200            |0051: invoke-virtual {v2, v0}, Landroid/widget/TextView;.setText:
                                          (Ljava/lang/CharSequence;)V // method@0010
0016a0: 6e20 3800 2600            |0054: invoke-virtual {v6, v2}, Lcom/uaf/matt/testone/
                                          DisplayMessageActivity;.setContentView:
                                          (Landroid/view/View;)V // method@0038
0016a6: 0e00                      |0057: return-void
      catches        : (none)
      positions      :
        0x0000 line=70
        0x0006 line=44
        0x0009 line=28
        0x000d line=104
        0x0013 line=190
        0x0019 line=14
        0x001e line=22
        0x0023 line=87
        0x0027 line=35
        0x002b line=128
        0x0054 line=106
        0x0057 line=135
      locals         :
        0x0000 - 0x0058 reg=6 this Lcom/uaf/matt/testone/DisplayMessageActivity;
        0x0000 - 0x0058 reg=7 arg0 Landroid/os/Bundle;

    #1              : (in Lcom/uaf/matt/testone/DisplayMessageActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
0016a8:                           |[0016a8] com.uaf.matt.testone.DisplayMessageActivity
                                          .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
0016b8: 7210 0d00 0300            |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:()I // method@000d
```

```
0016be: 0a00                      |0003: move-result v0
0016c0: 1401 0400 087f            |0004: const v1, #float 180775088556386973321599455987132006400.00
                                  // #7f080004
0016c6: 3310 0400                 |0007: if-ne v0, v1, 000b // +0004
0016ca: 1210                      |0009: const/4 v0, #int 1 // #1
0016cc: 0f00                      |000a: return v0
0016ce: 6f20 0300 3200            |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                         .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                  // method@0003
0016d4: 0a00                      |000e: move-result v0
0016d6: 28fb                      |000f: goto 000a // -0005
      catches        : (none)
      positions      :
        0x0000 line=205
        0x0004 line=184
        0x0009 line=174
        0x000a line=193
      locals         :
        0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayMessageActivity;
        0x0000 - 0x0010 reg=3 arg0 Landroid/view/MenuItem;

   source_file_idx   : 153 (p)

Class #14 header:
class_idx          : 30
access_flags       : 17 (0x0011)
superclass_idx     : 3
interfaces_off     : 0 (0x000000)
source_file_idx    : 108
annotations_off    : 0 (0x000000)
class_data_off     : 10622 (0x00297e)
static_fields_size : 0
instance_fields_size: 0
direct_methods_size : 2
virtual_methods_size: 2

Class #14              -
  Class descriptor  : 'Lcom/uaf/matt/testone/DisplayWebPageActivity;'
  Access flags      : 0x0011 (PUBLIC FINAL)
  Superclass        : 'Landroid/app/Activity;'
  Interfaces        -
  Static fields     -
  Instance fields   -
  Direct methods    -
    #0              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : '<init>'
      type          : '()V'
      access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
      code          -
      registers     : 1
      ins           : 1
      outs          : 1
      insns size    : 4 16-bit code units
0016d8:                           |[0016d8] com.uaf.matt.testone.DisplayWebPageActivity.<init>:()V
0016e8: 7010 0000 0000            |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                  // method@0000
0016ee: 0e00                      |0003: return-void
      catches        : (none)
      positions      :
        0x0000 line=128
      locals         :
        0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/DisplayWebPageActivity;

    #1              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : 'ALLATORIxDEMO'
      type          : '()V'
      access        : 0x100a (PRIVATE STATIC SYNTHETIC)
      code          -
```

```
        registers      : 1
        ins            : 0
        outs           : 1
        insns size     : 6 16-bit code units
0016f0:                        |[0016f0] com.uaf.matt.testone.DisplayWebPageActivity.ALLATORIxDEMO:()V
001700: 1a00 0300              |0000: const-string v0, "    00$,w?<3<"?" // string@0003
001704: 7110 2000 0000         |0002: invoke-static {v0}, Lcom/package/e;.d:(Ljava/lang/String;)
                                        Ljava/lang/String; // method@0020
00170a: 0e00                   |0005: return-void
        catches        : (none)
        positions      :
          0x0000 line=33
          0x0005 line=205
        locals         :

  Virtual methods   -
    #0              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : 'onCreate'
      type          : '(Landroid/os/Bundle;)V'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 10
      ins           : 2
      outs          : 3
      insns size    : 82 16-bit code units
00170c:                        |[00170c] com.uaf.matt.testone.DisplayWebPageActivity.onCreate:
                                        (Landroid/os/Bundle;)V
00171c: 1400 0200 037f         |0000: const v0, #float 174128908012643186653739572791227711488.00
                                        // #7f030002
001722: 6f20 0100 9800         |0003: invoke-super {v8, v9}, Landroid/app/Activity;.onCreate:
                                        (Landroid/os/Bundle;)V // method@0001
001728: 6e20 3e00 0800         |0006: invoke-virtual {v8, v0}, Lcom/uaf/matt/testone/
                                        DisplayWebPageActivity;.setContentView:(I)V // method@003e
00172e: 6e10 3b00 0800         |0009: invoke-virtual {v8}, Lcom/uaf/matt/testone/
                                        DisplayWebPageActivity;.getIntent:
                                        ()Landroid/content/Intent; // method@003b
001734: 0c00                   |000c: move-result-object v0
001736: 2201 0f00              |000d: new-instance v1, Landroid/widget/TextView; // type@000f
00173a: 7020 0f00 8100         |000f: invoke-direct {v1, v8}, Landroid/widget/TextView;.<init>:
                                        (Landroid/content/Context;)V // method@000f
001740: 1a02 6e00              |0012: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                        // string@006e
001744: 1503 2041              |0014: const/high16 v3, #int 1092616192 // #4120
001748: 6e20 1100 3100         |0016: invoke-virtual {v1, v3}, Landroid/widget/TextView;
                                        .setTextSize:(F)V // method@0011
00174e: 6e20 0600 2000         |0019: invoke-virtual {v0, v2}, Landroid/content/Intent;
                                        .getStringExtra:(Ljava/lang/String;)Ljava/lang/String;
                                        // method@0006
001754: 0c00                   |001c: move-result-object v0
001756: 1a02 8b00              |001d: const-string v2, "h" // string@008b
00175a: 7110 2000 0200         |001f: invoke-static {v2}, Lcom/package/e;.d:
                                        (Ljava/lang/String;)Ljava/lang/String; // method@0020
001760: 0c02                   |0022: move-result-object v2
001762: 2203 1300              |0023: new-instance v3, Lcom/package/M; // type@0013
001766: 7010 1500 0300         |0025: invoke-direct {v3}, Lcom/package/M;.<init>:()V
                                        // method@0015
00176c: 1224                   |0028: const/4 v4, #int 2 // #2
00176e: 2344 4400              |0029: new-array v4, v4, [Ljava/lang/String; // type@0044
001772: 2205 3100              |002b: new-instance v5, Ljava/lang/StringBuilder; // type@0031
001776: 7010 6100 0500         |002d: invoke-direct {v5}, Ljava/lang/StringBuilder;.<init>:()V
                                        // method@0061
00177c: 1206                   |0030: const/4 v6, #int 0 // #0
00177e: 1a07 0600              |0031: const-string v7, "0?? ˜xl??#n5)?#??x!.8s;&6.+)j=e"
                                        // string@0006
001782: 7110 2000 0700         |0033: invoke-static {v7}, Lcom/package/e;.d:(Ljava/lang/String;)
                                        Ljava/lang/String; // method@0020
001788: 0c07                   |0036: move-result-object v7
00178a: 6e30 6400 6507         |0037: invoke-virtual {v5, v6, v7}, Ljava/lang/StringBuilder;
```

```
                                    .insert:(ILjava/lang/String;)Ljava/lang/StringBuilder;
                                    // method@0064
001790: 0c05                       |003a: move-result-object v5
001792: 6e20 6300 0500             |003b: invoke-virtual {v5, v0}, Ljava/lang/StringBuilder;.append:
                                    (Ljava/lang/String;)Ljava/lang/StringBuilder;
                                    // method@0063
001798: 0c00                       |003e: move-result-object v0
00179a: 6e10 6500 0000             |003f: invoke-virtual {v0}, Ljava/lang/StringBuilder;.toString:
                                    ()Ljava/lang/String; // method@0065
0017a0: 0c00                       |0042: move-result-object v0
0017a2: 4d00 0406                  |0043: aput-object v0, v4, v6
0017a6: 1210                       |0045: const/4 v0, #int 1 // #1
0017a8: 4d02 0400                  |0046: aput-object v2, v4, v0
0017ac: 6e20 1800 4300            |0048: invoke-virtual {v3, v4}, Lcom/package/M;.execute:
                                    ([Ljava/lang/Object;)Landroid/os/AsyncTask; // method@0018
0017b2: 6e20 1000 2100            |004b: invoke-virtual {v1, v2}, Landroid/widget/TextView;.setText:
                                    (Ljava/lang/CharSequence;)V // method@0010
0017b8: 6e20 3f00 1800            |004e: invoke-virtual {v8, v1}, Lcom/uaf/matt/testone/
                                    DisplayWebPageActivity;.setContentView:
                                    (Landroid/view/View;)V // method@003f
0017be: 0e00                       |0051: return-void
      catches        : (none)
      positions      :
        0x0000 line=174
        0x0006 line=198
        0x0009 line=227
        0x000d line=193
        0x0014 line=126
        0x0019 line=4
        0x001d line=136
        0x0023 line=221
        0x004b line=165
        0x004e line=2
        0x0051 line=131
      locals         :
        0x0000 - 0x0052 reg=8 this Lcom/uaf/matt/testone/DisplayWebPageActivity;
        0x0000 - 0x0052 reg=9 arg0 Landroid/os/Bundle;

    #1              : (in Lcom/uaf/matt/testone/DisplayWebPageActivity;)
      name          : 'onOptionsItemSelected'
      type          : '(Landroid/view/MenuItem;)Z'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 4
      ins           : 2
      outs          : 2
      insns size    : 16 16-bit code units
0017c0:                            |[0017c0] com.uaf.matt.testone.DisplayWebPageActivity.
                                            onOptionsItemSelected:(Landroid/view/MenuItem;)Z
0017d0: 7210 0d00 0300            |0000: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                                            ()I // method@000d
0017d6: 0a00                       |0003: move-result v0
0017d8: 1401 0400 087f            |0004: const v1, #float 180775088556386973321599455987132006400.00
                                    // #7f080004
0017de: 3310 0400                 |0007: if-ne v0, v1, 000b // +0004
0017e2: 1210                       |0009: const/4 v0, #int 1 // #1
0017e4: 0f00                       |000a: return v0
0017e6: 6f20 0300 3200            |000b: invoke-super {v2, v3}, Landroid/app/Activity;
                                            .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                                    // method@0003
0017ec: 0a00                       |000e: move-result v0
0017ee: 28fb                       |000f: goto 000a // -0005
      catches        : (none)
      positions      :
        0x0000 line=213
        0x0004 line=78
        0x0009 line=37
        0x000b line=31
```

```
          locals          :
            0x0000 - 0x0010 reg=2 this Lcom/uaf/matt/testone/DisplayWebPageActivity;
            0x0000 - 0x0010 reg=3 arg0 Landroid/view/MenuItem;

      source_file_idx   : 108 (c)

    Class #15 header:
    class_idx          : 31
    access_flags       : 17 (0x0011)
    superclass_idx     : 3
    interfaces_off     : 0 (0x000000)
    source_file_idx    : 144
    annotations_off    : 0 (0x000000)
    class_data_off     : 10647 (0x002997)
    static_fields_size : 1
    instance_fields_size: 0
    direct_methods_size : 1
    virtual_methods_size: 6

    Class #15              -
      Class descriptor  : 'Lcom/uaf/matt/testone/TestOneActivity;'
      Access flags      : 0x0011 (PUBLIC FINAL)
      Superclass        : 'Landroid/app/Activity;'
      Interfaces        -
      Static fields     -
        #0              : (in Lcom/uaf/matt/testone/TestOneActivity;)
          name          : 'ALLATORIxDEMO'
          type          : 'Ljava/lang/String;'
          access        : 0x1019 (PUBLIC STATIC FINAL SYNTHETIC)
      Instance fields   -
      Direct methods    -
        #0              : (in Lcom/uaf/matt/testone/TestOneActivity;)
          name          : '<init>'
          type          : '()V'
          access        : 0x11001 (PUBLIC SYNTHETIC CONSTRUCTOR)
          code          -
          registers     : 1
          ins           : 1
          outs          : 1
          insns size    : 4 16-bit code units
0017f0:                              |[0017f0] com.uaf.matt.testone.TestOneActivity.<init>:()V
001800: 7010 0000 0000               |0000: invoke-direct {v0}, Landroid/app/Activity;.<init>:()V
                                      // method@0000
001806: 0e00                         |0003: return-void
          catches       : (none)
          positions     :
            0x0000 line=9
          locals        :
            0x0000 - 0x0004 reg=0 this Lcom/uaf/matt/testone/TestOneActivity;

      Virtual methods   -
        #0              : (in Lcom/uaf/matt/testone/TestOneActivity;)
          name          : 'doMaths'
          type          : '(Landroid/view/View;)V'
          access        : 0x1001 (PUBLIC SYNTHETIC)
          code          -
          registers     : 5
          ins           : 2
          outs          : 3
          insns size    : 37 16-bit code units
001808:                              |[001808] com.uaf.matt.testone.TestOneActivity.doMaths:
                                            (Landroid/view/View;)V
001818: 2201 0500                    |0000: new-instance v1, Landroid/content/Intent; // type@0005
00181c: 1c00 1c00                    |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMathsActivity;
                                      // type@001c
001820: 7030 0400 3100               |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;
                                            .<init>:(Landroid/content/Context;Ljava/lang/Class;)V
                                      // method@0004
```

```
001826: 1400 0100 087f          |0007: const v0, #float 180775027709158162366588184145378148352.00
                                        // #7f080001
00182c: 6e20 4300 0300          |000a: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.findViewById:(I)Landroid/view/View;
                                        // method@0043
001832: 0c00                    |000d: move-result-object v0
001834: 1f00 0e00               |000e: check-cast v0, Landroid/widget/EditText; // type@000e
001838: 6e10 0e00 0000          |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                        ()Landroid/text/Editable; // method@000e
00183e: 0c00                    |0013: move-result-object v0
001840: 6e10 5500 0000          |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                        ()Ljava/lang/String; // method@0055
001846: 0c00                    |0017: move-result-object v0
001848: 7110 5200 0000          |0018: invoke-static {v0}, Ljava/lang/Integer;.parseInt:
                                        (Ljava/lang/String;)I // method@0052
00184e: 0a00                    |001b: move-result v0
001850: 1a02 6e00               |001c: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                        // string@006e
001854: 6e30 0700 2100          |001e: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                        .putExtra:(Ljava/lang/String;I)Landroid/content/Intent;
                                        // method@0007
00185a: 6e20 4a00 1300          |0021: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.startActivity:
                                        (Landroid/content/Intent;)V // method@004a
001860: 0e00                    |0024: return-void
        catches        : (none)
        positions      :
          0x0000 line=203
          0x0007 line=173
          0x0010 line=144
          0x001c line=213
          0x0021 line=69
          0x0024 line=222
        locals         :
          0x0000 - 0x0025 reg=3 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x0025 reg=4 arg0 Landroid/view/View;

    #1              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'encryptMessage'
      type          : '(Landroid/view/View;)V'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 5
      ins           : 2
      outs          : 3
      insns size    : 32 16-bit code units
001864:                         |[001864] com.uaf.matt.testone.TestOneActivity.encryptMessage:
                                        (Landroid/view/View;)V
001874: 2201 0500               |0000: new-instance v1, Landroid/content/Intent; // type@0005
001878: 1c00 1d00               |0002: const-class v0, Lcom/uaf/matt/testone/DisplayMessageActivity;
                                        // type@001d
00187c: 7030 0400 3100          |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                        (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
001882: 1500 087f               |0007: const/high16 v0, #int 2131230720 // #7f08
001886: 6e20 4300 0300          |0009: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                        TestOneActivity;.findViewById:(I)Landroid/view/View;
                                        // method@0043
00188c: 0c00                    |000c: move-result-object v0
00188e: 1f00 0e00               |000d: check-cast v0, Landroid/widget/EditText; // type@000e
001892: 6e10 0e00 0000          |000f: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                        ()Landroid/text/Editable; // method@000e
001898: 0c00                    |0012: move-result-object v0
00189a: 6e10 5500 0000          |0013: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                        ()Ljava/lang/String; // method@0055
0018a0: 0c00                    |0016: move-result-object v0
0018a2: 1a02 6e00               |0017: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                        // string@006e
0018a6: 6e30 0800 2100          |0019: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
```

```
                                      .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                      Landroid/content/Intent; // method@0008
0018ac: 6e20 4a00 1300         |001c: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                      TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                      // method@004a
0018b2: 0e00                   |001f: return-void
        catches       : (none)
        positions     :
          0x0000 line=4
          0x0007 line=136
          0x000f line=221
          0x0017 line=165
          0x001c line=2
          0x001f line=131
        locals        :
          0x0000 - 0x0020 reg=3 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x0020 reg=4 arg0 Landroid/view/View;

    #2              : (in Lcom/uaf/matt/testone/TestOneActivity;)
      name          : 'getWebPage'
      type          : '(Landroid/view/View;)V'
      access        : 0x1001 (PUBLIC SYNTHETIC)
      code          -
      registers     : 5
      ins           : 2
      outs          : 3
      insns size    : 33 16-bit code units
0018b4:                        |[0018b4] com.uaf.matt.testone.TestOneActivity.getWebPage:
                                      (Landroid/view/View;)V
0018c4: 2201 0500              |0000: new-instance v1, Landroid/content/Intent; // type@0005
0018c8: 1c00 1e00              |0002: const-class v0, Lcom/uaf/matt/testone/DisplayWebPageActivity;
                                      // type@001e
0018cc: 7030 0400 3100         |0004: invoke-direct {v1, v3, v0}, Landroid/content/Intent;.<init>:
                                      (Landroid/content/Context;Ljava/lang/Class;)V // method@0004
0018d2: 1400 0200 087f         |0007: const v0, #float 180775047991567766018258608092629434368.00
                                      // #7f080002
0018d8: 6e20 4300 0300         |000a: invoke-virtual {v3, v0}, Lcom/uaf/matt/testone/
                                      TestOneActivity;.findViewById:(I)Landroid/view/View;
                                      // method@0043
0018de: 0c00                   |000d: move-result-object v0
0018e0: 1f00 0e00              |000e: check-cast v0, Landroid/widget/EditText; // type@000e
0018e4: 6e10 0e00 0000         |0010: invoke-virtual {v0}, Landroid/widget/EditText;.getText:
                                      ()Landroid/text/Editable; // method@000e
0018ea: 0c00                   |0013: move-result-object v0
0018ec: 6e10 5500 0000         |0014: invoke-virtual {v0}, Ljava/lang/Object;.toString:
                                      ()Ljava/lang/String; // method@0055
0018f2: 0c00                   |0017: move-result-object v0
0018f4: 1a02 6e00              |0018: const-string v2, "com.uaf.matt.testone.MESSAGE"
                                      // string@006e
0018f8: 6e30 0800 2100         |001a: invoke-virtual {v1, v2, v0}, Landroid/content/Intent;
                                      .putExtra:(Ljava/lang/String;Ljava/lang/String;)
                                      Landroid/content/Intent; // method@0008
0018fe: 6e20 4a00 1300         |001d: invoke-virtual {v3, v1}, Lcom/uaf/matt/testone/
                                      TestOneActivity;.startActivity:(Landroid/content/Intent;)V
                                      // method@004a
001904: 0e00                   |0020: return-void
        catches       : (none)
        positions     :
          0x0000 line=206
          0x0007 line=31
          0x0010 line=224
          0x0018 line=146
          0x001d line=137
          0x0020 line=58
        locals        :
          0x0000 - 0x0021 reg=3 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x0021 reg=4 arg0 Landroid/view/View;
```

```
     #3              : (in Lcom/uaf/matt/testone/TestOneActivity;)
       name          : 'onCreate'
       type          : '(Landroid/os/Bundle;)V'
       access        : 0x1001 (PUBLIC SYNTHETIC)
       code          -
       registers     : 3
       ins           : 2
       outs          : 2
       insns size    : 10 16-bit code units
001908:                         |[001908] com.uaf.matt.testone.TestOneActivity.onCreate:
                                            (Landroid/os/Bundle;)V
001918: 1400 0300 037f          |0000: const v0, #float 174128928295052790305409996738478997504.00
                                            // #7f030003
00191e: 6f20 0100 2100          |0003: invoke-super {v1, v2}, Landroid/app/Activity;.onCreate:
                                            (Landroid/os/Bundle;)V // method@0001
001924: 6e20 4900 0100          |0006: invoke-virtual {v1, v0}, Lcom/uaf/matt/testone/
                                            TestOneActivity;.setContentView:(I)V // method@0049
00192a: 0e00                     |0009: return-void
       catches       : (none)
       positions     :
         0x0000 line=92
         0x0006 line=42
         0x0009 line=188
       locals        :
         0x0000 - 0x000a reg=1 this Lcom/uaf/matt/testone/TestOneActivity;
         0x0000 - 0x000a reg=2 arg0 Landroid/os/Bundle;

     #4              : (in Lcom/uaf/matt/testone/TestOneActivity;)
       name          : 'onCreateOptionsMenu'
       type          : '(Landroid/view/Menu;)Z'
       access        : 0x1001 (PUBLIC SYNTHETIC)
       code          -
       registers     : 4
       ins           : 2
       outs          : 3
       insns size    : 14 16-bit code units
00192c:                         |[00192c] com.uaf.matt.testone.TestOneActivity.onCreateOptionsMenu:
                                            (Landroid/view/Menu;)Z
00193c: 6e10 4400 0200          |0000: invoke-virtual {v2}, Lcom/uaf/matt/testone/TestOneActivity;
                                            .getMenuInflater:()Landroid/view/MenuInflater; // method@0044
001942: 0c00                     |0003: move-result-object v0
001944: 1501 077f                |0004: const/high16 v1, #int 2131165184 // #7f07
001948: 6e30 0c00 1003          |0006: invoke-virtual {v0, v1, v3}, Landroid/view/MenuInflater;
                                            .inflate:(ILandroid/view/Menu;)V // method@000c
00194e: 6f20 0200 3200          |0009: invoke-super {v2, v3}, Landroid/app/Activity;
                                            .onCreateOptionsMenu:(Landroid/view/Menu;)Z // method@0002
001954: 0a00                     |000c: move-result v0
001956: 0f00                     |000d: return v0
       catches       : (none)
       positions     :
         0x0000 line=190
         0x0004 line=122
         0x0009 line=14
       locals        :
         0x0000 - 0x000e reg=2 this Lcom/uaf/matt/testone/TestOneActivity;
         0x0000 - 0x000e reg=3 arg0 Landroid/view/Menu;

     #5              : (in Lcom/uaf/matt/testone/TestOneActivity;)
       name          : 'onOptionsItemSelected'
       type          : '(Landroid/view/MenuItem;)Z'
       access        : 0x1001 (PUBLIC SYNTHETIC)
       code          -
       registers     : 4
       ins           : 2
       outs          : 2
       insns size    : 22 16-bit code units
001958:                         |[001958] com.uaf.matt.testone.TestOneActivity.onOptionsItemSelected:
                                            (Landroid/view/MenuItem;)Z
```

```
001968: 1210                   |0000: const/4 v0, #int 1 // #1
00196a: 7210 0d00 0300         |0001: invoke-interface {v3}, Landroid/view/MenuItem;.getItemId:
                               |      ()I // method@000d
001970: 0a01                   |0004: move-result v1
001972: 2b01 0900 0000         |0005: packed-switch v1, 0000000e // +00000009
001978: 6f20 0300 3200         |0008: invoke-super {v2, v3}, Landroid/app/Activity;
                               |      .onOptionsItemSelected:(Landroid/view/MenuItem;)Z
                               |      // method@0003
00197e: 0a00                   |000b: move-result v0
001980: 0f00                   |000c: return v0
001982: 0000                   |000d: nop // spacer
001984: 0001 0200 0300 087f 0700 0000 0700 ... |000e: packed-switch-data (8 units)
        catches        : (none)
        positions      :
          0x0001 line=85
          0x0008 line=184
          0x000d line=85
        locals         :
          0x0000 - 0x0016 reg=2 this Lcom/uaf/matt/testone/TestOneActivity;
          0x0000 - 0x0016 reg=3 arg0 Landroid/view/MenuItem;

  source_file_idx    : 144 (l)
```

D aof.py

```python
#!/usr/bin/python

#Matt Van Veldhuizen
#2/20/15
#aof.py
#Android Obfuscated Fingerprinting
#Opens Android apks exctracts the classes.dex bytecode
#determines of the bytecode has been obfuscated with
#any of the following Android Obfuscators
#        1. Proguard
#        2. jarg
#        3. Zelix KlassMaster
#        4. Allatori
#returns the best guess as to which most likely obfuscated the apk


import sys
import zipfile
import re

#print usage to screen
def printUsage():
    print "Usage: aof [OPTION]... FILENAME"
    print
    print "Mandatory arguments for the OPTION field"
    print "  -a, --allatori            checks for Allatori obfuscation"
    print "  -A, --all                 checks against all obfuscators"
    print "  -h, --help                prints this help file"
    print "  -j, --jarg                checks for jarg (Java Archive Grinder) obfuscation"
    print "  -k, --klassmaster         checks for Zelix KlassMaster obfuscation"
    print "  -p, --proguard            checks for Proguard obfuscation"
    print "  -V, --verbose             prints what obfuscation was discovered"
    sys.exit()


#test apk magic number
def testAPK(apk):
    if not zipfile.is_zipfile(apk):
        print "Not a Valid APK"
        sys.exit()
    else:
        return True


#test dex magic number
def testDEX(dex):
    magic = dex[:8]
    if not magic.encode('hex') == "6465780a30333500":
        print "Not a Valid classes.dex"
        sys.exit()

#convert the binary to integers in the hex format
def rawToInt(raw):
    return int(raw.encode('hex'), 16)


#function to check for source file idx obfuscation
#retruns true if all source file idx entries are set to -1
#returns false if if source file idx entries are set to > 0
def checkSourceFileIDX(dex):
    #class definition size
    size = rawToInt(dex[99]+dex[98]+dex[97]+dex[96])
    #class definition offset
    source = rawToInt(dex[103]+dex[102]+dex[101]+dex[100]) + 16
    #for every entry in the class dinitions find the source file
    #idx entry
    for s in range(size):
        #grab every 8 hex characers
```

```python
        if dex[source:source+4].encode('hex') != "ffffffff":
            return False
        #skip to the next class definition
        source += 32
    return True

#checks to see if the BuildConfig Class is present
#returns true if no BuildConfig class was found
#returns false if BuildConfig class was found
def checkBuildConfig(dex):
    #string offset
    soff = rawToInt(dex[63]+dex[62]+dex[61]+dex[60])
    #string size
    size = rawToInt(dex[59]+dex[58]+dex[57]+dex[56])
    #for every entry in the strings sections
    for s in range(size):
        #the begining of the string
        part1 = rawToInt(dex[soff+1]+dex[soff])
        #the begining of the next string
        part2 = rawToInt(dex[soff+5]+dex[soff+4])
        #grab what was between the two parts and see if BuildConfig
        #is present -1 = no match any other number means match
        if dex[part1:part2].find("BuildConfig") != -1:
            return False
        #skip to the next string location
        soff += 4
    return True

#checks for annotation obfuscation
#returns true if annotations for all classes are 0
#reutnrs false if annotations for all classes are anything but 0
def checkAnnotations(dex):
    #class definition size
    size = rawToInt(dex[99]+dex[98]+dex[97]+dex[96])
    #class definition offset
    source = rawToInt(dex[103]+dex[102]+dex[101]+dex[100]) + 20
    #for every entry in the annotation section
    for s in range(size):
        #grab every 8 hex characers
        if dex[source:source+4].encode('hex') != "00000000":
            return False
        #skip to the next class definition
        source += 32
    return True

#checks for debug information
#returns true if no debug information was found
#returns false if debug information was found
def checkDebug(dex):
    #map offset
    moff = rawToInt(dex[55]+dex[54]+dex[53]+dex[52])
    #loop until end of file
    while True:
        #look for the data section offset
        if dex[moff:moff+2].encode('hex') == "0120":
            data = rawToInt(dex[moff+11]+dex[moff+10]+dex[moff+9]+dex[moff+8])
            break
        #if empty is returned reached eof
        if dex[moff:moff+2].encode('hex') == "":
            break
        #increment to next section
        moff += 4
    #debug offset
    debug = rawToInt(dex[data+11]+dex[data+10]+dex[data+9]+dex[data+8])
    #if debug offset is set to zero debug information has been removed
    if debug == 0:
        return True
    else:
```

```python
            return False

    def checkClass(dex, obfuscator):
        #string offset
        soff = rawToInt(dex[63]+dex[62]+dex[61]+dex[60])
        #string size
        size = rawToInt(dex[59]+dex[58]+dex[57]+dex[56])
        #for every entry in the strings sections
        for s in range(size):
            #the begining of the string
            part1 = rawToInt(dex[soff+1]+dex[soff])
            #the begining of the next string
            part2 = rawToInt(dex[soff+5]+dex[soff+4])
            if obfuscator == "allatori":
                if ((re.search('L.*/[A-Z|a-z];', dex[part1:part2]) is not None) and
                    (dex[part1:part2].find("Ljava/net/URL;") == -1) and
                    (dex[part1:part2].find("Lcom/uaf/matt/testone/R;") == -1)):
                    return True
            if obfuscator == "klassmaster":
                if (re.search('L[a-z];', dex[part1:part2]) is not None):
                    return True
            soff += 4
        return False

    def checkVariable(dex, obfuscator):
        #string offset
        soff = rawToInt(dex[63]+dex[62]+dex[61]+dex[60])
        #string size
        size = rawToInt(dex[59]+dex[58]+dex[57]+dex[56])
        count = 0
        #for every entry in the strings sections
        for s in range(size):
            #the begining of the string
            part1 = rawToInt(dex[soff+1]+dex[soff])
            #the begining of the next string
            part2 = rawToInt(dex[soff+5]+dex[soff+4])
            if obfuscator == "allatori":
                if re.search('^01[4-5][0-9a-fA-F].*00$', dex[part1:part2].encode('hex')) is not None:
                    count += 1
            if (obfuscator == "klassmaster"):
                if re.search('^01[6-7][0-9a-fA-F].*00$', dex[part1:part2].encode('hex')) is not None:
                    return True
            if (obfuscator == "proguard") or (obfuscator == "jarg"):
                if re.search('^01[6-7][0-9a-fA-F].*00$', dex[part1:part2].encode('hex')) is not None:
                    count += 1
            soff += 4

        if count > 5:
            return True
        else:
            return False

    def checkPosLoc(dex, obfuscator):
        count = 0
        #class definition size
        size = rawToInt(dex[99]+dex[98]+dex[97]+dex[96])
        #class definition offset
        source = rawToInt(dex[103]+dex[102]+dex[101]+dex[100]) + 24
        #counting the number of methods
        for s in range(size):
            #grab every 8 hex characers
            tmp = rawToInt(dex[source+3]+dex[source+2]+dex[source+1]+dex[source])
            count += rawToInt(dex[tmp+2]) + rawToInt(dex[tmp+3])
            #skip to the next class definition
            source += 32

        #data offset
        doff = rawToInt(dex[111]+dex[110]+dex[109]+dex[108])
```

```
        while True:
            #debug_info_off if 0 then it has been removed
            if(rawToInt(dex[doff+11]+dex[doff+10]+dex[doff+9]+dex[doff+8]) != 0):
                return False
            #tires_size
            tsize = rawToInt(dex[doff+7]+dex[doff+6])
            #insns_size
            insize = rawToInt(dex[doff+15]+dex[doff+14]+dex[doff+13]+dex[doff+12])
            #if insize is odd compesate for padding
            if insize % 2 == 1:
                insize += 1
            #if exceptions compensate for end of code block
            if tsize > 0:
                if(obfuscator != "klassmaster"):
                    insize += 2 + tsize * 4
                else:
                    insize += (tsize+1) * 4
                    count = 5
            doff = (doff + 16) + (insize*2)
            count -= 1
            if count <= 0:
                break
        return True

def checkStrEnc(dex):
    #string offset
    soff = rawToInt(dex[63]+dex[62]+dex[61]+dex[60])
    #string size
    size = rawToInt(dex[59]+dex[58]+dex[57]+dex[56])
    #for every entry in the strings sections
    count = 0
    for s in range(size):
        #the beginging of the string
        part1 = rawToInt(dex[soff+1]+dex[soff])
        #the beginging of the next string
        part2 = rawToInt(dex[soff+5]+dex[soff+4])
        #regex to find non printable characters in the strings
        tmp = re.findall('[^\s!-~]', dex[part1:part2])
        if (len(dex[part1:part2]) != 0) and len(tmp) > 2:
            if float(len(tmp))/len(dex[part1:part2]) > .20:
                count += 1
        soff += 4
    if count > 0:
        return True
    else:
        return False

#proguard obfuscation test fuction
def testPRO(dex, v):
    print "    Checking for Proguard Obfuscation"

    #src is true if source_file_idx is -1
    if checkSourceFileIDX(dex):
        src = 1
        vstr = "        Source File Obfuscation Found\n"
    else:
        src = 0
        vstr = "        No Source File Obfuscation Found\n"

    #bld is true if the BuildConfig class was not found
    if checkBuildConfig(dex):
        bld = 1
        vstr += "        BuildConfig Class Not Found\n"
    else:
        bld = 0
        vstr += "        BuildConfig Class Found\n"

    #ann is true if annotations have been removed
```

```python
    if checkAnnotations(dex):
        ann = 1
        vstr += "          Annotation Obfuscation Found\n"
    else:
        ann = 0
        vstr += "          No Annotation Obfuscation\n"

    #dbg is true if positions have been removed
    if checkDebug(dex):
        dbg = 1
        vstr += "          Debug Obfuscation Found\n"
    else:
        dbg = 0
        vstr += "          No Debug Obfuscation\n"

    #cls  is true if class obfuscation was found
    if checkClass(dex, "proguard"):
        cls = 0
        vstr += "          Class Renaming Found\n"
    else:
        cls = 1
        vstr += "          No Class Renaming Found\n"

    #var is true if variables have been renamed to a lower case letter
    if checkVariable(dex, "proguard"):
        var = 0
        vstr += "          Variable Renaming Found\n"
    else:
        var = 1
        vstr += "          No Variable Renaming Found\n"

    #pl is true if variables have been renamed to a lower case letter
    if checkPosLoc(dex, "proguard"):
        pl = 1
        vstr += "          Positions and Locals Removed\n"
    else:
        pl = 0
        vstr += "          Positions and Locals Found\n"

    #ste is true if string encrpytion was found
    if checkStrEnc(dex):
        ste = 0
        vstr += "          String Encryption Found\n"
    else:
        ste = 1
        vstr += "          No String Encryption Found\n"

    #if verbose printing is enabled
    if v:
        print vstr

    return (((src + bld + ann + dbg + var + pl + cls + ste) / 8.0) * 100) - .01

#Allatori obfuscation test fuction
def testALLA(dex, v):
    print "    Checking for Allatori Obfuscation"

    #src is true if source_file_idx is -1
    if checkSourceFileIDX(dex):
        src = 0
        vstr = "          Source File Obfuscation Found\n"
    else:
        src = 1
        vstr = "          No Source File Obfuscation Found\n"

    #bld is true if the BuildConfig class was not found
    if checkBuildConfig(dex):
        bld = 1
```

```python
            vstr += "          BuildConfig Class Not Found\n"
        else:
            bld = 0
            vstr += "          BuildConfig Class Found\n"

        #ann is true if annotations have been removed
        if checkAnnotations(dex):
            ann = 0
            vstr += "          No Annotation Obfuscation\n"
        else:
            ann = 1
            vstr += "          Annotation Obfuscation Found\n"

        #dbg is true if positions have been removed
        if checkDebug(dex):
            dbg = 0
            vstr += "          No Debug Obfuscation\n"
        else:
            dbg = 1
            vstr += "          Debug Obfuscation Found\n"

        #cls  is true if class obfuscation was found
        if checkClass(dex, "allatori"):
            cls = 1
            vstr += "          Class Renaming Found\n"
        else:
            cls = 0
            vstr += "          No Class Renaming Found\n"

        #var is true if variables have been renamed to a lower case letter
        if checkVariable(dex, "allatori"):
            var = 1
            vstr += "          Variable Renaming Found\n"
        else:
            var = 0
            vstr += "          No Variable Renaming Found\n"

        #pl is true if variables have been renamed to a lower case letter
        if checkPosLoc(dex, "allatori"):
            pl = 0
            vstr += "          Positions and Locals Removed\n"
        else:
            pl = 1
            vstr += "          Positions and Locals Found\n"

        #ste is true if string encrpytion was found
        if checkStrEnc(dex):
            ste = 1
            vstr += "          String Encryption Found\n"
        else:
            ste = 0
            vstr += "          No String Encryption Found\n"

        #if verbose printing is enabled
        if v:
            print vstr

        return (((src + bld + ann + dbg + var + pl + cls + ste) / 8.0) * 100) - .01

#KlassMaster obfuscation test fuction
def testKLASS(dex, v):
    print "   Checking for Zelix KlassMaster Obfuscation"

    #src is true if source_file_idx is -1
    if checkSourceFileIDX(dex):
        src = 1
        vstr = "          Source File Obfuscation Found\n"
    else:
```

```python
        src = 0
        vstr = "           No Source File Obfuscation Found\n"

    #bld is true if the BuildConfig class was not found
    if checkBuildConfig(dex):
        bld = 1
        vstr += "           BuildConfig Class Not Found\n"
    else:
        bld = 0
        vstr += "           BuildConfig Class Found\n"

    #ann is true if positions have been removed
    if checkAnnotations(dex):
        ann = 1
        vstr += "           Annotation Obfuscation Found\n"
    else:
        ann = 0
        vstr += "           No Annotation Obfuscation\n"

    #dbg is true if positions have been removed
    if checkDebug(dex):
        dbg = 1
        vstr += "           Debug Obfuscation Found\n"
    else:
        dbg = 0
        vstr += "           No Debug Obfuscation\n"

    #cls is true if all classes have been renamed
    if checkClass(dex, "klassmaster"):
        cls = 1
        vstr += "           Class Renaming Found\n"
    else:
        cls = 0
        vstr += "           No Class Renaming Found\n"

    #var is true if variables have been renamed to a lower case letter
    if checkVariable(dex, "klassmaster"):
        var = 1
        vstr += "           Variable Renaming Found\n"
    else:
        var = 0
        vstr += "           No Variable Renaming Found\n"

    #pl is true if postitions and locals have been removed
    if checkPosLoc(dex, "klassmaster"):
        pl = 1
        vstr += "           Positions and Locals Removed\n"
    else:
        pl = 0
        vstr += "           Positions and Locals Found\n"

    #ste is true if string encrpytion was found
    if checkStrEnc(dex):
        ste = 1
        vstr += "           String Encryption Found\n"
    else:
        ste = 0
        vstr += "           No String Encryption Found\n"

    #if verbose printing is enabled
    if v:
        print vstr

    return (((src + bld + ann + dbg + var + pl + cls + ste) / 8.0) * 100) - .01

#jarg obfuscation test fuction
def testJARG(dex, v):
    print "    Checking for jarg Obfuscation"
```

```
#src is true if source_file_idx is -1
if checkSourceFileIDX(dex):
    src = 1
    vstr = "         Source File Obfuscation Found\n"
else:
    src = 0
    vstr = "         No Source File Obfuscation Found\n"

#bld is true if the BuildConfig class was found
if checkBuildConfig(dex):
    bld = 0
    vstr += "         BuildConfig Class Not Found\n"
else:
    bld = 1
    vstr += "         BuildConfig Class Found\n"

#ann is true if annotations have been removed
if checkAnnotations(dex):
    ann = 1
    vstr += "         Annotation Obfuscation Found\n"
else:
    ann = 0
    vstr += "         No Annotation Obfuscation\n"

#dbg is true if positions have been removed
if checkDebug(dex):
    dbg = 1
    vstr += "         Debug Obfuscation Found\n"
else:
    dbg = 0
    vstr += "         No Debug Obfuscation\n"

if checkClass(dex, "jarg"):
    cls = 0
    vstr += "         Class Renaming Found\n"
else:
    cls = 1
    vstr += "         No Class Renaming Found\n"

#var is true if variables have been renamed to a lower case letter
if checkVariable(dex, "jarg"):
    var = 0
    vstr += "         Variable Renaming Found\n"
else:
    var = 1
    vstr += "         No Variable Renaming Found\n"

#pl is true postions and locals have been removed
if checkPosLoc(dex, "jarg"):
    pl = 1
    vstr += "         Positions and Locals Removed\n"
else:
    pl = 0
    vstr += "         Positions and Locals Found\n"

#ste is true if string encrpytion was found
if checkStrEnc(dex):
    ste = 0
    vstr += "         String Encryption Found\n"
else:
    ste = 1
    vstr += "         No String Encryption Found\n"

#if verbose printing is enabled
if v:
    print vstr
```

```python
        return (((src + bld + ann + dbg + var + pl + cls + ste) / 8.0) * 100) - .01

def main():
    allatori = False #    allaori - check for allatori obfuscation
    proguard = False #    proguard - check for proguard obfuscation
    klass = False    #    klass - check for klassmaster obfuscation
    jarg = False     #    jarg - check for jarg obfuscation
    verbose = False  #    verbose - print detailed information about the obfuscation

    #check the amount of command line arguments
    if(len(sys.argv) < 3):
        printUsage()
    #loop over the command line arguments
    for args in sys.argv[1:]:
        #each OPTION must start with a "-"
        if(args[0] == "-"):
            #if the -h or --help flag was given
            if(args == "-h" or args == "--help"):
                printUsage()
            #set allatori state to be true
            elif(args == "-a" or args == "--allatori"):
                allatori = True
            #set jarg state to be true
            elif(args == "-j" or args == "--jarg"):
                jarg = True
            #set klass state to be true
            elif(args == "-k" or args == "--klassmaster"):
                klass = True
            #set proguard state to be true
            elif(args == "-p" or args == "--proguard"):
                proguard = True
            #set verbose printing to be true
            elif(args == "-V" or args == "--verbose"):
                verbose = True
            #set all states to be true
            elif(args == "-A" or args == "--all"):
                allatori = True
                proguard = True
                klass = True
                jarg = True
            else:
                printUsage()
        #check if FILENAME is an apk and checks for classes.dex
        elif(testAPK(args)):
            fname = args
            apk = zipfile.ZipFile(fname,'r')
            dex = apk.read('classes.dex')
            testDEX(dex)
        else:
            printUsage()

    if allatori:
        print "         Matched " + str(testALLA(dex, verbose)) + "% of the possible obfuscations\n"
    if jarg:
        print "         Matched " + str(testJARG(dex, verbose)) + "% of the possible obfuscations\n"
    if klass:
        print "         Matched " + str(testKLASS(dex, verbose)) + "% of the possible obfuscations\n"
    if proguard:
        print "         Matched " + str(testPRO(dex, verbose)) + "% of the possible obfuscations\n"

if __name__ == "__main__":
        main()
```

E   Android Obfuscation Fingerprinter Results

E.1   Simple Android Application

E.1.1   Proguard Obfuscation

```
$ ./aof -A -V proguard.apk
    Checking for Allatori Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Removed
        No String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for jarg Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Removed
        No String Encryption Found

        Matched 87.49% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        No String Encryption Found

        Matched 62.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Removed
        No String Encryption Found

        Matched 99.99% of the possible obfuscations
```

E.1.2   Java Archive Grinder Obfuscation

```
$ ./aof -A -V jarg.apk
    Checking for Allatori Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Found
        No Annotation Obfuscation
        No Debug Obfuscation
        Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Removed
        No String Encryption Found

        Matched 12.49% of the possible obfuscations

    Checking for jarg Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Removed
        No String Encryption Found

        Matched 99.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        No String Encryption Found

        Matched 49.99% of the possible obfuscations

    Checking for Proguard Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Removed
        No String Encryption Found

        Matched 87.49% of the possible obfuscations
```

E.1.3 Zelix KlassMaster Obfuscation

```
$ ./aof -A -V klassmaster.apk
    Checking for Allatori Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for jarg Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 62.49% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        Class Renaming Found
        Variable Renaming Found
        Positions and Locals Removed
        String Encryption Found

        Matched 99.99% of the possible obfuscations

    Checking for Proguard Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 74.99% of the possible obfuscations
```

E.1.4 Allatori Obfuscation

```
$ ./aof -A -V allatori.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 99.99% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 12.49% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations
```

E.2 Google Play Store

E.2.1 Google Chrome [16]

```
$ ./aof -A -V com.android.chrome.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 74.99% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations
```

E.2.2 Digitalchemy Calculator [9]

```
./aof -A -V com.digitalchemy.calculator.freedecimal.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 62.49% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 49.99% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 49.99% of the possible obfuscations
```

E.2.3 Facebook [11]

```
$ ./aof -A -V com.facebook.katana.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 74.99% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations
```

E.2.4 LED Flashlight [17]

```
$ ./aof -A -V com.surpax.ledflashlight.panel.apk
    Checking for Allatori Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 62.49% of the possible obfuscations

    Checking for jarg Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 49.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 62.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 62.49% of the possible obfuscations
```

E.2.5   Amazon Kindle [2]

```
$ ./aof -A -V com.amazon.kindle.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 87.49% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 12.49% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations
```

E.2.6   Google My Business [13]

```
$ ./aof -A -V com.google.android.apps.vega.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 87.49% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations
```

E.2.7   Instagram [18]

```
$ ./aof -A -V com.instagram.android.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 74.99% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations
```

E.2.8 Netflix [22]

```
$ ./aof -A -V com.netflix.mediaclient.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 74.99% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations
```

E.2.9   Pandora Radio[24]

```
$ ./aof -A -V com.pandora.android.apk
    Checking for Allatori Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        Debug Obfuscation Found
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 87.49% of the possible obfuscations

    Checking for jarg Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 24.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations

    Checking for Proguard Obfuscation
        No Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 37.49% of the possible obfuscations
```

E.2.10 Clash of Clans [32]

```
$ ./aof -A -V com.supercell.clashofclans.apk
    Checking for Allatori Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        Annotation Obfuscation Found
        No Debug Obfuscation
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 49.99% of the possible obfuscations

    Checking for jarg Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 49.99% of the possible obfuscations

    Checking for Zelix KlassMaster Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 49.99% of the possible obfuscations

    Checking for Proguard Obfuscation
        Source File Obfuscation Found
        BuildConfig Class Not Found
        No Annotation Obfuscation
        Debug Obfuscation Found
        No Class Renaming Found
        No Variable Renaming Found
        Positions and Locals Found
        String Encryption Found

        Matched 62.49% of the possible obfuscations
```