

Errors and Issues during Migration of Processing-Android.

GSoC 2020

The Processing Foundation



Gradle configuration during GSoC :

```
Terminal: Local - Local(2) +
adityarana@AdityaRana:~/Processing/processing-android/processing-android$ gradle -version

-----
Gradle 5.6.2
-----

Build time: 2019-09-05 16:13:54 UTC
Revision: 55a5e53d85db8fc7b0e494412fc624851a8e781

Kotlin: 1.3.41
Groovy: 2.5.4
Ant: Apache Ant(TM) version 1.9.14 compiled on March 12 2019
JVM: 1.8.0_202 (Oracle Corporation 25.202-b08)
OS: Linux 5.0.0-38-generic amd64

adityarana@AdityaRana:~/Processing/processing-android/processing-android$
```

System Configuration :

Kotlin - 1.3.72

Gradle - 5.6.2

Ant - 1.9.14

JVM - 1.8.0_202(Oracle Java - JRE)

OS - Ubuntu - 19.04 (kernel - Linux 5.0.0-38-generic)

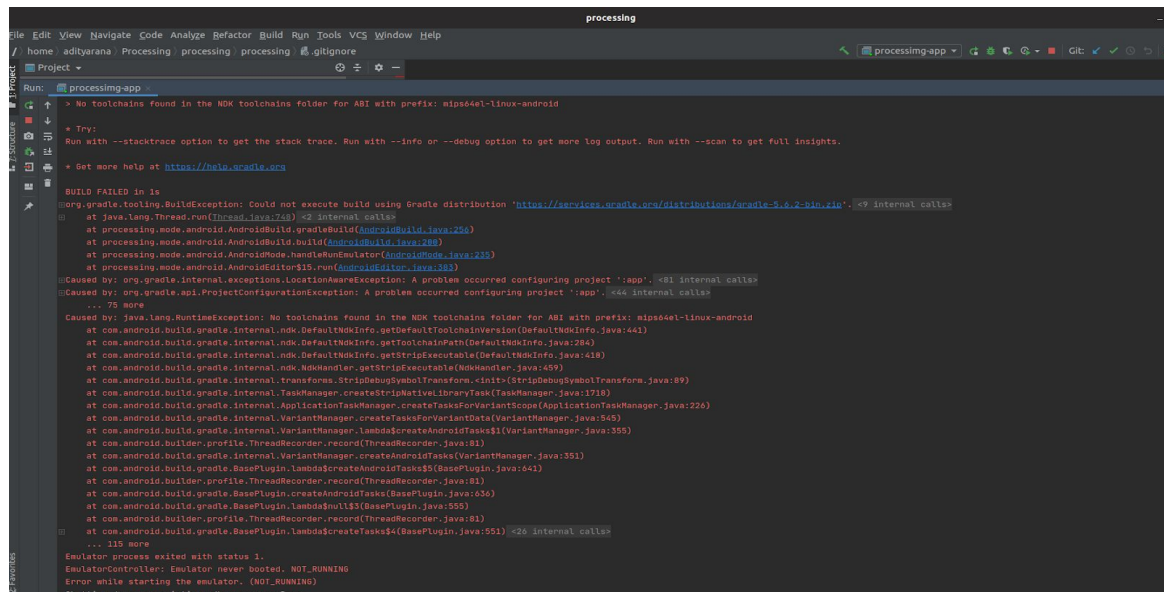
1. Ant build system tool not working properly for Linux

- Faced this issue while setting up the Processing IDE in local system

```
Buildfile: /home/adityarana/gsoc/processing/processing/build/build.xml
run:
ignore-tools:
[echo] ignore the 'Unable to locate tools.jar' message.
[echo] The tools.jar file is not required to build Processing.
check-linux-arm32:
check-linux-arm64:
revision-check:
linux-check-os:
jre-check:
downloader-setup:
compile:
dist:
jre-download:
[downloader] Redirecting to https://edelivery.oracle.com/otn-pub/java/jdk/8u202-b08/1961070e4c9b4e26a04e7f5a083f551e/jre-8u202-linux-x64.tar.gz
[downloader] Redirecting to http://download.oracle.com/otn-pub/java/jdk/8u202-b08/1961070e4c9b4e26a04e7f5a083f551e/jre-8u202-linux-x64.tar.gz?AuthParam=1584908023_159e33901e1ca48dfadf3f49287111e6
[downloader] Redirecting to https://download.oracle.com/otn-pub/java/jdk/8u202-b08/1961070e4c9b4e26a04e7f5a083f551e/jre-8u202-linux-x64.tar.gz?AuthParam=1584908023_159e33901e1ca48dfadf3f49287111e6
[downloader] Header Name:Accept-Ranges
[downloader] Header Value:bytes
[downloader] Header Name:null
[downloader] Header Value:HTTP/1.1 404 Not Found
[downloader] Header Name:Server
[downloader] Header Value:AkamaiNetStorage
[downloader] Header Name:Etag
[downloader] Header Value:"477d986237417c810b0b7d73b4f1e53:1531792454.541174"
[downloader] Header Name:Connection
[downloader] Header Value:Keep-alive
[downloader] Header Name:Last-Modified
[downloader] Header Value:Wed, 31 Aug 2011 20:28:54 GMT
[downloader] Header Name:Content-Length
[downloader] Header Value:7073
[downloader] Header Name>Date
[downloader] Header Value:Sun, 22 Mar 2020 20:11:46 GMT
[downloader] Header Name:Content-Type
[downloader] Header Value:text/html
[downloader]
adityarana@adityarana:~/gsoc/processing/processing/build$
```

- Raised it and solved it - [#6011](#)

2. No toolchains found in the NDK toolchains folder for ABI with prefix: mips64el-linux-android:



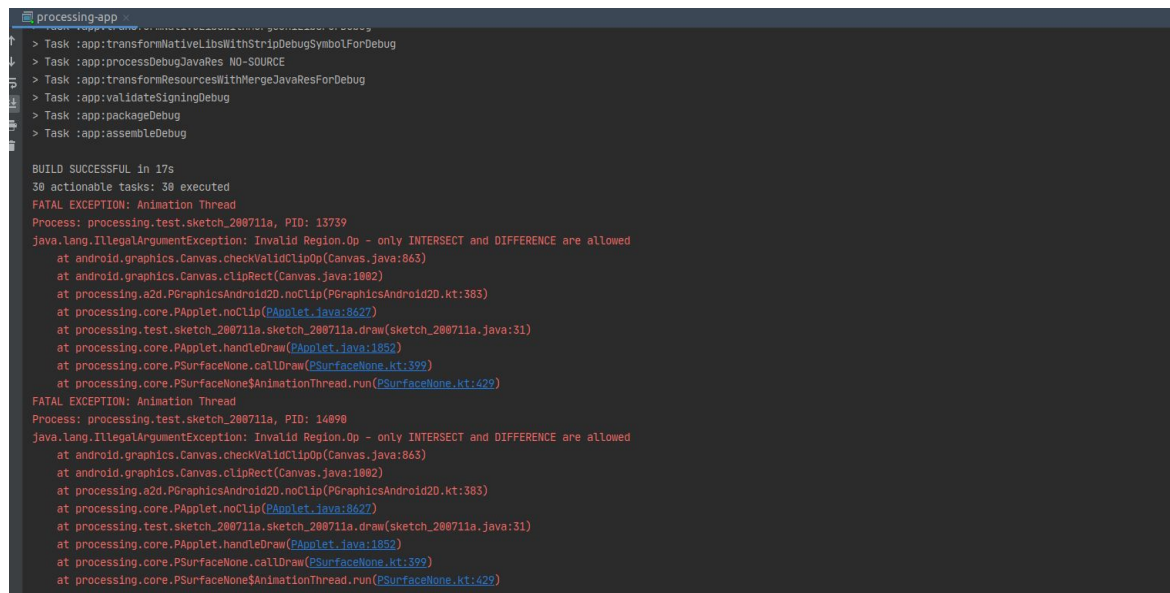
```
processing
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
/home/adityarana/Processing/processing/processing .gitignore
Project
Run: processing-app
No toolchains found in the NDK toolchains folder for ABI with prefix: mips64el-linux-android
+ Try:
Run with --stacktrace option to get the stack trace. Run with --info or --debug option to get more log output. Run with --scan to get full insights.
+ Get more help at https://help.gradle.org
BUILD FAILED in 1s
org.gradle.tooling.BuildException: Could not execute build using Gradle distribution 'https://services.gradle.org/distributions/gradle-5.4.2-bin.zip'.
    at java.lang.Thread.run(Thread.java:749)
    at processing.mode.android.AndroidBuild.gradleBuild(AndroidBuild.java:294)
    at processing.mode.android.AndroidBuild.build(AndroidBuild.java:288)
    at processing.mode.android.AndroidMode.handleRunEmulator(AndroidMode.java:259)
    at processing.mode.android.AndroidEditor$15.run(AndroidEditor.java:283)
Caused by: org.gradle.internal.exceptions.LocationAwareException: A problem occurred configuring project ':app'.
Caused by: org.gradle.api.ProjectConfigurationException: A problem occurred configuring project ':app'.
    ... 75 more
Caused by: java.lang.RuntimeException: No toolchains found in the NDK toolchains folder for ABI with prefix: mips64el-linux-android
    at com.android.build.gradle.internal.ndk.DefaultNdkInfo.getDefaultToolchainVersion(DefaultNdkInfo.java:443)
    at com.android.build.gradle.internal.ndk.DefaultNdkInfo.getToolchainPath(DefaultNdkInfo.java:284)
    at com.android.build.gradle.internal.ndk.DefaultNdkInfo.getStripExecutable(DefaultNdkInfo.java:418)
    at com.android.build.gradle.internal.ndk.NdkHandler.getStripExecutable(NdkHandler.java:459)
    at com.android.build.gradle.internal.transforms.StripDebugSymbolsTransform$Unit$1$StripDebugSymbolsTransform.java:89)
    at com.android.build.gradle.internal.TaskManager.createStripNativeLibraryTask(TaskManager.java:1718)
    at com.android.build.gradle.internal.ApplicationTaskManager.createTasksForVariantScope(ApplicationTaskManager.java:222)
    at com.android.build.gradle.internal.VariantManager.createTasksForVariantData(VariantManager.java:545)
    at com.android.build.gradle.internal.VariantManager.lambda$createAndroidTasks$1(VariantManager.java:355)
    at com.android.builder.profile.ThreadRecorder.record(ThreadRecorder.java:81)
    at com.android.build.gradle.internal.VariantManager.createAndroidTasks(VariantManager.java:351)
    at com.android.build.gradle.BasePlugin.lambda$createAndroidTasks$5(BasePlugin.java:441)
    at com.android.builder.profile.ThreadRecorder.record(ThreadRecorder.java:81)
    at com.android.build.gradle.BasePlugin.lambda$createAndroidTasks$4(BasePlugin.java:551)
    ... 115 more
Emulator process exited with status 1.
EmulatorController: Emulator never booted. NOT_RUNNING
Error while starting the emulator. (NOT_RUNNING)
Shutting down any existing adb server... Done
```

Raised this issue - [#599](#)

StackOverflow post: [solution](#)

3. **java.lang.IllegalArgumentException: Invalid Region.Op - only INTERSECT and DIFFERENCE are allowed**

- Faced this issue while using **clip()** and **noClip()** functions of the processing API.
- Reason is - android deprecated these methods in API 26 - [android docs](#)



```
processing-app
> Task :app:transformNativeLibsWithStripDebugSymbolForDebug
> Task :app:processDebugJavaRes NO-SOURCE
> Task :app:transformResourcesWithMergeJavaResForDebug
> Task :app:validateSigningDebug
> Task :app:packageDebug
> Task :app:assembleDebug

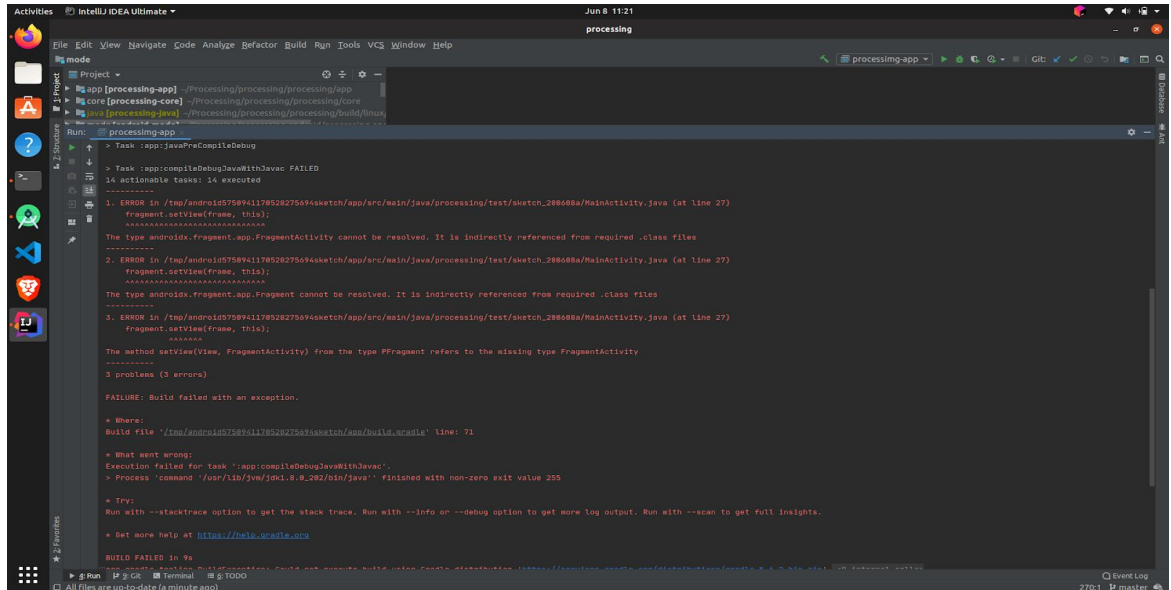
BUILD SUCCESSFUL in 17s
30 actionable tasks: 30 executed
FATAL EXCEPTION: Animation Thread
Process: processing.test.sketch_200711a, PID: 13739
java.lang.IllegalArgumentException: Invalid Region.Op - only INTERSECT and DIFFERENCE are allowed
    at android.graphics.Canvas.checkValidClipOp(Canvas.java:863)
    at android.graphics.Canvas.clipRect(Canvas.java:1002)
    at processing.a2d.PGraphicsAndroid2D.noClip(PGraphicsAndroid2D.kt:383)
    at processing.core.PApplet.noClip(PApplet.java:8627)
    at processing.test.sketch_200711a.sketch_200711a.draw(sketch_200711a.java:31)
    at processing.core.PApplet.handleDraw(PApplet.java:1052)
    at processing.core.PSurfaceNone.callDraw(PSurfaceNone.kt:399)
    at processing.core.PSurfaceNone$AnimationThread.run(PSurfaceNone.kt:429)
FATAL EXCEPTION: Animation Thread
Process: processing.test.sketch_200711a, PID: 14090
java.lang.IllegalArgumentException: Invalid Region.Op - only INTERSECT and DIFFERENCE are allowed
    at android.graphics.Canvas.checkValidClipOp(Canvas.java:863)
    at android.graphics.Canvas.clipRect(Canvas.java:1002)
    at processing.a2d.PGraphicsAndroid2D.noClip(PGraphicsAndroid2D.kt:383)
    at processing.core.PApplet.noClip(PApplet.java:8627)
    at processing.test.sketch_200711a.sketch_200711a.draw(sketch_200711a.java:31)
    at processing.core.PApplet.handleDraw(PApplet.java:1052)
    at processing.core.PSurfaceNone.callDraw(PSurfaceNone.kt:399)
    at processing.core.PSurfaceNone$AnimationThread.run(PSurfaceNone.kt:429)
```

Raised this issue - [#603](#)

Stackoverflow: [solution](#)

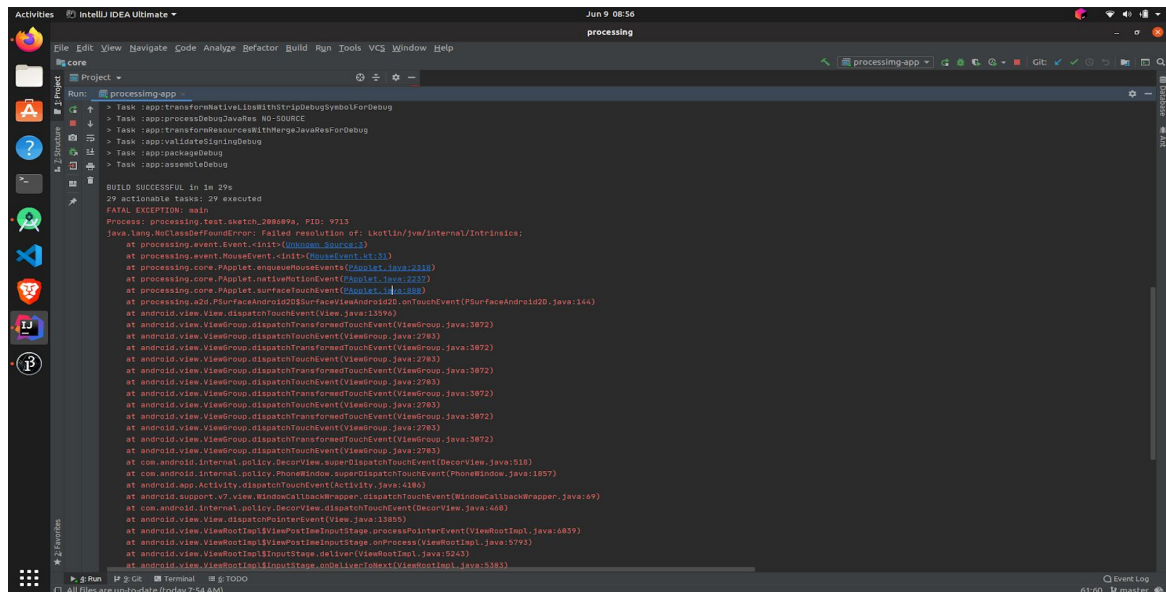
4. XYZ cannot be resolved. It is indirectly referenced from required .class file

- Faced this issue during migration(experimental) of support library from android support libraries to Androidx.
- Reasons may be missing of some used classes from the compile path.
- Same issue has been reported [here](#)



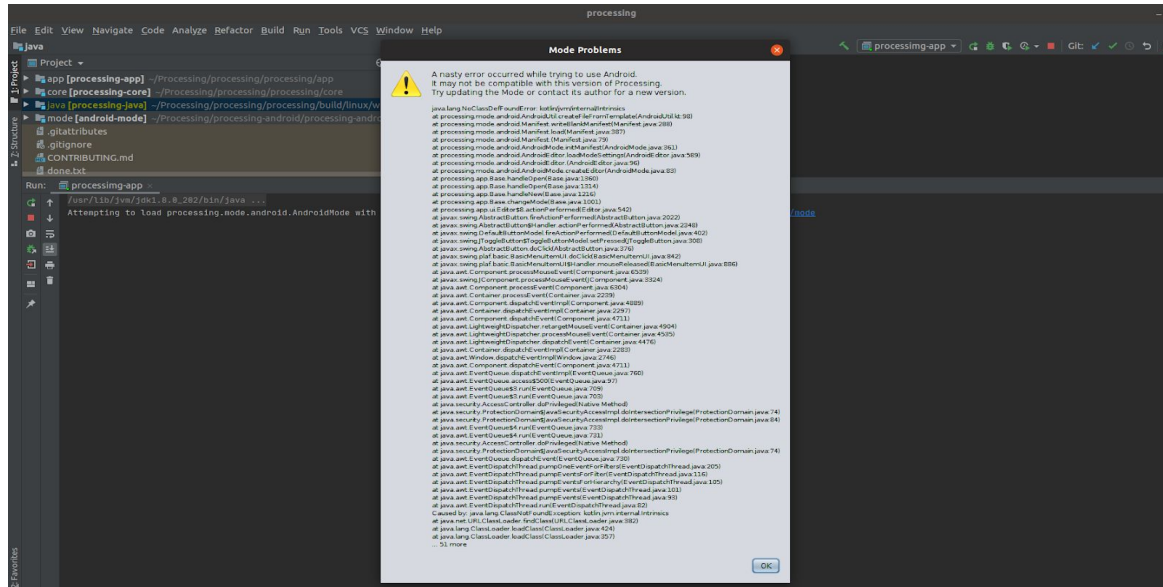
5. java.lang.NoClassDefFoundError: Failed resolution of: LKotlin/jvm/internal/Intrinsics

- Faced this issue just after the migration of few classes in core library
- Reason may be the required kotlin libraries were not present in the **runtimeclasspath**

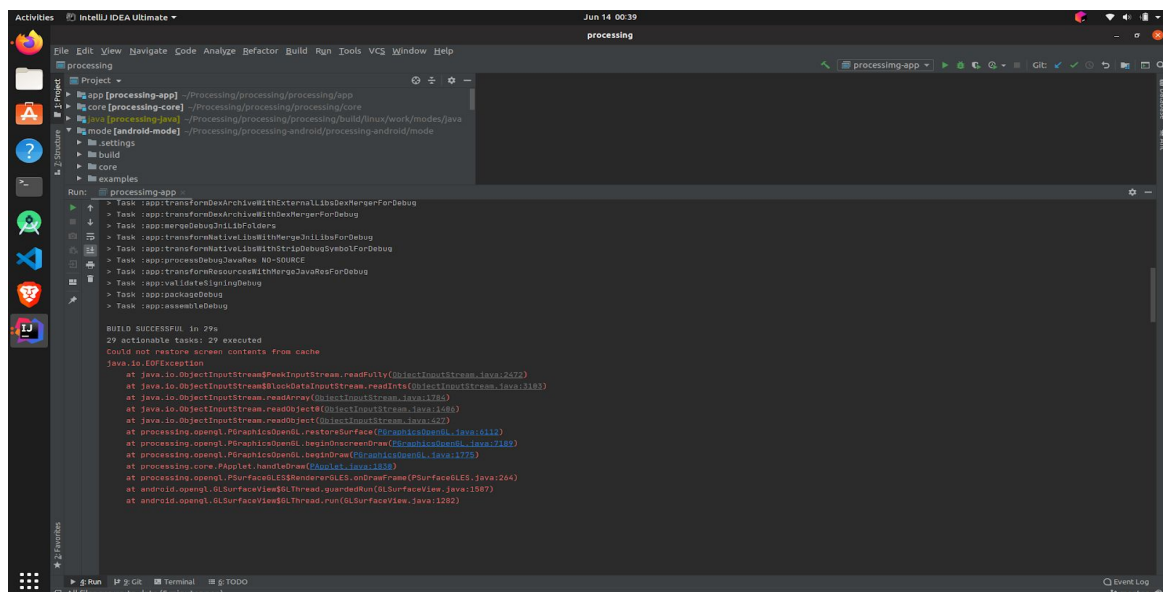


6. Runtime error while importing the processing-android in Processig IDE

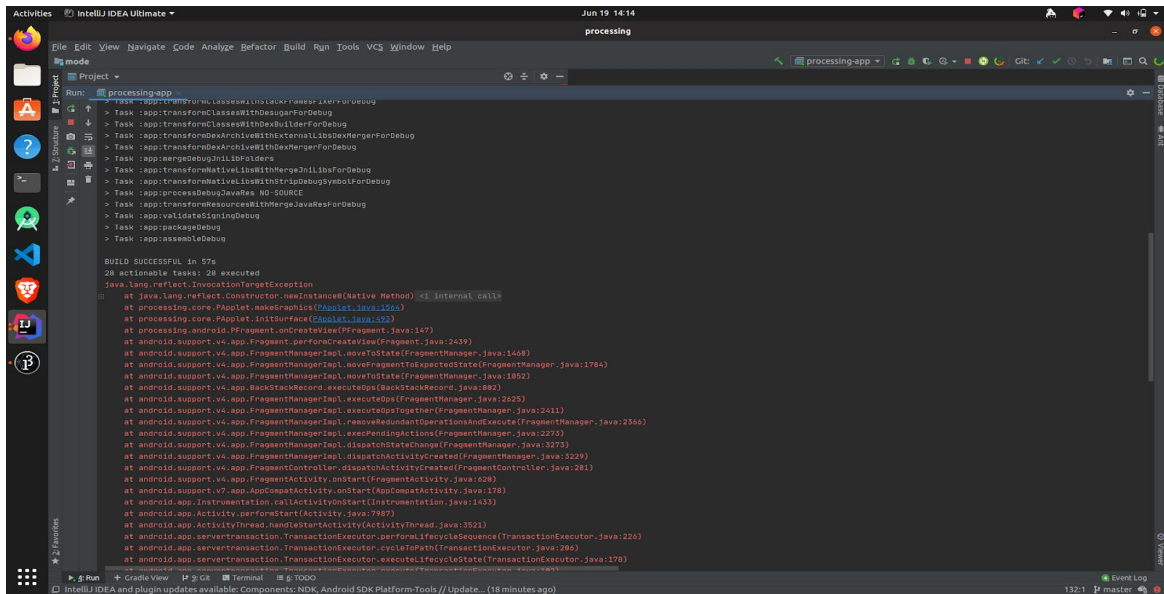
- One of the possible reason is the missing of the [kotlin-runtime libraries](#) in the main Processing IDE



7. StreamPumping Error (internal error related to processing-android)



8. java.lang.reflect.InvocationTargetException

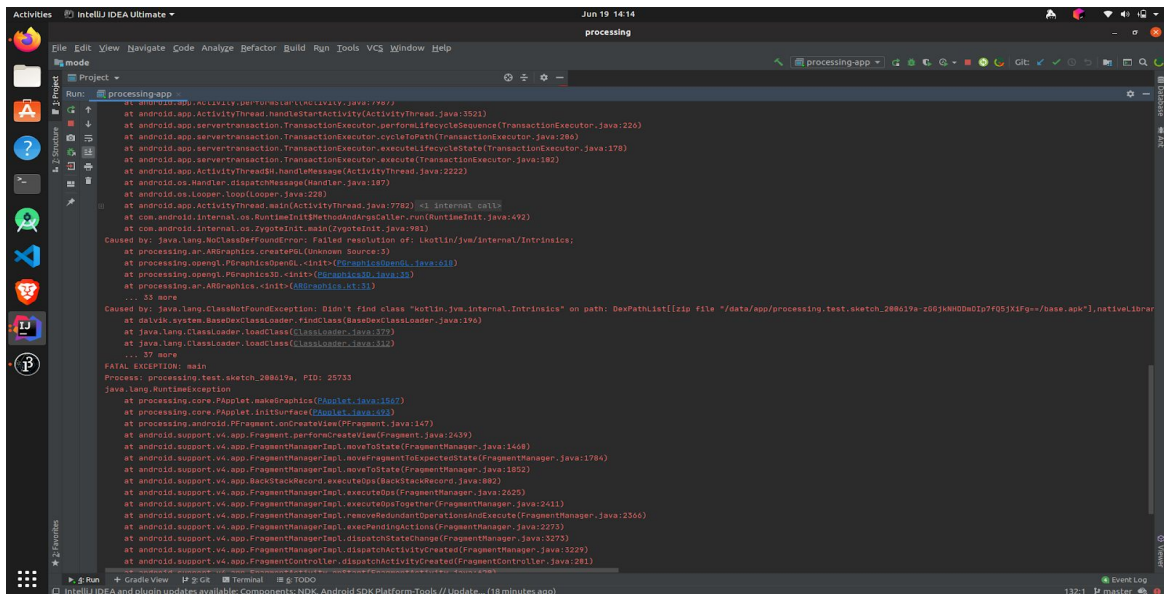


The screenshot shows the IntelliJ IDEA interface with the 'Run' tab selected. The build output window displays the following information:

```
Run: processing-app
Task: app:transformClassesWithDexifierForDebug
Task: app:transformClassesWithDexifierForDebug
Task: app:transformDexArchiveWithExternalLibsDexMergerForDebug
Task: app:transformDexArchiveWithDexMergerForDebug
Task: app:mergeDebugJniLibFolders
Task: app:transformNativeLibsWithMergeJniLibsForDebug
Task: app:transformNativeLibsWithStripDebugSymbolForDebug
Task: app:processDebugJavaRes NO-SOURCE
Task: app:transformResourcesWithMergeJavaResForDebug
Task: app:validateSigningDebug
Task: app:packageDebug
Task: app:assembleDebug

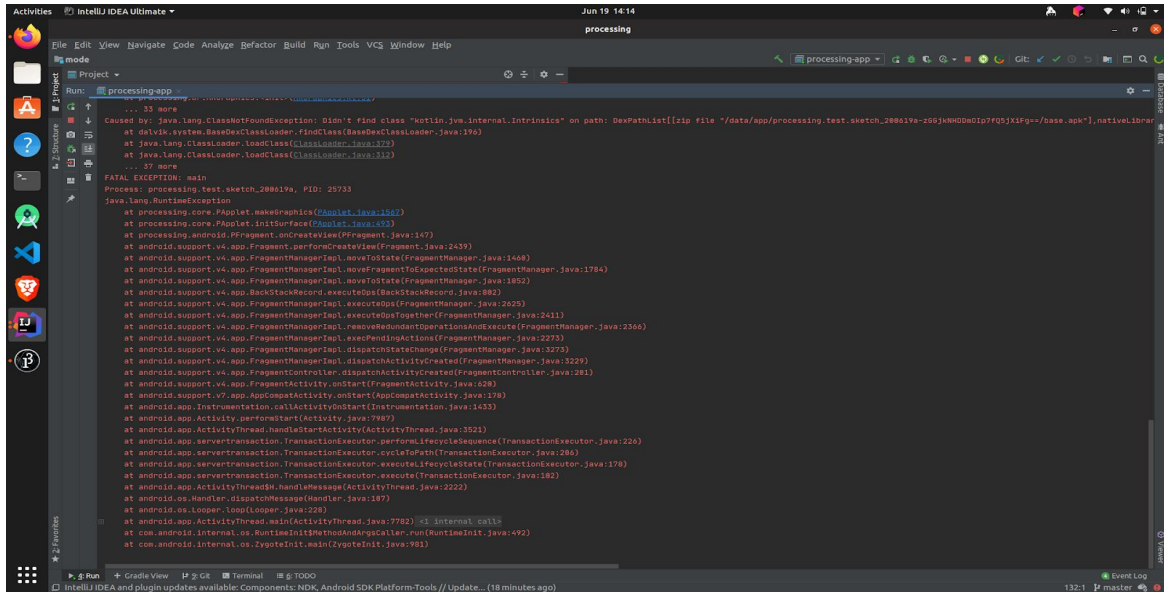
BUILD SUCCESSFUL in 57s
28 actionable tasks: 28 executed
java.lang.reflect.InvocationTargetException
  at java.lang.reflect.Constructor.newInstance(Native Method) ~$ Internal call
  at processing.core.PApplet.makeGraphics(PApplet.java:166)
  at processing.core.PApplet.initSurface(PApplet.java:402)
  at processing.android.PApplet.onCreateView(PApplet.java:167)
  at android.support.v4.app.Fragment.performCreateView(Fragment.java:2439)
  at android.support.v4.app.FragmentManagerImpl.moveToState(FragmentManager.java:1468)
  at android.support.v4.app.FragmentManagerImpl.moveToState(FragmentManager.java:1784)
  at android.support.v4.app.FragmentManagerImpl.moveToState(FragmentManager.java:1852)
  at android.support.v4.app.BackStackRecord.executeOps(BackStackRecord.java:882)
  at android.support.v4.app.FragmentManagerImpl.executeOps(FragmentManager.java:2823)
  at android.support.v4.app.FragmentManagerImpl.executeOpsTogether(FragmentManager.java:2411)
  at android.support.v4.app.FragmentManagerImpl.removeRedundantOperationsAndExecute(FragmentManager.java:2366)
  at android.support.v4.app.FragmentManagerImpl.execPendingActions(FragmentManager.java:2273)
  at android.support.v4.app.FragmentManagerImpl.dispatchActivityCreated(FragmentManager.java:3273)
  at android.support.v4.app.FragmentController.dispatchActivityCreated(FragmentController.java:281)
  at android.support.v4.app.FragmentActivity.onStart(FragmentActivity.java:429)
  at android.support.v7.app.AppCompatActivity.onStart(AppCompatActivity.java:178)
  at android.app.Instrumentation.callActivityOnStart(Instrumentation.java:1433)
  at android.app.Activity.performStart(Activity.java:7949)
  at android.app.ActivityThread.handleStartActivity(ActivityThread.java:3521)
  at android.app.servertransaction.TransactionExecutor.performLifecycleSequence(TransactionExecutor.java:220)
  at android.app.servertransaction.TransactionExecutor.cycleToPath(TransactionExecutor.java:286)
  at android.app.servertransaction.TransactionExecutor.executeLifecycleState(TransactionExecutor.java:178)
  at android.app.servertransaction.TransactionExecutor.execute(TransactionExecutor.java:178)
```

9. Random Android Runtime errors

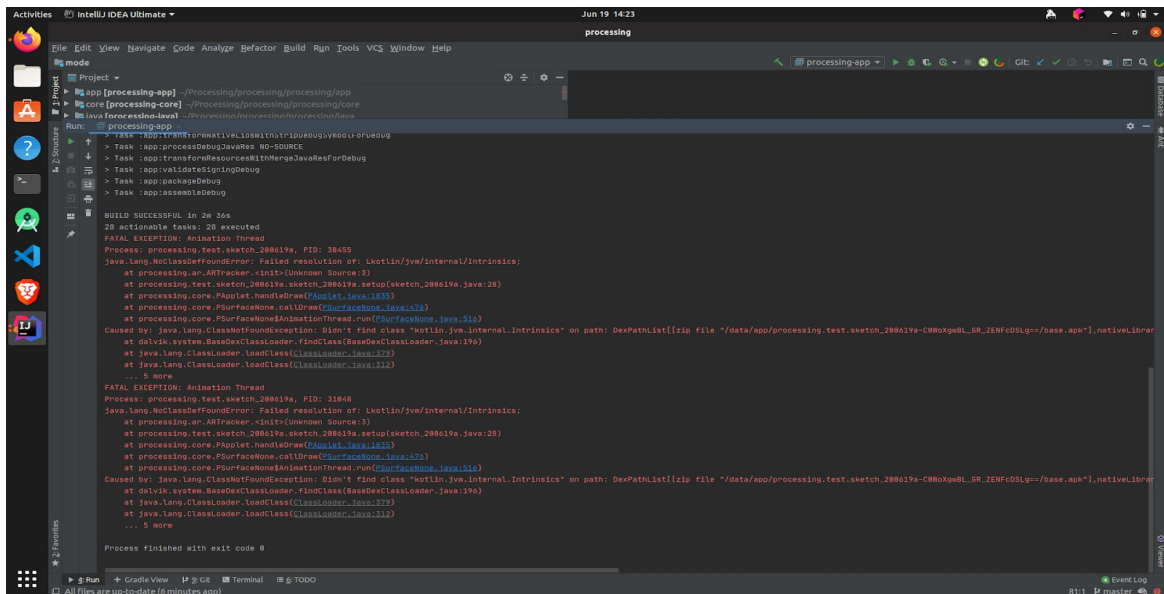


The screenshot shows the IntelliJ IDEA interface with the 'Run' tab selected. The build output window displays a fatal runtime exception:

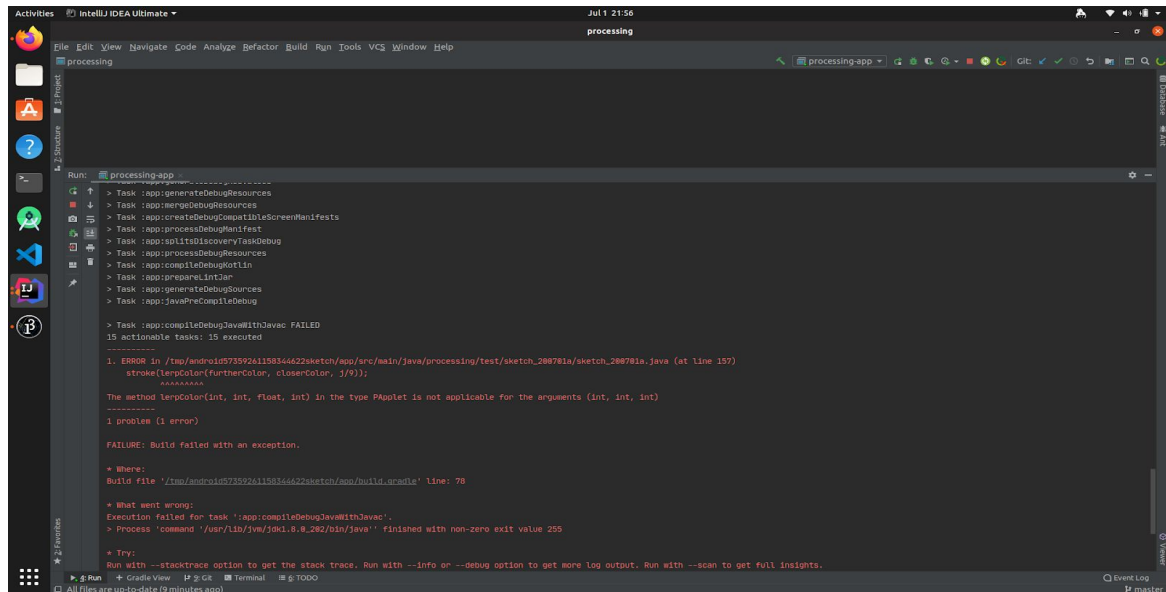
```
Run: processing-app
  at android.app.ActivityThread.performStartActivity(ActivityThread.java:794)
  at android.app.ActivityThread.handleStartActivity(ActivityThread.java:3521)
  at android.app.servertransaction.TransactionExecutor.performLifecycleSequence(TransactionExecutor.java:220)
  at android.app.servertransaction.TransactionExecutor.cycleToPath(TransactionExecutor.java:286)
  at android.app.servertransaction.TransactionExecutor.executeLifecycleState(TransactionExecutor.java:178)
  at android.app.servertransaction.TransactionExecutor.execute(TransactionExecutor.java:178)
  at android.os.Handler.dispatchMessage(Handler.java:107)
  at android.os.Looper.loop(Looper.java:228)
  at android.app.ActivityThread.main(ActivityThread.java:7782) ~$ Internal call
  at com.android.internal.os.RuntimeInit$MethodAndArgsCaller.run(RuntimeInit.java:492)
  at com.android.internal.os.ZygoteInit.main(ZygoteInit.java:981)
Caused by: java.lang.NoClassDefFoundError: Failed resolution of: Lkotlin/jvm/internal/Intrinsics;
  at processing.ar.ARMGraphics.createOps(Unknown Source:2)
  at processing.opengl.PGraphics3D.<init>(PGraphics3D.java:818)
  at processing.opengl.PGraphics3D.<init>(PGraphics3D.java:32)
  at processing.ar.ARMGraphics.<init>(ARMGraphics.kt:31)
... 37 more
Caused by: java.lang.ClassNotFoundException: Didn't find class "kotlin.jvm.internal.Intrinsics" on path: DexPathList[[zip file "/data/app/processing.test.sketch-288619a-z0GjwMD0mIp7FQ5jKfGw/-base.apk"],nativeLibraryDirectories=[/data/app/processing.test.sketch-288619a-z0GjwMD0mIp7FQ5jKfGw/lib/arm]]
  at dalvik.system.BaseDexClassLoader.findClass(BaseDexClassLoader.java:194)
  at java.lang.ClassLoader.loadClass(ClassLoader.java:379)
  at java.lang.ClassLoader.loadClass(ClassLoader.java:324)
... 37 more
FATAL EXCEPTION: main
Process: processing.test.sketch-288619a, PID: 25733
java.lang.RuntimeException
  at processing.core.PApplet.makeGraphics(PApplet.java:167)
  at processing.core.PApplet.initSurface(PApplet.java:402)
  at processing.android.PApplet.onCreateView(PApplet.java:167)
  at android.support.v4.app.Fragment.performCreateView(Fragment.java:2439)
  at android.support.v4.app.FragmentManagerImpl.moveToState(FragmentManager.java:1468)
  at android.support.v4.app.FragmentManagerImpl.moveToState(FragmentManager.java:1784)
  at android.support.v4.app.FragmentManagerImpl.moveToState(FragmentManager.java:1852)
  at android.support.v4.app.BackStackRecord.executeOps(BackStackRecord.java:882)
  at android.support.v4.app.FragmentManagerImpl.executeOps(FragmentManager.java:2823)
  at android.support.v4.app.FragmentManagerImpl.executeOpsTogether(FragmentManager.java:2411)
  at android.support.v4.app.FragmentManagerImpl.removeRedundantOperationsAndExecute(FragmentManager.java:2366)
  at android.support.v4.app.FragmentManagerImpl.execPendingActions(FragmentManager.java:2273)
  at android.support.v4.app.FragmentManagerImpl.dispatchActivityCreated(FragmentManager.java:3273)
  at android.support.v4.app.FragmentController.dispatchActivityCreated(FragmentController.java:281)
```



10. AR library Android Runtime Errors

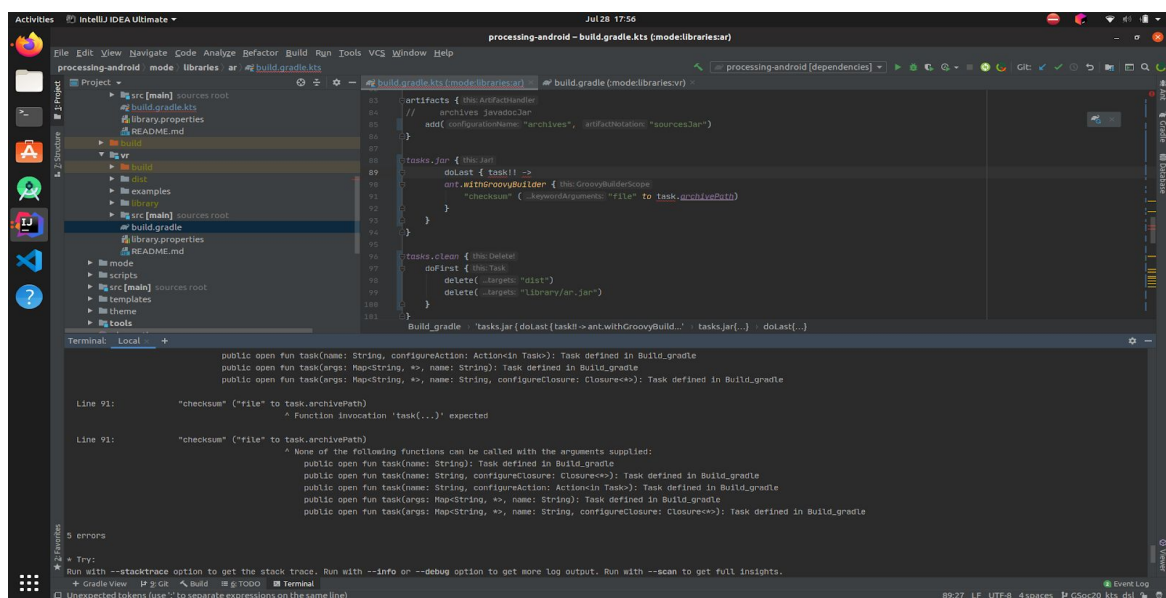


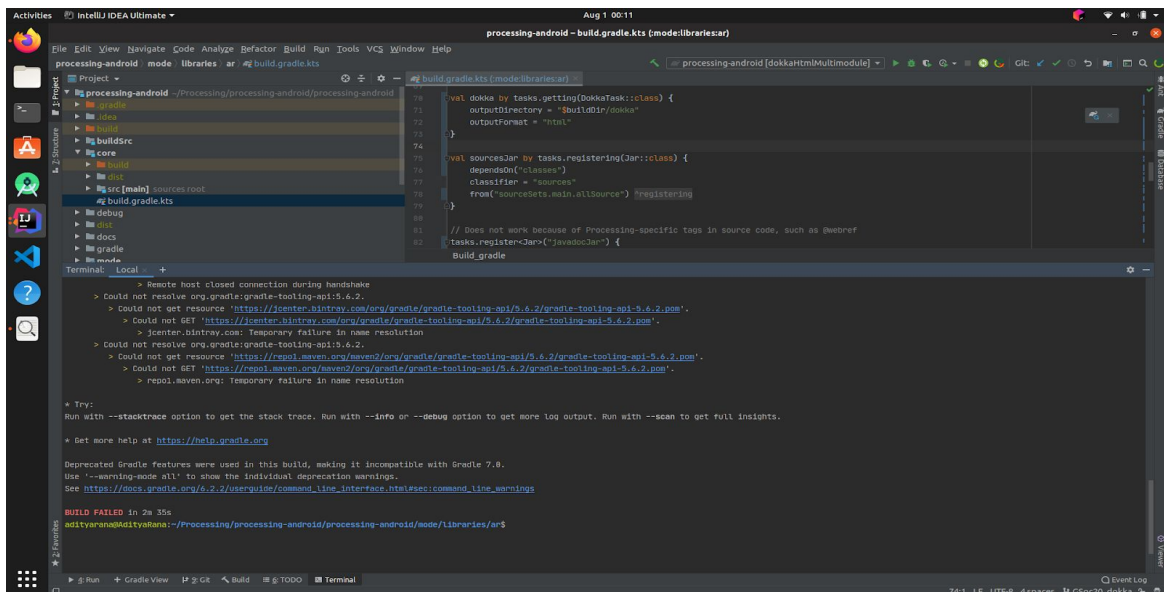
- `lerpColor()` api has been deprecated in [this](#) commit



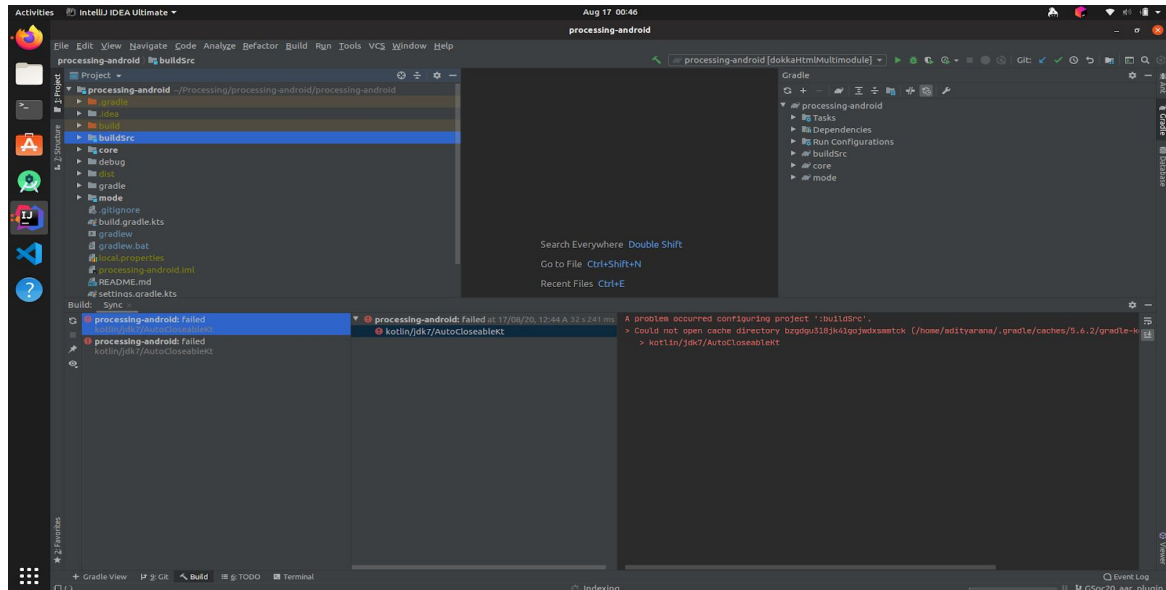
Raised issue : #598

13. Some Kotlin DSL Errors





scopes to be locked in order to deterministically compute script compilation classpaths.



Note: you may face this error due number of reasons -

- Corrupted gradle caches
- Having more than gradle wrappers in buildSrc or
- Without cleaning the project apply some other gradle wrappers to the project
- Having different versions of gradle in use and in project wrapper
- **Having dense COD - Configuration On Demand in the Project**