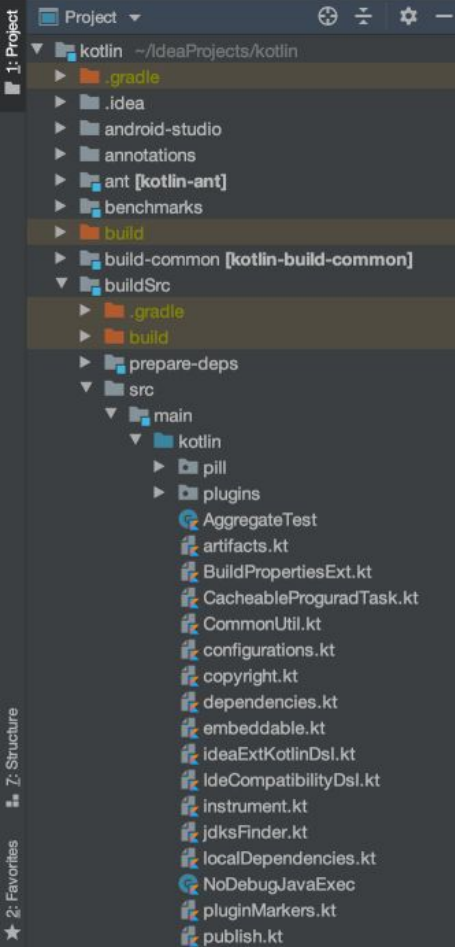


Quality and Performance – Kotlin 1.4 in IntelliJ IDEs

Anton Yalyshev





Search Everywhere [Double](#) ⬆

Go to File ⬆ ⌘O

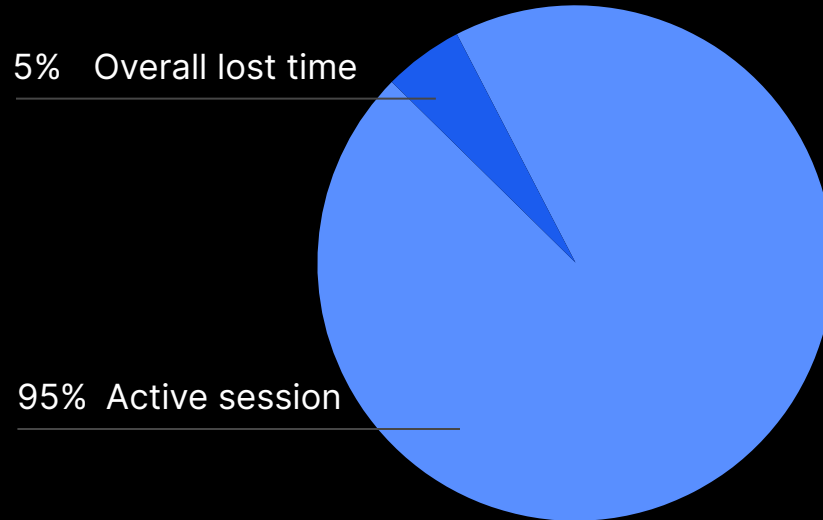
Recent Files ⌘E

Navigation Bar ⌘↑

Drop files here to open

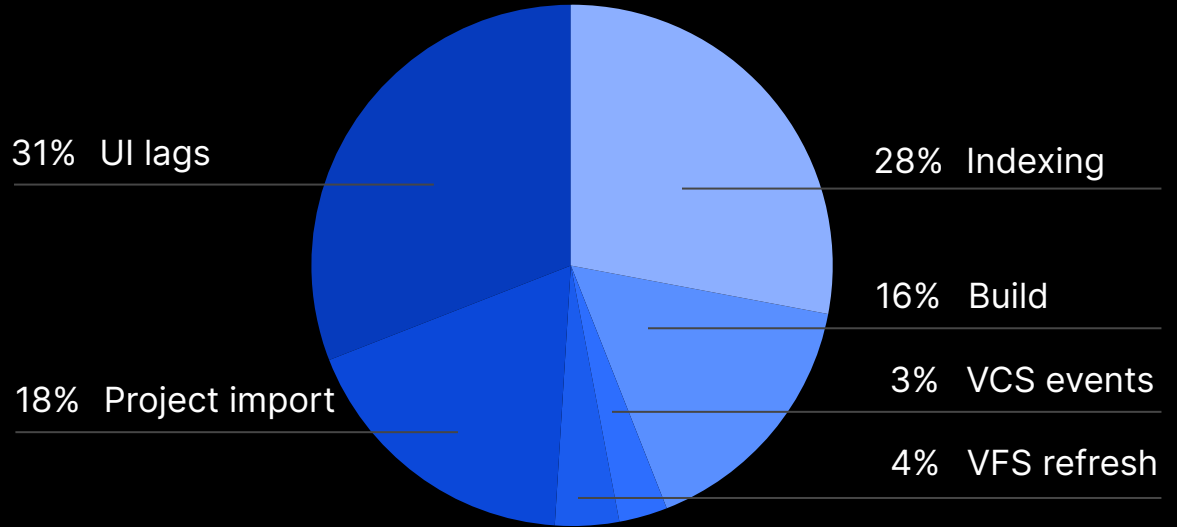
Activities and events

Indexing	28%
Build	16%
VCS events	3%
VFS refresh	4%
Project import	18%
UI lags	31%




Activities and events

Indexing	28%
Build	16%
VCS events	3%
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UI lags	31%



The most important devX components

- Smooth typing
- IDE responsiveness
- Code completion
- Code highlighting
- Navigation and Find Usages
- Indexing



1.3.60

IDE Performance:

- Smooth typing
- IDE responsiveness
- Code completion
- Code highlighting
- Navigation and Find Usages
- Indexing

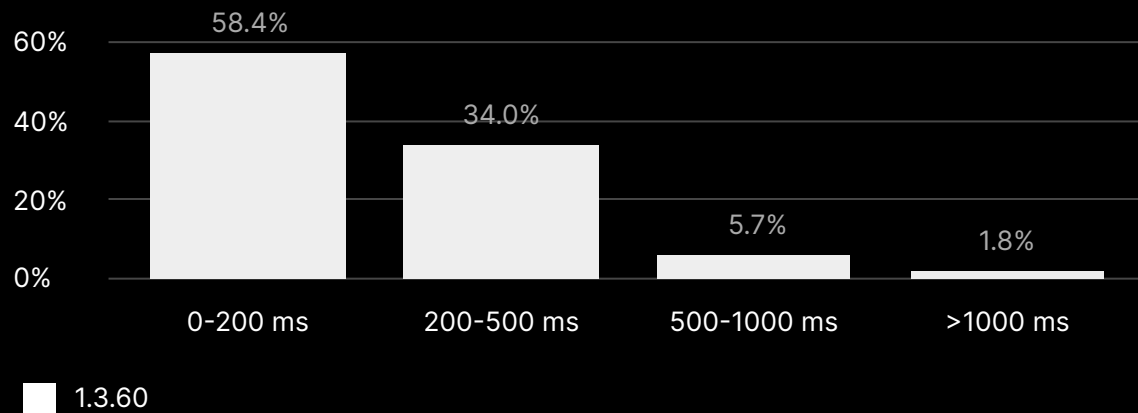
1.3.60

Fast completion

IDE Performance:

- Smooth typing
- IDE responsiveness
- **Code completion**
- Code highlighting
- Navigation and Find Usages
- Indexing

Percents of Users who have such Average Completion Time

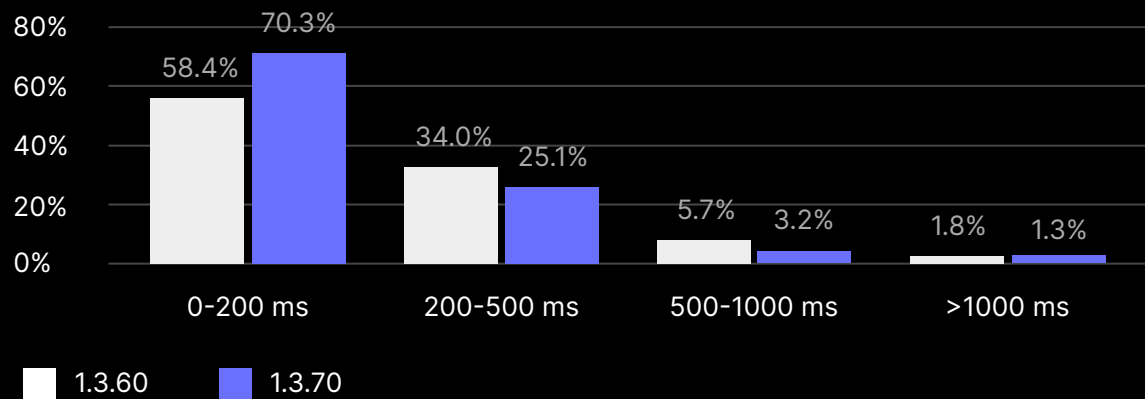




IDE Performance:

- Smooth typing
- IDE responsiveness
- **Code completion**
- Code highlighting
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Percents of Users who have such Average Completion Time



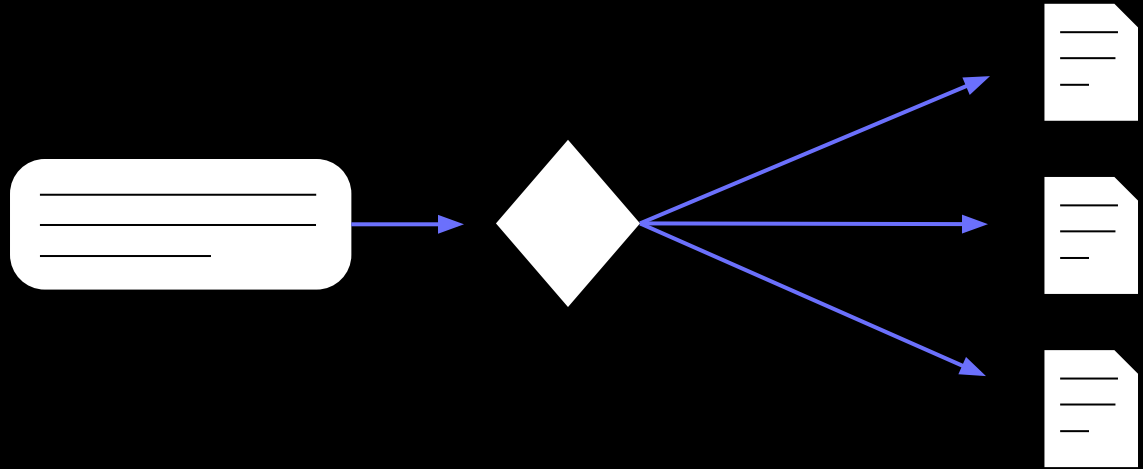
Perception of response times

- 100-200 ms: instant
- 500-1000 ms: immediate
- 2-5 sec: keeps attention
- 7-10 sec: keeps context



IDE Performance:

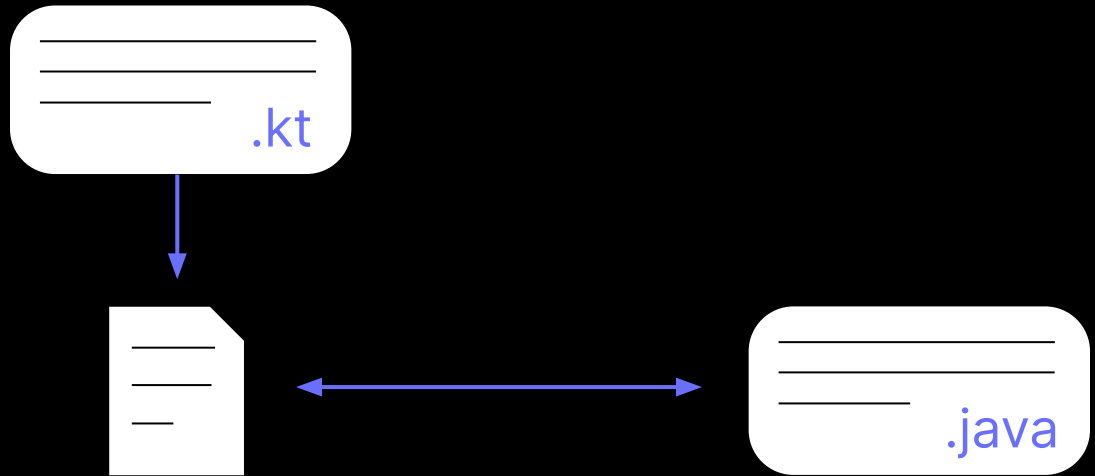
- Smooth typing
- IDE responsiveness
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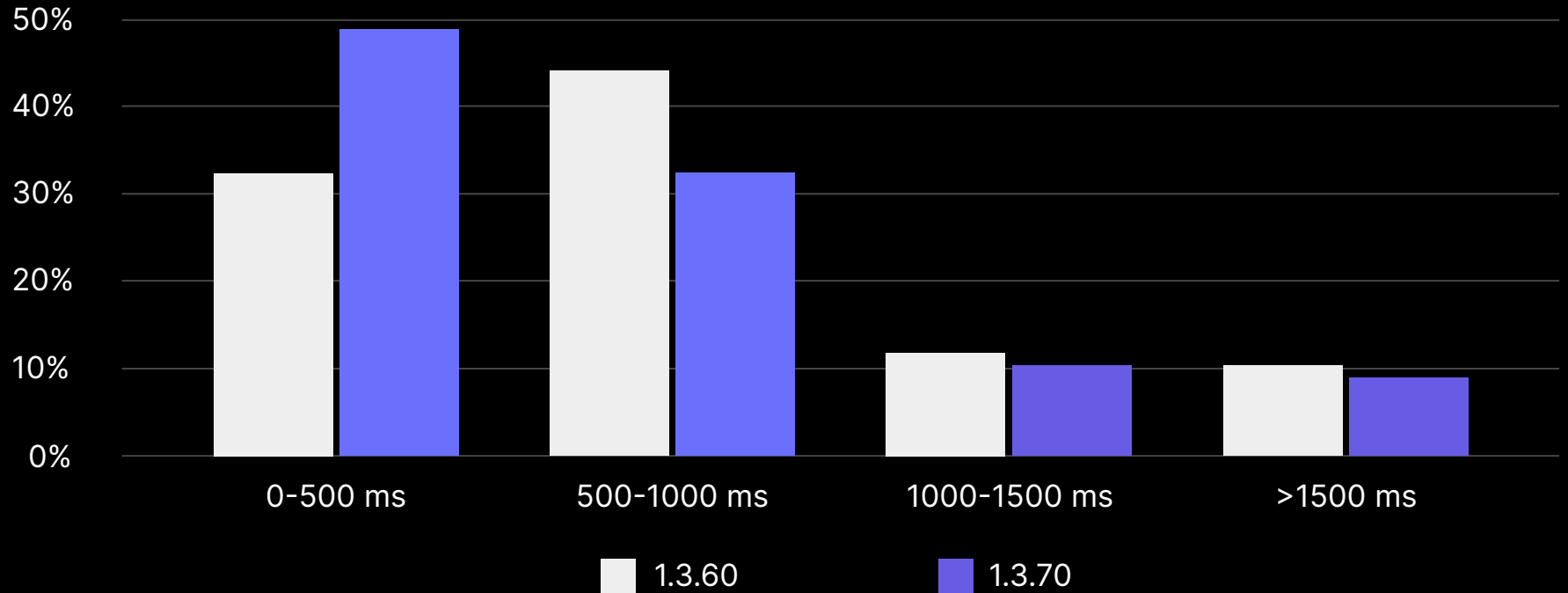


IDE Performance:

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Average completion times experienced by users in .gradle.kts

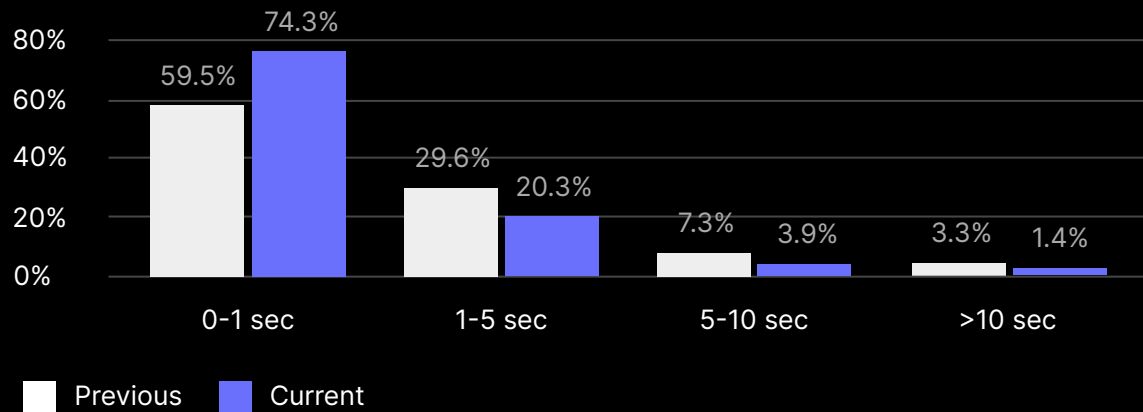




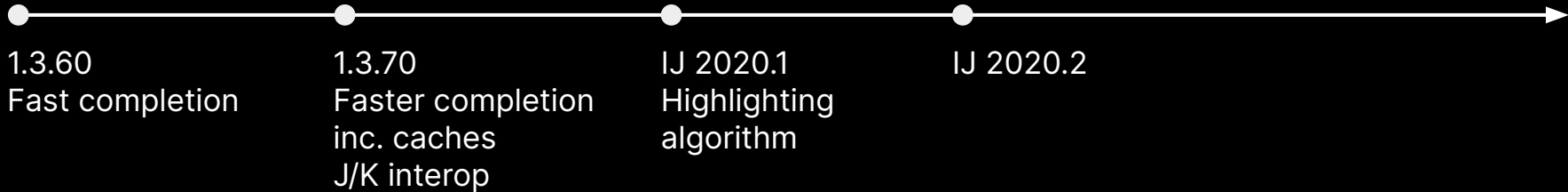
IDE Performance:

- Smooth typing
- Responsiveness
- Code completion
- **Code highlighting**
- Navigation and Find Usages
- Indexing

First-time file highlighting times in a large project

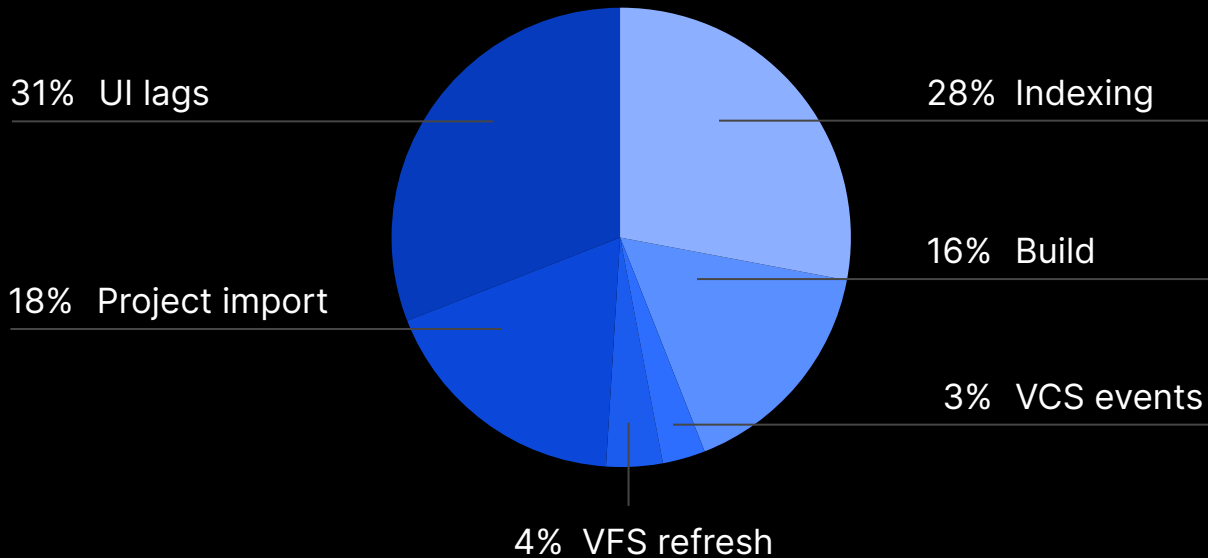


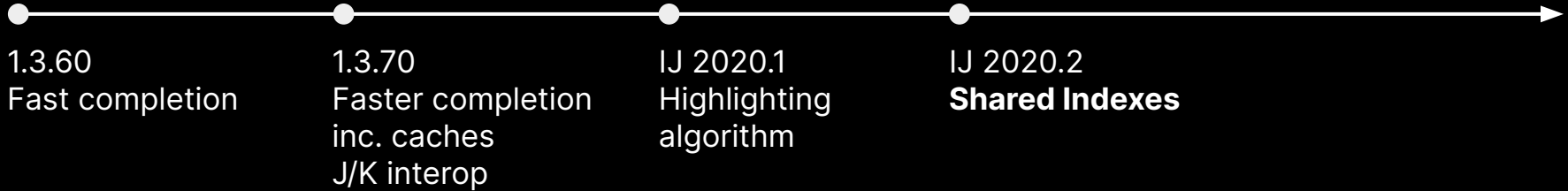
Test Framework: github.com/JetBrains/kotlin/tree/master/idea/performanceTests



IDE Performance:

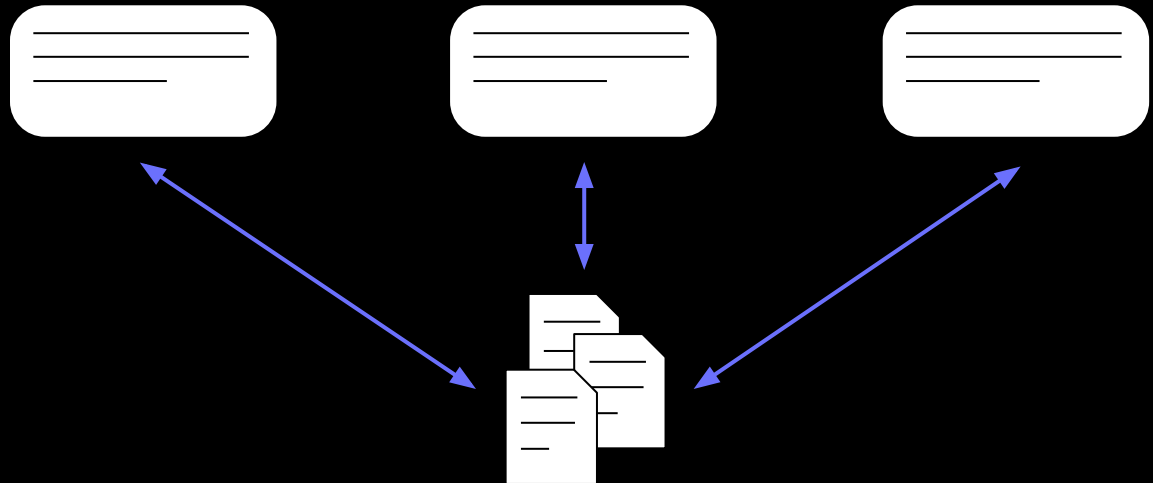
- Smooth typing
- Responsiveness
- Code completion
- Code highlighting
- Navigation and Find Usages
- **Indexing**



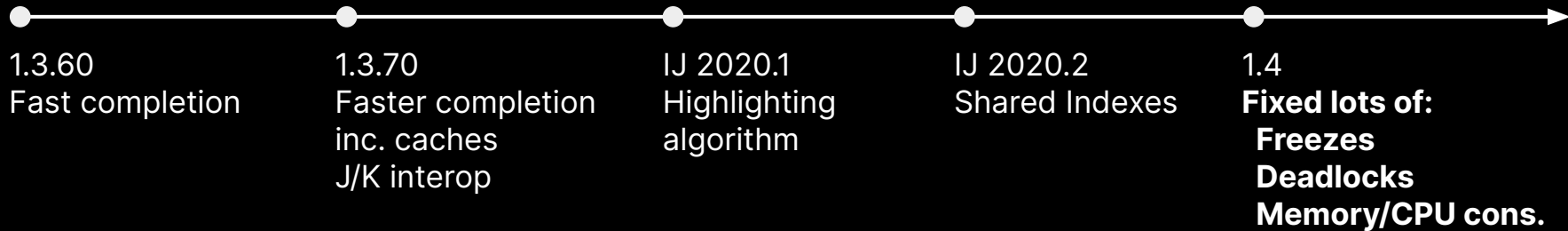


IDE Performance:

- Smooth typing
- Responsiveness
- Code completion
- Code highlighting
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- **Indexing**



How to: jetbrains.com/help/idea/shared-indexes.html



IDE Performance:

- Smooth typing
- Responsiveness
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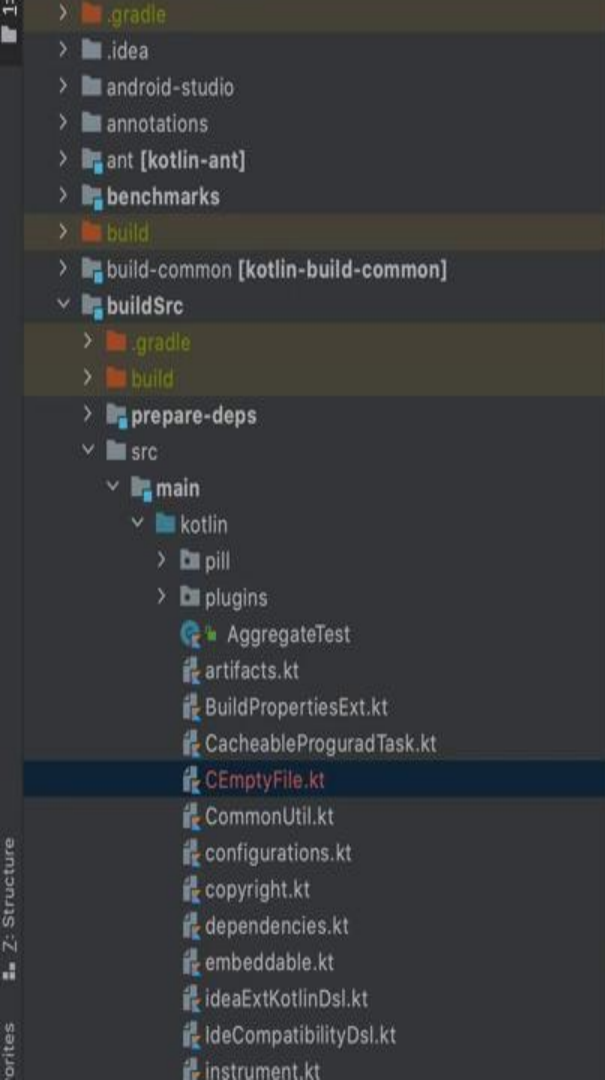
Performance Problem	1.4-M3	Fixed	Aleksandr Gribovich
M KT-40636	Hard freeze on formatter: infinite recursion	1	
Performance Problem	1.4.0	Fixed	Dmitry Gridin
M KT-31137	IntelliJ would get very slow when editing gradle buildSrc(using the kotlin dsl)	1	3
Performance Problem	1.4-RC	Fixed	Alpha Ho
<input type="checkbox"/> KT-34552	Deadlock in ScriptDefinitionsManager	1	2
Performance Problem	1.4.0, 1.4.20	Fixed	Alexander Zolotov
M KT-29703	Slow typing in Gradle/Kotlin	3	2
Performance Problem	1.4-M3	Fixed	Eugene Petrenko



IDE Performance:

- Smooth typing
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1. Issue tracker: kotl.in/issue
2. Attach diagnostic info: jb.gg/ij-perf-reporting
3. Tell us what you were doing at the time



```
360
361 @Internal
362 override fun getflattenpackagehierarchy(): Any? = throw NotImplementedError()
363
364 override fun optimizationpasses(optimizationPasses: Int) = throw NotImplementedError()
365
366 override fun adaptresourcefilenames() = throw NotImplementedError()
367
368 override fun adaptresourcefilenames(filter: String?) = throw NotImplementedError()
369
370 override fun method(memberSpecificationArgs: MutableMap<Any?, Any?>?) = throw NotImplementedError()
371
372 @Internal
373 override fun getadaptclasstrings(): Any? = throw NotImplementedError()
374
375 override fun repackagelasses() = throw NotImplementedError()
376
377 override fun repackagelasses(repackageClasses: String?) = throw NotImplementedError()
378
379 @Internal
380 override fun getkeepparametersnames(): Any? = throw NotImplementedError()
381
382 override fun adaptresourcefilecontents() = throw NotImplementedError()
383
384 override fun adaptresourcefilecontents(filter: String?) = throw NotImplementedError()
385 }
386
```

Project

- kotlin ~/IdeaProjects/kotlin
 - .gradle
 - .idea
 - android-studio
 - annotations
 - ant [kotlin-ant]
 - benchmarks
 - build
 - build-common [kotlin-build-common]
 - buildSrc
 - .gradle
 - build
 - prepare-deps
 - src
 - main
 - kotlin
 - pill
 - plugins
 - AggregateTest
 - artifacts.kt
 - BuildPropertiesExt.kt
 - CacheableProgradTask.kt
 - CommonUtil.kt
 - configurations.kt
 - copyright.kt
 - dependencies.kt
 - embeddable.kt
 - ideaExtKotlinDsl.kt
 - IdeCompatibilityDsl.kt
 - instrument.kt
 - jdkFinder.kt
 - localDependencies.kt
 - NoDebugJavaExec
 - pluginMarkers.kt
 - publish.kt

Search Everywhere [Double](#) ↑

Go to File [↑](#) ⌘O

Recent Files [⌘E](#)

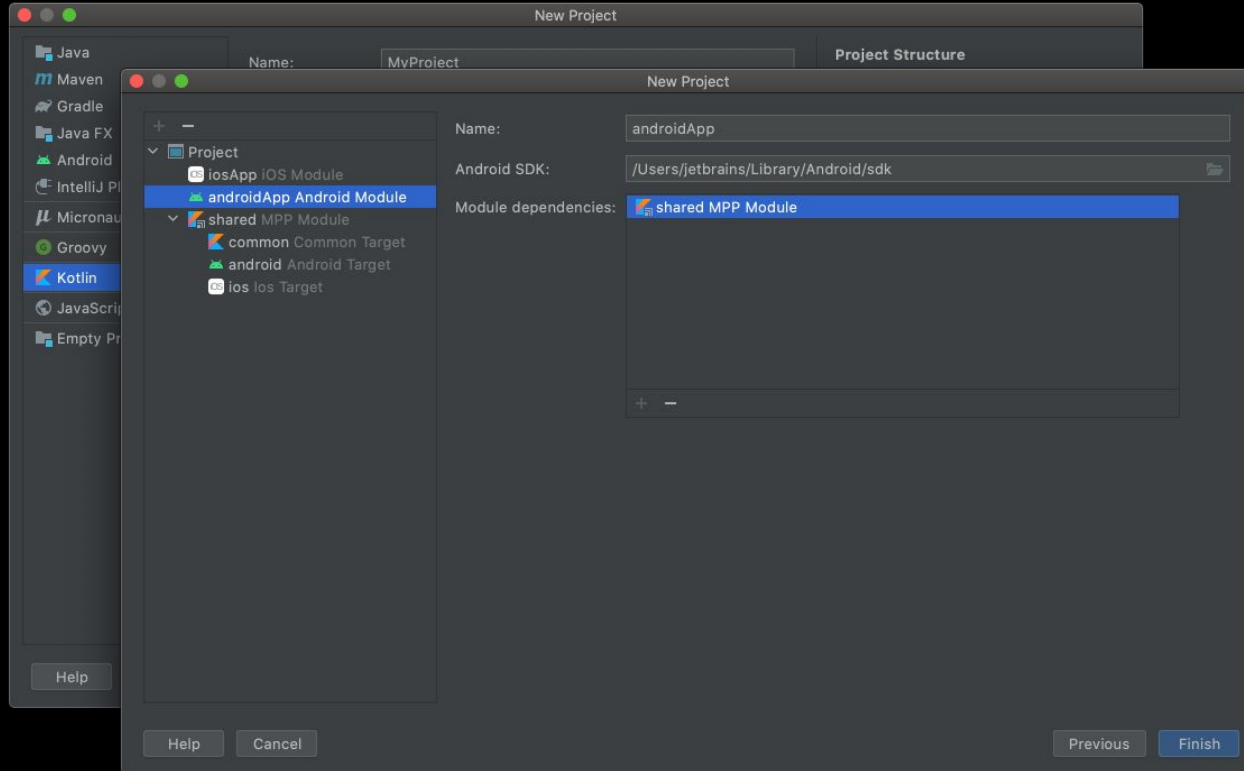
Navigation Bar [⌘↑](#)

Drop files here to open

Quality

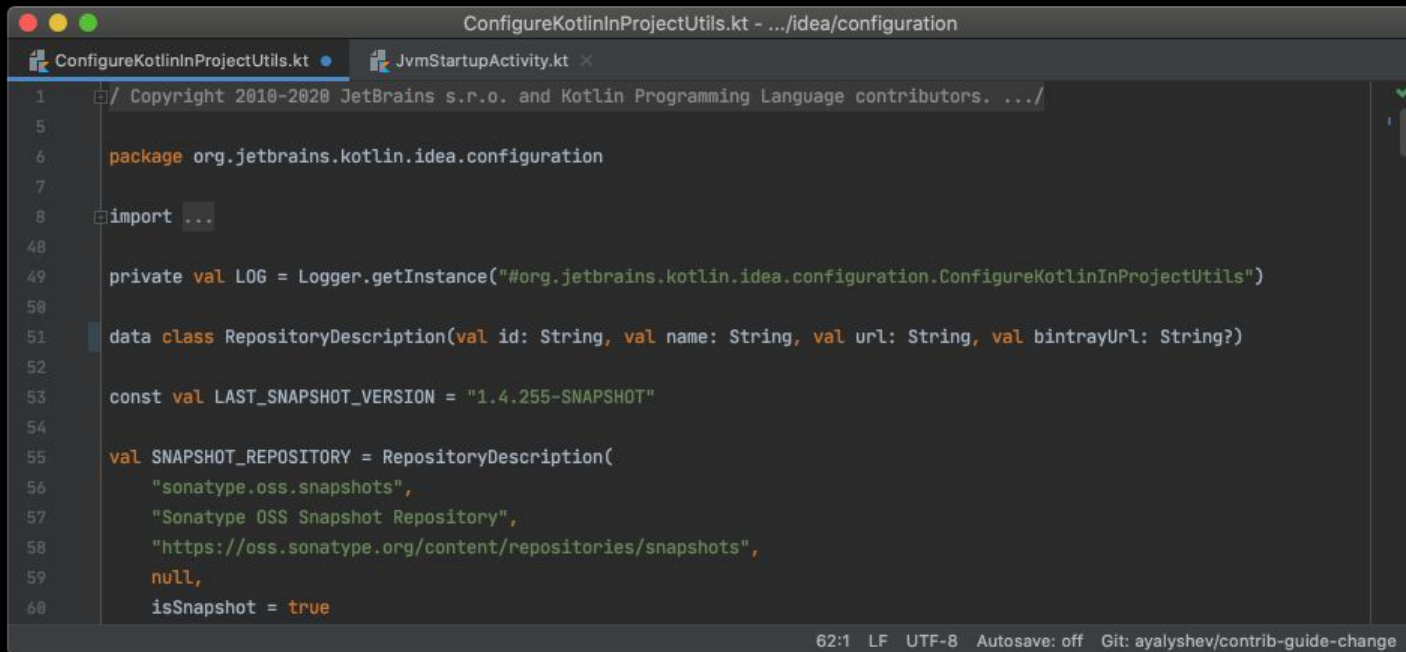
- Reducing plugin exceptions 1.5-2 times with each release
- Stability of the Debugger, Formatter, Move Refactoring and more
- Debugger for coroutines

New Project Wizard



Light editing

IntelliJ LightEdit mode



The screenshot shows the IntelliJ IDEA interface in LightEdit mode. The title bar reads "ConfigureKotlinInProjectUtils.kt - .../idea/configuration". The editor displays the following Kotlin code:

```
1  // Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors. .../
5
6  package org.jetbrains.kotlin.idea.configuration
7
8  import ...
48
49  private val LOG = Logger.getInstance("#org.jetbrains.kotlin.idea.configuration.ConfigureKotlinInProjectUtils")
50
51  data class RepositoryDescription(val id: String, val name: String, val url: String, val bintrayUrl: String?)
52
53  const val LAST_SNAPSHOT_VERSION = "1.4.255-SNAPSHOT"
54
55  val SNAPSHOT_REPOSITORY = RepositoryDescription(
56      "sonatype.oss.snapshots",
57      "Sonatype OSS Snapshot Repository",
58      "https://oss.sonatype.org/content/repositories/snapshots",
59      null,
60      isSnapshot = true
```

The status bar at the bottom indicates "62:1 LF UTF-8 Autosave: off Git: ayalyshev/contrib-guide-change".


What's next?

- Continue investing in the speed of:
 - Code completion and highlighting
 - Navigation and Find Usages
- IDE stability and quality of features
- Cross-language inline and change signature refactorings in Java/Kotlin mixed projects
- Integration with the new Compiler Frontend


Our roadmap: <https://kotl.in/roadmap>

One important announcement

IntelliJ IDEA Tips & Tricks Releases Features EAP News & Events Featured Plugins


 **turndown4wut turndown4wut**
0 points · 32 days ago

Why there is no any kotlin improvements? :(

 **Dmitry Jemerov**
0 points · 31 days ago

The Kotlin plugin evo


IntelliJ IDEA Tips & Tricks Releases Features EAP News & Events Featured Plugins

 **Jamie says:**
April 9, 2020

Nice update! Will there also be Code Vision support for Kotlin in the future?

[com/issue/KT-38027](https://youtrack.jetbrains.com/issue/KT-38027)

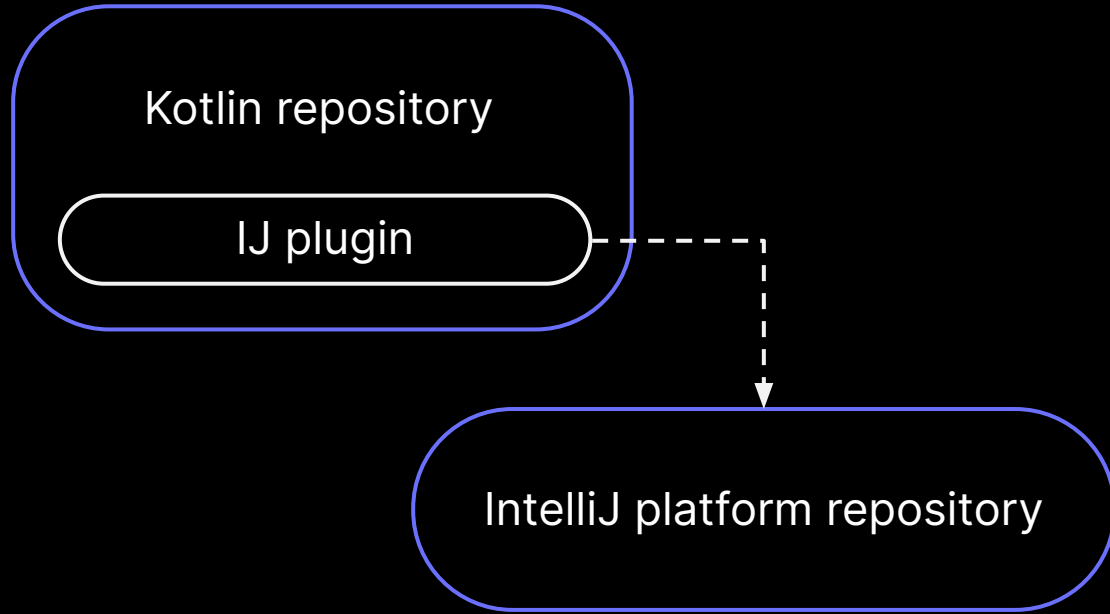
IntelliJ IDEA Tips & Tricks Releases Features EAP News & Events Featured Plugins

 **cristian says:**
April 13, 2020

I have tried new View | Appearance | Navigation Bar showing methods of a class (2020.1). It works fine using java. In Kotlin is not showing functions. Would it be available to use this feature using Kotlin in the future?

Best regards for IntelliJ team!!!

IntelliJ IDEA and Kotlin are getting closer



IntelliJ and Kotlin are getting closer

- Better tooling parity
- Single release cycle for Kotlin plugin and IntelliJ IDEA
- More opportunities for contribution
- Amplifies IntelliJ Kotlin plugin development

Thanks!
Have a nice Kotlin



@anton_yalyshev