

实验一 需求获取

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一、实验目标

软件需求的抽取与分类。

二、实验基本思路

JetBrains 的 IntelliJ 是一个著名的 IDE，其代码托管在 GitHub 上，项目地址为 <https://github.com/JetBrains/intellij-community>。在这个项目中，有大量的 Pull Request (PR)。PR 是协作开发流程中的一种协作方式，某个开发者可以通过 PR 向项目管理者发起请求，将自己的完成的代码变更合并到项目中。因此，在许多情况下，可以将 PR 看作是一个需求。本实验思路是对 PR 进行分类。

三、实验步骤

1、确定 IDE 项目

JetBrains 的 IntelliJ

2、明确信息源

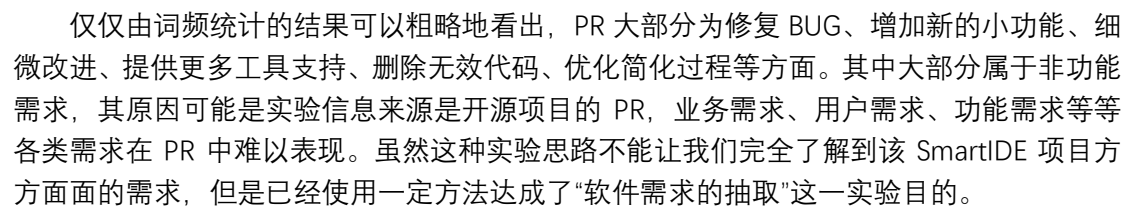
<https://github.com/JetBrains/intellij-community/pulls>

3、获取数据

使用爬虫工具 GooSeeker (<https://www.jisouke.com/>) 对 github 上该项目 OPEN、MERGED 状态的 PR 进行抓取，收集这些 PR 标题与贡献者对该 PR 的描述。该项目 PR 总共由一千余个，由于技术上的不成熟，小组决定用人工分类的方式对数据进行处理，故只取已经 merged 的、open 的 PR，虽然少，但是这些数据仍然非常具有代表性。抓取的原始数据见 PR_MERGED(135).xlsx 和 PR_OPEN(127).xlsx 表格。

4、分析需求：

对搜集到的数据进行词频统计处理（见 Mywordcount.java），按照频次降序排序，经过过滤后得到结果见 wordcount_result.txt，部分截图：



以对 127 个 open 状态的 PR 进行分类的过程（结果见 PR_OPEN(127)(seperated).xlsx）为例，根据标题以及内容描述大体分为三类：新增功能、删除功能、修改已有功能。

[illegible]

关键词大部分是 add 和 update

删除：

A		B	C	D	E	F
1	TITLE	DESCRIPTION				
2	Delete code dead since commit 11a775a	@rennegrage				
3	IDEA-20888 SpeedSearch: Make Ctrl-Backspace also delete trailing whitespace first	Fixes IDEA-20888 SpeedSearch: Ctrl-Backspace only works if cursor is after non-whitespace characterSee https://youtrack.jetbrains.net/issue/IDEA-20888				
4	Remove listener before calling deactivateIfNeeded (IDEA-210564)	Remove listener from myMouseListener before calling deactivateIfNeeded (IDEA-210564)				
5	Remove the "sleep" in fsfilter main loop	https://youtrack.jetbrains.com/issue/IDEA-14690This change adds configuration to the Maven project importer so that IntelliJ Modules can be named as per the name element in the corresponding pom, rather than as per the artifactId element.				
6	update PROXYWORDCARET remove	The change is based on the observation that build events with java.lang.Object (do never have child events.				
7	IDEA-21258-Reduce memory footprint of MultipleBuildsView.myBuildsMap	Avoid attaching multiple versions sources and docs with a snapshot dependencyFix the issue: https://youtrack.jetbrains.com/issue/IDEA-207941				
8	Avoid attaching multiple versions sources	Fixes https://youtrack.jetbrains.com/issue/USDK-299.It seems "super" was just accidentally removed in 556290b				
9	Don't display parameter names for functional interfaces	The current behavior is that once a new set of roots is received,all the current roots were first deregistered and then the new ones registered.In case the majority of the roots belong to the same project, the majority of the roots are deregistered and then the new ones are registered.				
10	Avoid splitting inline JavaDoc tags when reformatting.	The loop is already throttled by select. It seems that usleep was added to facilitate batch processing of notify events here.The usleep can have a real performance hit. For example, if the loop is already throttled by select, it seems that usleep was added to facilitate batch processing of notify events here.				
11	Avoid deregistering roots that will be registered again in fsfilter					
12						
13						

删除功能的需求较少，主要是一些用户不友好的功能。

修改：

11	IDEA-200871 Tool Window should NOT transfer focus unconditionally.	This is a GuiDesigner update. Now it's possible to select a Look and Feel from a list Inform properties and see how it changes the design of the desired form. Some component properties are not supported by the Look and Feel.
12	[Fernflower] Cleanup of collections-related classes	This PR does a few things regarding float and double literals: Adds support for Float.MIN_NORMAL and Double.MIN_NORMAL, added in Java 1.6. Fixed invalid code generated for float and double literals.
13	[Fernflower] Improve output for float and double literals	Add a test case for bad initialization of variables. The test is @Ignored so that it won't fail the build but it will be there to know that there is a case that has to be fixed. Also uncovered a bug in the test.
14	IDEA-199594 Preserve line breaks in XML when reformatting.	Add the ability to highlight java primitives separately from keywords. This leaves the default highlighting unchanged (ie. the same as keywords). The README.md doesn't cover running the formatter on java files.
15	Fix patching args in monkey patched subprocess module.	For PyCharm build, similar to 4d31c82.
16	build scripts: Increase Xmx to fix OOM	Bug reportThis is a copy of my original PR (as mentioned in the issue), see MinecraftForge/ForgeFlower#11.a-b and [a-b] have different results if either a or b is NaN/Not a number.
17	Decompilation of inverted floating point comparisons (IDEA-196302)	Merge remote-tracking branch 'jetbrains/master', and update #228. Checking plugin version by plugin version and since build@alexeypogov @Ignatov
18	Refactor ExportAction	Hook up non managed pom notification configuration to project level.
19	Create project level notification configuration implementation	Split ExportHTMLAction into specific implementations, allowing plugins to add more export actions through xml registration.Signed-off-by: Martin Zdzarsky-Jones <zdary@zdary.cz>
20	IDEA-193199 Split ExportHTMLAction into specific implementations, all...	Allow tab to navigate focus between the 3 panels of ThreeComponentsSplitter by changing the traversal policy and removing ThreeComponentsSplitter as the focus cycle root. This allows for a more intuitive navigation.
21	Fix ThreeComponentsSplitter focus cycle	Provide a feature like eclipse properties editor plugin: default behavior is convert comments to ascii, if you don't want to convert comments to ascii, a string below need add to the SIDE_Actions.
22	WIP: Pydev native trace	On Windows, Polish keyboard layout (and a few others) remaps Right Alt to AltGr (Alt Graph) key. For such keyboard layouts pressing right Alt sends two key press events: Left Ctrl and Right Alt.
23	Polish characters work regardless of locale	I have found a bug where, in some cases, an NPE is thrown because Fernflower tries to get the ClassNode of a class added as a library (not in classpath). Example: Test.java: public class Test { ... }
24	[Fernflower] Ignore library classes when saving decompilation result	This extension point allows the extensions to supply application-specific version details in addition to the platform, system and JDK information always populated by the platform build system.
25	prevent django_manage.py from tracking changes in node_modules	This PR suggests some improvements to the "Execute Line in Console" feature in PyCharm. Currently, that feature submits a line to the Python console, even when the line is an inco. This is not ideal.
26	Improvements to "Execute Line in Console" feature in PyCharm.	Especially when connected to a JIRA server, there are times where the status will not update correctly upon closing the issue. After analysis between OpenTaskDialog and CloseTaskDialog, it was found that the status was not being updated correctly.
27	Fixes Task issue status being saved in a corrupt fashion for JIRA	The following project use this loader with SVG format: https://github.com/davidsommer/convviewer/blob/master/src/ch/laus/H/convviewer/imagelcon/Provides.java#L10-L11
28	Scale should matter only if the type is NOT SVG	I can't find any implementation that actually checks to see if this parameter is NULL. If it was ever NULL I think bad things would happen across the board. Also, my Kotlin stubs always use the same scale.
29	USDK-299 Fix stack overflow in EditorTextField.requestFocus()	While XSLT 3.0 offers more functionality, the basic thing you want is that the IDE at least recognizes the same functionality as in 2.0. I think with these simple changes that should be possible.
30	Simplify logging output options to three, matching the options available in the IDE.	Fixes IDEA-122233. There's another small change here with how short lines are handled. The old code would allow the comment line to overrun the right margin if the line would otherwise be too long.
31	IDEA-146390 Modules generated from Maven sources named using artifact name	This PR adds action in BMM menu of tasks that closes all non-project files.
32	Close All non-project	Using modern (less than 4 years old) versions of pytest in an environment which PyCharm has trouble detecting the versions of packages causes a regression of PY-8165. It seems like the problem is with the way pytest is installed.
33	IDEA-157915: Fix symbolic-ref in HEAD #2	If you use renaming, class field access and assertions don't decompile correctly in some cases (output contains synthetics). Examples: https://github.com/droid666/intelli-community-plugin/pull/1
34	[Fernflower] Renaming support for class field access and assertions	(resubmitted, had a git accident... contributor license agreement on the way.) For these test you just dump java files into the test folder. They will be compiled, then run (output stored in the test folder).
35	Field Declaration Order Fix for Fernflower	This adds the following improvements to the Redmine task tracker: Ability to load comments Differentiate between bugs and features Allow issue statuses to be updated about the CLF
36	[Fernflower] Fixed annotations not being renamed properly and corrected the position of annotations related to the class	Added a configuration option to use a VCS commit template if it's available. This fixes https://youtrack.jetbrains.com/issue/IDEA-46555 for Git testing. Local Git repo shows the commit message.
37	Debugger: do not insert cast to runtime type for non java code fragments	IDEA fails to locate the gradle wrapper at project import if there is a settings.gradle in the parent directory. It finds the wrapper, but then ignores its own detection and delegates to Gradle.
38	Use commit template if available	After remapping up/down keys it allows me to use new shortcuts in every ListScrollingUtil based list widgets but not in any tree widgets. For tree widgets there is corresponding TreeListScrollingUtil.
39	Gradle wrapper location fix IDEA-145249	Latest BrowseWordAtCaret fully supports darcula scheme, so this key is not longer needed. https://code.google.com/p/browsewordatcaret/issues/detail?id=16
40	Consider edited filename in SaveDialog	Comments welcome
41	Install CustomShortcuts for Editor Up and Down in every trees widgets	...ment under "macrodef" not recognized
42	IDEA-31957 Permit grouping and/or move up/down for build files in Ant toolwindow	No description provided.
43	IDEA-99003 Render type parameters in project view	No description provided.
44	IDEA-66284 ant integration - "description" attribute for "attribute" ele...	No description provided.
45	IDEA-40104 Support Check/uncheck multiple items in Ant/Build file props/Filters	No description provided.
46		

修改已有功能的占比较大，占到了所有的 2/3。而在修改功能中大多包含关键词 fix，要求解决 IDE 中的 bug，少部分是对功能的改进意见。

为了表达更加直观，对分类结果中不同的类别进行了相应的染色处理。