Intro

Survey on Code Examples

Dear participant,

Our research group is investigating the usefulness of code examples in understanding the usage of APIs.

We would be grateful if you could spend a few minutes of your time to answer the following survey, which consist of two parts:

1. A questionnaire about your background.
2. A short evaluation of ten code examples showing the usage of ten methods of an API (i.e., one code example per method).

The survey will take less than 10 minutes to complete, and your participation is anonymous and voluntary. If you have any question, do not hesitate to contact Laura Moreno via email at lmorenoc@utdallas.edu.

Thanks for your help.

Background Information

Background Information

Please, answer the following questions according to your experience in software development.

1. For how many years have you developed software?

| 1 ▼ |

2. Do you have any industrial experience as software developer?

- ○ Yes
- ○ No

For how many years?

| 1 ▾ |

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3. How often do you make use of third party libraries in your software projects?

- ○ Never
- ○ Rarely - I use third party libraries in less than 33% of my projects
- ○ Occasionally - I use third party libraries in more than 33% but less than 66% of my projects
- ○ Frequently - I use third party libraries in more than 66% of my projects

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4. How often do you use code examples found on the Internet to check how to use the API of a library?

- ○ Never
- ○ Rarely - I use code examples for less than 33% of the APIs I use
- ○ Occasionally - I use code examples for more than 33% but less than 66% of the APIs I use
- ○ Frequently - I use code examples for more than 66% of the APIs I use

Code Examples for Apache Commons IO

Code Examples for Apache Commons IO

The next questions refer to code examples showing the usage of some methods of the Apache Commons IO API.

1. Have you contributed to the implementation of the [Apache Commons IO](#) project?

   ○ Yes

   ○ No

Code Examples for Apache Commons IO

2. The next code snippet exemplifies the usage of the method:

> `org.apache.commons.io.FilenameUtils.concat(java.lang.String,java.lang.S`

```
Example
1 @Getter private File generatedAssetsFolder;
2 String fileName;
3 // generatedAssetsFolder.getCanonicalPath() -> the base path to attach
4 // fileName -> the filename (or path) to attach to the base
5 FilenameUtils.concat(generatedAssetsFolder.getCanonicalPath(),fileName)
```

◀   ▶

Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

[ ]

Code Examples for Apache Commons IO

3. The next code snippet exemplifies the usage of the method:

```
org.apache.commons.io.IOUtils.copy(java.io.InputStream,java.io.Writer,j
```

Example
```
1  InputStream is=RenderHTMLStageTest.class.getResourceAsStream("/htmlDocu
2  StringWriter writer=new StringWriter();
3  // is -> the <code>InputStream</code> to read from
4  // writer -> the <code>Writer</code> to write to
5  // "utf-8" -> the encoding to use, null means platform default
6  IOUtils.copy(is,writer,"utf-8");
```

Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

Code Examples for Apache Commons IO

4. The next code snippet exemplifies the usage of the method:

```
org.apache.commons.io.FileUtils.copyDirectory(java.io.File,java.io.File
          java.io.FileFilter)
```

Example
```
01  /**
02  * The date on which the Isomorphic build was made publicly available a
```

```
03  * <a href="http://www.smartclient.com/builds/">http://www.smartclient.
04  * in yyyy-MM-dd format.  e.g., 2013-25-12.  Used to determine both rem
05  * <br/>
06  * <b>Default value is</b>: <tt>The current date</tt>.
07  * @since 1.0.0
08  */
09  @Parameter(property="buildDate") protected String buildDate;
10  /**
11  * The path to some directory that is to be used for storing downloaded
12  * @since 1.0.0
13  */
14  @Parameter(property="workdir",defaultValue="${java.io.tmpdir}/${projec
15  /**
16  * One of SMARTGWT, SMARTCLIENT, or SMARTGWT_MOBILE.
17  * @since 1.0.0
18  */
19  @Parameter(property="product",defaultValue="SMARTGWT") protected Produ
20  /**
21  * Typically one of: LGPL, EVAL, PRO, POWER, ENTERPRISE.  Although it i
22  * specify optional modules ANALYTICS_MODULE or MESSAGING_MODULE, gener
23  * prefer the {@link #includeAnalytics} / {@link #includeMessaging} pro
24  * the optional modules to be included with the base installation / dep
25  * @since 1.0.0
26  */
27  @Parameter(property="license",required=true) protected License license
28  /**
29  * The Isomorphic version number of the specified {@link #product}.  e.
30  * Used to determine both remote and local file locations.
31  * @since 1.0.0
32  */
33  @Parameter(property="buildNumber",required=true) protected String buil
34  SimpleDateFormat dateFormat=new SimpleDateFormat("yyyy-MM-dd");
35  if(buildDate == null)
36  {
37  buildDate=dateFormat.format(new Date());
38  }
39  File basedir=FileUtils.getFile(workdir,product.toString(),license.toSt
40  File bookmarkable=new File(basedir.getParent(),"latest");
41  // basedir -> an existing directory to copy, must not be null
42  // bookmarkable -> the new directory, must not be null
43  // FileFilterUtils.notFileFilter(FileFilterUtils.nameFileFilter("zip")
44  //       means copy all directories and files should be the same as
45  FileUtils.copyDirectory(basedir,bookmarkable,
46          FileFilterUtils.notFileFilter(FileFilterUtils.nameFileFilte
```

Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in				

| | understanding the usage of the aforementioned method? | ○ | ○ | ○ | ○ |

How useful are the comments describing the arguments of the aforementioned method in understanding its usage?   ○   ○   ○   ○

Please, justify your answers.

```
[                                                                    ]
[                                                                    ]
[                                                                    ]
```

Code Examples for Apache Commons IO

5. The next code snippet exemplifies the usage of the method:

org.apache.commons.io.FileUtils.copyFile(java.io.File,java.io.File)

Example
```
1 @NotNull final File file;
2 final File prev=new File(String.format("%s/lib/security/cacerts",System
3 // prev -> an existing file to copy, must not be null
4 // file -> the new file, must not be null
5 FileUtils.copyFile(prev,file);
```

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Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

```
[                                                                    ]
[                                                                    ]
[                                                                    ]
```

Code Examples for Apache Commons IO

6. The next code snippet exemplifies the usage of the method:

`org.apache.commons.io.FileUtils.copyInputStreamToFile(java.io.InputStre`

<div>

Example
```
01 File source;
02 File target;
03 ZipFile zip=new ZipFile(source);
04 Enumeration<? extends ZipEntry> entries=zip.entries();
05 while(entries.hasMoreElements())
06 {
07 ZipEntry entry=entries.nextElement();
08 File file=new File(target,entry.getName());
09 // zip.getInputStream(entry) -> the <code>InputStream</code> to copy b
10 // file -> the non-directory <code>File</code> to write bytes to (poss
11 FileUtils.copyInputStreamToFile(zip.getInputStream(entry),file);
12 }
```

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Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

Code Examples for Apache Commons IO

7. The next code snippet exemplifies the usage of the method:

```
org.apache.commons.io.FileUtils.iterateFiles(java.io.File,org.apache.co
```

Example
```
1 public static Pattern FILE_TEMPLATE_PATTERN=Pattern.compile(".*(\\.temp
2 File root;
3 // root -> the directory to search in
4 // newRegexFileFilter(FILE_TEMPLATE_PATTERN) -> filter to apply when fi
5 // TrueFileFilter.TRUE -> optional filter to apply when finding subdire
6 //          parameter is null , subdirectories will not be included in t
7 //          TrueFileFilter.INSTANCE to match all directories.
8 FileUtils.iterateFiles(root,new RegexFileFilter(FILE_TEMPLATE_PATTERN),
```

Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

Code Examples for Apache Commons IO

8. The next code snippet exemplifies the usage of the method:

```
org.apache.commons.io.FileUtils.listFiles(java.io.File,java.lang.String
```

Example
```
01 /**
02  * The date on which the Isomorphic build was made publicly available a
03  * <a href="http://www.smartclient.com/builds/">http://www.smartclient.
04  * in yyyy-MM-dd format.  e.g., 2013-25-12.  Used to determine both rem
05  * <br/>
06  * <b>Default value is</b>: <tt>The current date</tt>.
```

```
07 * @since 1.0.0
08 */
09 @Parameter(property="buildDate") protected String buildDate;
10 /**
11 * The path to some directory that is to be used for storing downloaded
12 * @since 1.0.0
13 */
14 @Parameter(property="workdir",defaultValue="${java.io.tmpdir}/${projec
15 /**
16 * One of SMARTGWT, SMARTCLIENT, or SMARTGWT_MOBILE.
17 * @since 1.0.0
18 */
19 @Parameter(property="product",defaultValue="SMARTGWT") protected Produ
20 /**
21 * Typically one of: LGPL, EVAL, PRO, POWER, ENTERPRISE.  Although it i
22 * specify optional modules ANALYTICS_MODULE or MESSAGING_MODULE, gener
23 * prefer the {@link #includeAnalytics} / {@link #includeMessaging} pro
24 * the optional modules to be included with the base installation / dep
25 * @since 1.0.0
26 */
27 @Parameter(property="license",required=true) protected License license
28 /**
29 * The Isomorphic version number of the specified {@link #product}.  e.
30 * Used to determine both remote and local file locations.
31 * @since 1.0.0
32 */
33 @Parameter(property="buildNumber",required=true) protected String buil
34 SimpleDateFormat dateFormat=new SimpleDateFormat("yyyy-MM-dd");
35 if(buildDate == null)
36 {
37 buildDate=dateFormat.format(new Date());
38 }
39 File basedir=FileUtils.getFile(workdir,product.toString(),license.toSt
40 String[] executables={"bat","sh","command"};
41 // basedir -> the directory to search in
42 // executables -> an array of extensions, ex. {"java","xml"}. If this
43 //         are returned.
44 // true -> if true all subdirectories are searched as well
45 FileUtils.listFiles(basedir,executables,true);
```

Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

[ ]

Code Examples for Apache Commons IO

9. The next code snippet exemplifies the usage of the method:

`org.apache.commons.io.IOUtils.toInputStream(java.lang.String,java.lang.`

```
Example
1 String content="adsafgoaiuhgahgo\ndndasasddÃ¥Ã§Ã¶Ã§Ã¶Ã¥Ã§Ã¶Ã§as";
2 // content -> the string to convert
3 // "UTF-8" -> the encoding to use, null means platform default
4 IOUtils.toInputStream(content,"UTF-8");
```

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Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

[ ]

Code Examples for Apache Commons IO

10. The next code snippet exemplifies the usage of the method:

```
org.apache.commons.io.FileUtils.writeByteArrayToFile(java.io.File,byte[
```

Example

```
01 public static final int MAX_AMR_FRAME_SIZE=32;
02 private static Mode amrMode;
03 File pcmFile;
04 File amrFile;
05 int dtx=0;
06 int count=0;
07 Pointer amr=AmrLibrary.INSTANCE.Encoder_Interface_init(dtx);
08 short[] speech=null;
09 byte[] amrFrame=new byte[MAX_AMR_FRAME_SIZE];
10 try
11 {
12 FileInputStream in=new FileInputStream(pcmFile);
13 while(null != (speech=readFrame(in)))
14 {
15 count=AmrLibrary.INSTANCE.Encoder_Interface_Encode(amr,amrMode.ordinal
16 try
17 {
18 // amrFile -> the file to write to
19 // amrFrame=copyOf(amrFrame,count) -> the content to write to the file
20 // true -> if true , then bytes will be added to the end of the file r
21 writeByteArrayToFile(amrFile,amrFrame=copyOf(amrFrame,count),true);
22 }
23 }
24 }
```

Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

Code Examples for Apache Commons IO

11. The next code snippet exemplifies the usage of the method:

> `org.apache.commons.io.FileUtils.writeStringToFile(java.io.File,java.lan`

Example

```
01 final FileInfo template;
02 final FileInfo filter;
03 final String outputBasePath;
04 final String outputDirectory=createOutputDirectory(template,filter,out
05 final String templateFilename=template.getFile().getName();
06 final String outputFilename=FilenameUtils.separatorsToSystem(outputDir
07 final String rawTemplate=FileUtils.readFileToString(template.getFile()
08 final Properties properties=readFilterIntoProperties(filter);
09 final String processedTemplate=StrSubstitutor.replace(rawTemplate,prop
10 // newFile(outputFilename) -> the file to write
11 // processedTemplate -> the content to write to the file
12 FileUtils.writeStringToFile(new File(outputFilename),processedTemplate
```

Considering this code example, answer the following questions:

	Not useful at all	Slightly useful	Useful	Very useful
How useful is the code example (including the comments) in understanding the usage of the aforementioned method?	○	○	○	○
How useful are the comments describing the arguments of the aforementioned method in understanding its usage?	○	○	○	○

Please, justify your answers.

Comments

Comments

1. Do you have any further comments on the code examples presented in this survey?

2. Your opinion is important to us. Please, share your email address if we can contact you to follow up on any of your responses.