Understanding developers questions
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Developers may have questions about their code when:

- trying to understand source code
- developing a new feature
- refactoring
- etc.

We want to understand:

- The reasons why the questions are asked
- Why is the developer confused
Example

Example Question:

_How to write a test that expects an error to be thrown?_
Example

Example Question:

*How to write a test that expects an error to be thrown?*

  Question Type: not knowing how to implement something
StackOverflow questions

• How to export data from javascript in vuejs?

• Spring Batch Partition - partition creation taking so much time and impacting Batch job

• No suitable driver found for “jdbc:sqlite:myDB.sqlite” with java application using maven to connect to in-memory sqlite
Can it be done?

Allamanis and Sutton “Why, When, and What: Analyzing Stack Overflow Questions by Topic, Type, and Code”, 2013:

“A major finding is that the distribution over question types does not vary among languages, suggesting that we have found a domain-general categorization of questions.”
How to write a test that expects an error to be thrown?

Preprocessing:
- Chunk the question and answer text
How to write a test that expects an error to be thrown?

Preprocessing:

- Chunk the question and answer text
- Remove noun phrases
How to write a test that expects an error to be thrown?

Preprocessing:

• Chunk the question and answer text
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• Consider all other chunks as single tokens
How to write a test that expect an error to be thrown?

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• Chunk the question and answer text
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• Stem the verbs
How to write a test that expect an error to be thrown?

**Preprocessing:**
- Chunk the question and answer text
- Remove noun phrases
- Consider all other chunks as single tokens
- Stem the verbs

**Training:**
Train LDA using all StackOverflow questions.
# Question Types Sample

<table>
<thead>
<tr>
<th>Topic</th>
<th>Top Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topic1</strong></td>
<td>doesn’t work, work, try, didn’t, won’t, isn’t, wrong</td>
</tr>
<tr>
<td><strong>Topic2</strong></td>
<td>run, happen, cause, occur, fail, work, check, to see, fine, due</td>
</tr>
<tr>
<td><strong>Topic3</strong></td>
<td>hope, make, understand, give, to make, work, read, explain, check</td>
</tr>
<tr>
<td><strong>Topic4</strong></td>
<td>create, to create, is creating, call, can create, add, want to create</td>
</tr>
<tr>
<td><strong>Topic5</strong></td>
<td>return, pass, call, to pass, is returning, is passing, will return</td>
</tr>
<tr>
<td><strong>Topic6</strong></td>
<td>build, compile, include, link, to build, to compile, run, make</td>
</tr>
<tr>
<td><strong>Topic7</strong></td>
<td>faster, run, will be, slow, depend, make, can be, fast, would be</td>
</tr>
<tr>
<td><strong>etc.</strong></td>
<td>... , ... , ...</td>
</tr>
</tbody>
</table>
Classifying Questions

What's the type of this question?

How to write a test that expects an error to be thrown?
Classifying Questions

What's the type of this question?

**How to write** a test that expects an error to be thrown?

Question Type: *not knowing how to implement something*
Classifying Questions

What's the type of this question?

How to write a test that expects an error to be thrown?

Question Type: not knowing how to implement something

Question Concept: Testing