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Software Engineering

http://proglang.informatik.uni-freiburg.de/teaching/swt/2009/

Exercise Sheet 10

Exercise 1: Testing Terminology (8 Points)

Exercise 1.1:

Relate the following statements to the terms *defect*, *infection*, *propagation*, and *failure*. Discuss how they (possibly) came to be and how they (possibly) relate to the output.

1. A program throws a null pointer exception.

2. A constant $\pi = 31.4$ is declared, but all but one test case pass.

3. Variable z has value 15.

4. A bug is removed by fixing three files.

5. A clock shows Greenwich time rather than the local time zone.
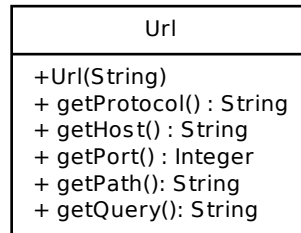
Exercise 1.2:

1. Does every defect in the program code result in an infection of the program state? Explain.

2. Does an infection always result in a failure? Explain.

3. Can there be an infection without an defect? Explain.

Exercise 2: Verification and Testing (2 Points)

"If we can prove a program is correct, we have no need for testing or debugging". Discuss this statement.

Exercise 3: JUnit Unit Testing (10 Points)

Consider the following URL class:

Url
+Url(String)
+ getProtocol() : String
+ getHost() : String
+ getPort() : Integer
+ getPath(): String
+ getQuery(): String

You are supposed to unit test the above URL class. Write a JUnit testcase class URLTest and provide a method setUp, where you create an instance of the URL class by passing http://www.somehost.com/somepath.php?query=whatever as constructor parameter. Then, write the teardown method and write a test method for each method of the URL class.