Lab 10 - Static Code Analysis (LTAT.05.006 - Software Testing)

Instructions

1. Introduction

Static code analysis is a type of program analysis that is performed without actually executing programs but rather examining the source or object code. There are many commercial and open-source tools designed to inspect code and report found issues. In this lab, students will use one of them, FindBugs, to find bugs in a given Java project.

The objective of this lab is to let students know that tools like FindBugs exist and to get some hands-on experience in how to use them and how to interpret reported issues so that it can help improve the quality of the code.

Analysis tool:

The tool we will be using in this lab is FindBugs and it works as a plug-in for IntelliJ IDEA and Eclipse. FindBugs is a Static code analysis tool that analyses Java bytecode and detects a wide range of problems based on the concept of bug patterns. FindBugs requires minimum Java 7 as runtime environment.

System under test (SUT):

The project that we will be testing in this lab is HospitalSystem 1.0 which is a simple Java project for checking in and out patients and doctors and assigning patients to the right doctors. HospitalSystem 1.0 requires Java 8 as runtime environment.

More information from the document “HospitalSystem Overview and Tool Setup”

2. Tasks

Task 1: Manual code inspection

Take a look at document “First Task” and try to find as many faulty parts as possible within 5 minutes.

Task 2: Tool setup

Set up Eclipse IDE, install the FindBugs plugin, import HospitalSystem and run FindBugs on it. Instructions can be found in the document “HospitalSystem Overview and Tool Setup”.

Task 3: Analyzing issues

To understand what FindBugs issues mean and how to analyze them, have a look at the document “Analyzing an issue”.

3. Deliverables and Grading

You can receive up to 10 points for this lab. Detailed instructions for the deliverables can be found in the document “Lab Deliverables”.