

SE 452 Software Verification & Validation - Winter 2008-9 - Project

Objective:

Learn to perform static and dynamic analysis of real systems

Overview:

Your team is to select an open source project. You will modify that system by inserting faults for other students to discover. Here are some places to find open source projects:

- [IBM list of open source projects](#)
- [Enterprise open source list](#)
- [WEBL.ORG / Free and Open Source Software](#)
- [osdir.com](#)
- [sourceforge](#)

Team Choices:

The teams are described in the [teams.xls](#) spreadsheet.

Deliverables:

| Date | Class | Name | Description |
|-------|-------|---|---|
| 12/4 | 1-2 | P1: Team Preferences | Describe your preferred type of system (e.g., game, media application, etc.), operating system platform (Windows or Linux) and programming language for the course project. You may also specify names of people you like to work with. These preferences will be used to form compatible teams of 2 or 3 students. |
| 12/11 | 2-2 | P2: Virtual Machine Preference | Name the operating system (Windows or Linux) for the virtual machine you need for your project. |
| 1/13 | 5-1 | P3: Project Selection | Demonstrate that you can compile and run your preferred system |
| 1/20 | 6-1 | P4: Modification 1 (Team) | Modified code for black-box testing |
| 1/29 | 7-2 | P5: Black-box tests (Individual) | Prepare and execute black-box tests of a system |
| 1/29 | 7-2 | P6: Modification 2 (Team) | Modified code for code inspection |
| 2/10 | 9-1 | P7: Code inspection results (Individual groups) | Conduct code inspection of a significant part of a system |
| 2/10 | 9-1 | P8: Modification 3 (Team) | Modified code for random testing |

| | | | |
|------|------|-----------------------------------|---|
| 2/17 | 10-1 | P9: Random tests (Individual) | Prepare and execute random tests of a system |
| 2/19 | 10-2 | P10: Test Results (Team) | Prepare a short demonstration of the bugs that were found and the bugs that were not found. |
| 2/20 | | P11: Peer Evaluation (Individual) | Give feedback about how well each member of the team performed, including yourself. This is an individual activity, not a team deliverable. |

All deliverables are due at 9 PM.

P4 Modifications (Team):

1. Create 5 bugs in your system and recompile it for testing.
2. In a simple text file, named "system-instructions.txt" (where "system" is the name of the system), prepare instructions for the students who will test your system. Include basic information about how to run your system. If needed, include hints on where (or where not) to find bugs.
3. In a second simple text file, named "system-bugs.txt" (where "system" is the name of the system), describe the bugs you inserted and how they could be detected by testers. Include a report of the amount of time spent by each member of the team on this deliverable.
4. Turn in both text files to the P4 dropbox by the deadline.
5. Post your "system-instructions.txt" file to the P5 Black-box Testing Discussion Forum for your system.

P5 Tests (Individual):

1. Test the 2 systems assigned to you using the system-instructions.txt files to get started. Refer to the [testing-assignments.xls](#) file to see which systems you will test.
2. For each system prepare a simple text file, named "system-anomalies.txt" (where "system" is the name of the system), that describes all the bugs or unexpected behavior you found in your testing. For each bug briefly describe how to reproduce it.
3. Turn in both text files to the P5 dropbox by the deadline.

P6 Modifications (Team):

1. Identify a small part of the source code of your system that could be inspected by other students. About 150-250 lines of code is the right size.
2. Insert 5 bugs into the source code and create a PDF file of the code with line numbers. This file should be named "system-code.pdf" (where "system" is the name of the system).
3. In a second simple text file, named "system-bugs.txt" (where "system" is the name of the system), describe the bugs you inserted and how they could be detected by code inspectors. Include a report of the amount of time spent by each member of the team on this deliverable.
4. Turn in both text files to the P6 dropbox by the deadline.

P7 Code Inspections (Individual groups):

1. Each system will be inspected by 2 or 3 different groups. Refer to the [testing-assignments.xls](#) file to see which systems you will inspect.

2. For each group one member of the team that "owns" the code will act as moderator for the code inspection. All other participants will be reviewers.
3. Each group should hold their code inspection at least one day before the P7 deadline.
4. Use a copy of the "P7n-system-inspection.xls" file in the Resources folder to record the results of each inspection. Rename each file with the appropriate inspection number and "system" name.
5. Turn in the reports to the P7 dropbox by the deadline.

P8 Modifications (Team):

1. Create 5 bugs in your system and recompile it for testing. Some of the bugs may be the same as were used in P4.
2. In a simple text file, named "system-instructions.txt" (where "system" is the name of the system), prepare instructions for the students who will test your system. Include basic information about how to run your system. If needed, include hints on where (or where not) to find bugs.
3. In a second simple text file, named "system-bugs.txt" (where "system" is the name of the system), describe the bugs you inserted and how they could be detected by testers. Include a report of the amount of time spent by each member of the team on this deliverable.
4. Turn in both text files to the P8 dropbox by the deadline.

P9 Random Testing (Individual):

1. Test the 2 systems assigned to you using some form of random generation of your tests. Refer to the [testing-assignments.xls](#) file to see which systems you will test.
2. For each system prepare a simple text file, named "system-anomalies.txt" (where "system" is the name of the system), that describes all the bugs or unexpected behavior you found in your testing. For each bug briefly describe how to reproduce it.
3. Include a note in each text file describing how you randomly generated your tests.
4. Turn in both text files to the P9 dropbox by the deadline.

P10 Report of Results (Team):

1. Prepare a short demonstration of the bugs that were found and the bugs that were not found for your system.
2. We will conduct the demonstrations in class. There is no need to prepare a written report.

P11 Peer Evaluation (Individual):

1. Use the myCourses peer2peer widget to fill out a peer evaluation of each of the members of your team.
2. Note that you may lose all the individual points toward your project grade if you do not fill out a peer evaluation by 9 PM on 2/20.

mark.ardis@se.rit.edu

Last updated: Sun, 07 Dec 2008 16:19:16 GMT