

Software Testing, Quality Assurance & Maintenance (ECE453/CS447/SE465): Project

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The course project is a chance to put into practice some of the concepts you have seen in class. The project has three main parts: a test plan, unit tests, and system/integration tests.

You will test the free software project **SweetHome3D**, which allows users to visualize furniture in their homes and optimize furniture placement. The homepage for **SweetHome3D** is at

<http://www.sweethome3d.eu>

Use version 1.6 for your testing.

1 Test Plan (10%)

Remember that test plans are only useful for organizing testing. To prevent you from going overboard in writing the test plan, I've chosen to give it a relatively low weight, and you should submit not more than 10 pages.

Imagine that your manager has assigned you the task of testing **SweetHome3D**. Write an initial test plan and refine it, using your intuition to decide where to refine the test plan. Estimate the team size and amount of time that you need to adequately test **SweetHome3D**. Note that **SweetHome3D** comes with a number of JUnit tests. Survey the already-existing tests and summarize their coverage.

The test plan should include the following information (as discussed in Lecture 24):

- Introduction
- Test items
- Features to be tested
- Features not to be tested
- Approach
- Item pass/fail criteria
- Existing tests
- Test deliverables
- Schedule
- Risks and contingencies

2 Unit Tests (55%)

This part of the project has two parts: a coverage part and a mutation testing part.

Coverage (80%)

Choose 2 classes (in the 500-line range) and 2 methods from the classes

```
com.eteks.sweethome3d.viewcontroller.HomeController  
and  
com.eteks.sweethome3d.swing.PlanComponent
```

and perform unit testing, ensuring both edge coverage and predicate coverage. Find one case for which 1) all-uses coverage and 2) CACC improve coverage. Also be sure to cover any conditions that you think ought to be tested, even if they are not necessary to achieve your coverage criteria. You should be sure to choose methods that enable you to write nontrivial tests.

Deliverables

Please submit:

- test plan;
- unit tests, descriptions thereof, and evidence that you achieve coverage; extra AUC and CACC cases;
- mutants and test cases; and
- system test case specifications, discussions, and reports.