Assignment Report

ECSE 429 Software Validation

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Group 12

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**Test code generation**

To generate the test code, you need to

1. Modify the xml file loaded from the RoundPathTreeGenerator.java.
2. Run the RoundPathTreeGenerator.java to generate the junit test file which to be stored in the same folder of the class file (for example, ccoinbox.java).
3. Run the generated junit test file.

**Manual changes**

Two changes are made manually to fix the generated junit test file, which are in case 9 and 10.

* Case 9: event is vend(), however, the total number of quarters is 2 which is automatically inserted from the previous states. The transition is from allowed to notAllowed, which means the total number of quarters must be 3, so the test fails. To fix this issue, we need to manually add 1 more quarter before event vend().
* Case 10: similar to case 9, in order to make the transition successful, we need to manually insert 2 more quarters before vend() to make it work.

**Defects found in ccoinbox.java**

In case 7, the junit test code is correct, but the test doesn’t go through. We look into the code given, then we found an error in ccoinbox.java. In the method *public boolean addQtr()*, the case ‘allowed’ of switch() function, the result state is supposed to be ‘allowed’, but the given code is ‘notAllowed’. We then manually fixed this to make the test case 7 pass.

**Challenge to automate sneak path test**

The main challenge to automatically generate sneak path test cases is how to find the transition and the corresponding event and conditions. Since it is not given, we might be easy to find it out with brain but it is difficult with logical code.