SE 6367: Software Testing, Validation & Verification

Tutorial: Combinatorial Testing

In this tutorial, you will learn the basic knowledge and get a hands-on experience of using combinatorial testing in practice.

This tutorial has six major steps:

1. Understand the program under test (PUT) and design the input model
   1. Go to the directory “CT-Tutorial” under your home directory.

Read the file “program\_spec” to understand the requirement of PUT.

(You can run *cat program\_spec* to read the requirement)

1. wefwef
   1. Figure out what parameters (factors) you would like to include in your model and assign the possible values to each parameter.

1. Create the Input model using *ACTS* tool
   1. Run “acts\_gui\_2.9.jar”:

java -jar acts\_gui\_2.9.jar

* 1. Open and read instructions of Chapter 3.1 (Page 7) of *ACTS* manual:

<https://paris.utdallas.edu/ewong/se6367-exec/04-Tutorial/CT-Tutorial/acts_user_guide_2.92.pdf>

(Constraint and relation setup are not needed in this tutorial)

1. Create three CT test suite
   1. Follow the instructions of Chapter 3.2 (Page 11) of the *ACTS* manual to create a 2-way test suite
   2. Export the generated 2-way test suite to a text file

* Follow the instructions of Page 15 and 16, Chapter 3.5.
* Choose “*cvs*”file format when you export the test set.
  1. Repeat Step 3.1 and 3.2 to create 3-way and 4-way test suites.

1. Convert your exported 2-way, 3-way, and 4-way test suite files obtained in Step 3.2 to executable shell script so that you can automatically execute all the test cases

* A sample executable script is provided (sample\_script.sh)
* More hints of writing a script can be found at
* <http://www.linfo.org/create_shell_1.html>
* You have to use script to execute the test cases in the following step, DO NOT execute the test cases manually

1. Execute the test cases

*./your-test-cases.sh*

1. Find out where the bug is and which test set detects the bug, write your answer in a file called “testing-result” using the following format:

*[---]-way test suite, test case no.[---] detects the bug.*

*Bug description: The system incorrectly …*

**Submission:**

Tar or zip your entire working directory with your “testing-result” file on the server and send it to TA.