Software Testing Tutorial LO 3 - 2025

There are *five* tutorial topics scheduled for the Software Testing course. Each of these will be discussed over two weeks. In the first week you will work on a preparatory task without and in the second the group will work with the tutor. The goal is to use the software you are working with to demonstrate your capability in relation to the specific learning outcome.

Recall LO 3 is "*Apply a wide variety of testing techniques and compute test coverage and yield according to a variety of criteria*" so this section of your portfolio should take the planned set of tests and consider the issues that arise during testing. There are some key points to note in developing this section of your portfolio. It may be that some parts of the portfolio section will not be possible to write until later in the semester:

- You may not be able to do all the testing yet because you have yet to develop the software, or some other constraint means it is not possible to complete the testing in the next couple of weeks.
- It is likely that your testing will reveal issues in your code AND in your tests so you should try to capture the evolution of your software and tests in the documentation of the testing process.
- Remember you have limited time to test the software so there will (almost inevitably) be some weaknesses that you are able to identify. Being able to identify such weaknesses is an important part of your testing effort.

The LO 3 section is a more straightforward section of your portfolio to write than the LO 2 section since it should summarise the results of testing and how you plan to evaluate your testing.

Preparation, week 6 (20 Oct-26 Oct)

A good preparation for this activity is to read Young & Pezze chapters 10 and 11. These chapters describe the basic techniques of functional or "black box" testing. Chapters 12 and 14 consider approaches that take the structure of the code into account and will be useful in considering the evaluation of testing.

It is likely that your testing activity will not be complete (or will even have started) when you begin the work of considering your LO3 portfolio section. The idea of this preliminary activity is for you to consider what might be a minimal viable product (MVP) and what evidence a customer might need to believe such a product is viable. Do the following steps (try to read over all the steps before you start):

1. Take 15 minutes to do the following:
   - *1.1.* Pick the product you are going to use as your example (e.g. PillDrone)
   - *1.2.* Decide what a minimal viable product (MVP) would look like for your chosen product and create a brief description of what you expect your MVP to do.
   - *1.3.* Pick one key requirement that captures some important aspect of your MVP, discuss what evidence you think you would need to convince a customer to buy your MVP and how you would like to generate that evidence.

2. In this activity you play two roles: the **vendor** role and the **customer** role.

2.1. As **vendor** outline a brief pitch for your MVP arguing why it is viable for the **customer** (here, for PillDrone the **customer** might be the Edinburgh Chapter of the UK Pharmaceutical Federation) and presents the sort of evidence you think is needed to convince the buyer that the MVP meets the requirement considered at stage 1.

2.2. Then take on the **customer** role and try to construct:

2.2.1. Arguments for why the MVP might fall short of what an MVP should achieve, pointing out realistic changes that might make the proposed MVP acceptable.

2.2.2. Arguments that the evidence is not convincing that the MVP meets the requirements together with reasonable suggestions on what evidence might be altered or strengthened.

3. Take 5 minutes at the end to briefly consider what testing methods you might want to use to generate evidence.

Tutored session, week 7 (30 Oct-03 Nov)

The goal of this tutorial is to consider what would be a good section on LO 3 for your portfolio. This involves considering the grading scheme. Here are the four sub-criteria LO 3 is graded on (recall each is graded in the range 0-5) with the interpretation provided in the Marking Scheme.

In the tutored session the tutor will briefly us an example to present an outline of the sorts of evidence that could support your LO 3 portfolio section and the groups will assess the document and consider the construction of a portfolio section for LO 3.

3. *Apply a wide variety of testing techniques and compute test coverage and yield according to a variety of criteria*. This section assesses how well the planned testing has gone in practice. Were all the planned techniques used and how well they were implemented.

3.1. Range of techniques: The portfolio should outline how well the implemented tests compare with the planned testing and briefly describe the chosen techniques and why they are appropriate.

3.2. Evaluation criteria for the adequacy of the testing: The portfolio should contain a brief discussion motivating the choice of evaluation criteria used for each testing method. This should relate to the requirement and discuss how the chosen techniques help build confidence the software meets the requirements

3.3. Results of testing: The portfolio should also present a brief overview of the results of testing that points to more detailed work. This should communicate the results effectively and you should consider how best to communicate the results of testing.

3.4. Evaluation of the results: The final element in the portfolio should cover the application of the chosen evaluation techniques and this section of the portfolio should effectively communicate the results of the evaluation.