# Tutorial 05 – Debugging

This tutorial is aimed at testing your debugging abilities.

Do not worry if you can’t do all the exercises, especially the difficult ones. Give them a try and if you are stuck, ask your tutor.

For each exercise you should make a copy of the example you are working on **before you modify it**. In that way you will have both your new version and the original version to compare it with.

You should make a record all of your work in your COMP1753 logbook.

1. Download the examples and last week’s solutions. Check through the solutions and make sure you could do them all**.** Unzip this week’s examples.
2. If you haven’t already, put all the examples and solutions you have downloaded, and the work you have done, into a folder (with subfolders for each week). Start up PyCharm and open the folder. Then open a couple of the examples from previous weeks and make sure you can run them from PyCharm.
3. 03Calculator\_naming has some nonsensical variable names in the calculate() function. Rename them to something sensible (try using Shift+F6). Once you have renamed them, see if you can spot the bug and fix the bug that will prevent the code from working. [Hint: if you can’t spot it, try running the code a few times and see where it crashes.]
4. 04RandomValues\_validation has four problems: three are errors which will prevent the code from working; one is a bug which meana that the code will not work as expected (it should output 5 random values between the minimum & maximum input by the user). Using PyCharm’s suggestions and debugging, fix the problems. Note: the bug is **quite** subtle – can you find it?
5. 05Concessions\_orOperators has five problems: three are errors which will prevent the code from working; two are bugs which mean that the code will not work as expected (the code should say “Hello [name]”, where [name] is input by the user, together with a message about the price: 10% concession for being a student, 10% if 18 or younger, 20% for both). Using PyCharm’s suggestions and debugging, fix the problems. Note: the bug are **quite** subtle – if you can’t spot them, try running the code several times with different inputs to test each condition.
6. Make sure you are up to date with all the previous tutorial exercises before we move on to the new topics (Loops, Arrays, Strings, etc) in the following weeks.