The Australian National University **Research School of Computer Science, CECS**

COMP1730/COMP6730 – Programming for Scientists
Mid-Semester Examination

Overview

This is the mid-semester examination for COMP1730/COMP6730, Programming for Scientists.

The exam consists of five short answer questions and two programming problems. Some questions have multiple parts. Questions are not all worth the same number of marks. **Question 7 is for COMP6730 students only**. If you are a COMP1730 student you will not receive any marks for attempting Question 7.

For COMP1730 students the exam is out of 20. For COMP6730 students, the exam is out of 24 which will be scaled to a mark out of 20.

You do not have to answer all questions, but you will, of course, only receive marks for the questions you answer. You can attempt the questions in any order you like.

On your desktop you will find a folder titled `MidSemesterExamination` which contains a file `answers.txt` in which you should write your answers to the written questions. It also contains files `question_5.py` and `question_6.py`, in which you should write your code for the two practical problems. **Do not rename or move the solution files!** Each practical problem has a corresponding test file `test_question_5.py` and `test_question_6.py` which works in an identical fashion to the tests we provided for the second and third homework exercises.

The Exam Environment

The lab exam environment is exactly the same as the regular CSIT lab computer environment except that internet access is limited to the course web pages only and that you will not be able to see your normal home directory. In particular, you should find the same python IDEs (Spyder, PyCharm, IDLE, etc.) in the exam environment as you have in the labs. To assist you, the following material is available:

You can access the course web site by starting a *Firefox* web browser, but not wattle. Links to outside web sites on the course pages will not work, since internet access is disabled. A copy of Downey's text book can be accessed from a link on the main page of the course website. The python interpreter's built-in help function should work as normal.

If the environment is unfamiliar, you may want to quickly review the first part of Lab 1.

Short Answer Questions

For Questions 1 - 4 (and Q7 if you are COMP6730 student), you should write your answers into a template file called `answers.txt`. You will find this file in the the folder `MidSemesterExamination` on the desktop.

You can open the file in any text editor (e.g., double-clicking it will open it in gedit; you can also edit it in any of the python IDEs). Do not use a word processor (like OpenOffice) to edit the file, since these will save it in a different format.

Important: You must remember to save your answers file before closing and logging out. It will not happen automatically.

The template file contains some formatting lines (lines beginning with ////). Do not remove or change the formatting lines; if you do, we will not be able to find your answers and you may not receive any marks for them. The template file clearly shows where you should write your answers to each question.

There is no limit to the length of answers, but you should try to keep your answers short and clear. Answers that contain correct statements will gain less than full marks if they also contain irrelevant or incorrect statements.

Programming Problems

Solutions to the programming problems (Q5 and Q6) will be marked on the basis of **functionality only**. To be fully functional means **solving the problem that is described in the specification**. Passing the tests is an indication that the solution may be correct, but it is not the criterion. **Failing the tests proves that your solution is wrong**. A partially functional solution may receive some marks. However, marks are not proportional to the number of tests passed. A submission that does not run (for example, due to syntax errors) or that fails every test case will receive zero marks. We will **not** mark you on code quality for the **programming problems only**.

The Test Framework

Each programming question has a corresponding testing program, similar to those you saw for the later homework assignments. They are named accordingly, so the testing program for `question_5.py` is called `test_question_5.py`. Running the test program will run a series of tests on your solution and provide you with some output including the number of tests passed.

The testing program will reject your file if it breaks any of the following requirements:

- Your solution file must be syntactically correct python code.
- You cannot rename the function you are asked to implement, nor change the number of parameters it takes, though you are free to write additional functions if it helps you to break down the problem.
- You cannot move the answer file to another location or rename it.

Remember that the testing program can only prove that your solution is wrong. **Passing the tests does not prove that your solution is correct**.

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