# epcc



## MSc in High Performance Computing MSc in High Performance Computing with Data Science Programming Skills Coursework 1 - Code Review

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#### **1** Introduction

In this coursework you will carry out a code review of a small program.

The coursework is an individual exercise. You will carry out this review yourself, and write up your review in a report.

Your mark is based upon your report.

## 2 A Python powers of two program

The LEARN area for this coursework (see Appendix 7) has a file program.py.

program.py is a small Python program. It takes a single non-negative integer as a command line argument and prints out powers of two that, when added together, give the original integer. For example, running the program with 27 gives:

16 + 8 + 2 + 1 = 27

```
$ python program.py 27
16
8
2
1
as:
Other examples include:
$ python program.py 1
```

```
$ python program.py 1
$ python program.py 2
$ python program.py 3
2
```

```
1

$ python program.py 255

128

64

32

16

8

2

1

$ python program.py 256

256

$ python program.py 257

257

1
```

If given a value less than or equal to zero, then there is no output:

```
$ python program.py 0
```

You can run this program under Python 2. It can be run on the Physics Computational Lab machines.

#### **3** Code review

Look at this program and and review its code. Look for any issues, or problems you see, to do with:

- How easy it is to read.
- How easy it is to understand.
- How the code is structured or designed.
- How the code is documented.
- Anything else you think is a problem.

Write a report listing the issues you encountered, explanations as to why these are issues, and how these issues could be fixed i.e. everything you think is wrong about the code and how it could be fixed.

This is *not* a code development exercise, there is no need to write any code. Nor is this a debugging exercise, the code has *no bugs* that the course organiser is aware of.

Though the code is written in Python, the problems it has are problems that are universal, and would equally be problems if the code was in C, C++, Fortran or Java.

#### 4 Individual report

Your report should be structured as follows:

Introduction Short introduction.

**Code review** Issues encountered, explanations as to why these are issues, and how these issues could be fixed.

Conclusions Some brief conclusions.

Your report should be about 2-3 pages.

#### 5 Submission and marking

You are required to submit a written report.

Submissions are done via the Turnitin submission tool from within LEARN, under Coursework Submission.

The filename of your submission must include your exam number (e.g B123456) which appears on your matriculation card. You should also include the course identifier, PS for Programming Skills, and the identifier CR for this coursework. For example B123456-PS-CR.pdf.

Your exam number should be used as the author of your report. Do not put your name on your report.

This naming scheme helps to ensure that, wherever possible, we can mark coursework anonymously but can also easily match the final marks to the correct students.

#### 5.1 Deadline

The deadline for submission for your report is **14:00 Thursday 15th October (week 4) 2015** for all students.

Submission are allowed up to 5 calendar days after the deadline, with a 5% deduction per day or part-day late.

If you submit any coursework by the deadline then it will be marked, and you cannot submit an amended version later on, to be marked.

If you do not wish the submitted version to be marked after the deadline, and intend submitting an amended version after the deadline, then it is your responsibility to let the course organiser know, in advance of the deadline, that the submitted version should not be marked.

#### 5.2 Marking

Marks will be awarded as follows:

- Code review 15
- Presentation (quality of text and report) 5
- Total 20

#### **6** Questions

Feel free to e-mail the course organiser if you have any questions. Questions of interest to the whole class will be anonymised and them, plus their answer, forwarded to the whole class.

### 7 Appendix - coursework files on LEARN

To access the LEARN area for this coursework:

- Log-in to LEARN at http://www.learn.ed.ac.uk OR via http://www.myed.ed.ac.uk, using your EASE username and password.
- 2. Click My Courses.

- 3. Click Programming Skills(2015-2016)[SS1-SEM1].
- 4. Click Coursework.

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