SCHOOL OF COMPUTER SCIENCE
COURSEWORK ASSESSMENT PROFORMA

MODULE & LECTURER: CM3103, Professor David Walker

DATE SET: 24 October 2018

SUBMISSION DATE: 7 December 2018 at 9:30am

SUBMISSION ARRANGEMENTS: See below

TITLE:

This coursework is worth 10% of the total marks available for this module. The penalty for late or non-submission is an award of zero marks. You are reminded of the need to comply with Cardiff University's Student Guide to Academic Integrity. Your work should be submitted using the official Coursework Submission Cover sheet.

INSTRUCTIONS

1. Download the incomplete parallel code, blurMPI.c, and the input file, David.ps, from Learning Central.
2. Edit blurMPI.c to correctly refer to the input and output files in your file system.
3. Insert code into blurMPI.c at two locations, as indicated by the comments in the source code.
4. Compile and run blurMPI.c several times (say, between 6 and 10 times), noting the time for the execution of the main computational work. Evaluate the average and standard deviation of these times. Repeat this for differing numbers of processes, for example, 1, 2, 4, 6, 8, 10, and 12.

   [3 marks for correct parallel code]
5. Plot a graph to show the speed-up of the code as a function of the number of processes.
6. Develop a simple performance model for your parallel code that expresses the speed-up as a function of the number of processes.

   [2 marks]
7. Write a report (2 or 3 pages of text, plus figures) that presents and interprets the results of your timing experiments. The report should include:
   a. A description of the hardware and software environment, and a description of the timing experiments carried out.

      [1 mark]
   b. Appropriate graphs of your timing experiments.

      [1mark]
   c. The derivation of your performance model, and a comparison of the model of the timings results that accounts for any discrepancies or unusual features.

      [2 marks for comparison and analysis]
   d. A short section presenting any overall conclusions, and giving a reflection on what you have learned from this coursework. [1 mark]

SUBMISSION INSTRUCTIONS

All submissions should be via Learning Central unless agreed in advance with the Director of Teaching.

Students should submit all their files as a single zip (*.zip) file.

Description		Type	Name
Cover sheet	**Compulsory**	One PDF (.pdf) file	[student number].pdf
Report	**Compulsory**	One PDF (.pdf) file, including any relevant plots	report_[student number].pdf
Code	**Compulsory**	One or more source files	No restriction
Input image file	**Compulsory**	One Postscript (.ps) file	David.ps
Output image file	**Compulsory**	One Postscript (.ps) file	DavidBlur.ps
Output data file	**Optional**	One Excel (.xlsx or .xls) file	Spreadsheet of all your timing data

CRITERIA FOR ASSESSMENT

See instructions above for mark scheme.

Feedback on your performance will address each of these criteria.

FURTHER DETAILS

Feedback on your coursework will address the above criteria and will be returned in approximately 2 weeks.

This may be supplemented with oral feedback via individual appointment.