SCHOOL OF COMPUTER SCIENCE
COURSEWORK ASSESSMENT PROFORMA

MODULE & LECTURER: CM3103, Professor David Walker

DATE SET: 13 October 2017

SUBMISSION DATE: 8 December 2017 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 sequential code, blur.c, and the input file, David.ps, from Learning Central.
2. Edit blur.c to correctly refer to the input and output files in your file system.
3. Compile and run blur.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.
4. Parallelize the main computational loops (the *for* loops over row and col) using OpenMP directives, to produce a code named blurOMP.c.
    a. For dynamic scheduling, make timing measurements for differing numbers of threads and chunk size values. The maximum number of threads should be 4 times the number of cores. As in part 3, the times you present should be averages over several runs.
    b. Repeat part (a) for static scheduling.

    [3 marks for correct parallel code]
5. 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 [1 mark].
    b. A description of the timing experiments carried out [1 mark].
    c. Appropriate graphs of your timing experiments [2 marks].
    d. A discussion of the results that demonstrates a qualitative understanding of the timings, and accounts for any unusual features [2 marks].
    e. A short section presenting any overall conclusions, and giving a reflection on what you have learned from this coursework [1 mark].

SUBMISSION INSTRUCTIONS

All submission 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 will be supplemented with oral feedback via individual appointment.