Faculty of Technology – Course work Specification 2014/15

Module name:	**Data Structures and Algorithms**		
Module code:	**CTEC2901**		
Title of the Assignment:	**Portfolio**		
This coursework item is: (delete as appropriate)	Summative		
This summative coursework will be marked anonymously		No	
The learning outcomes that are assessed by this coursework are: [1] Explain and implement a variety of classical data structures			
This coursework is: (delete as appropriate)	Individual		
This coursework constitutes 20% **to the overall module mark.**			
Date Set: Week 1			
Date & Time Due:	**23:59 on 4th January 2015**		
Your marked coursework and feedback will be available to you on: If for any reason this is not forthcoming by the due date your module leader will let you know why and when it can be expected. The Head of Studies (rgh@dmu.ac.uk) should be informed of any issues relating to the return of marked coursework and feedback.		**Vivas take place during weeks 15 – 18** **Unmoderated marks available during viva**	
When completed you are required to submit your coursework to: 1. Upload files to Blackboard			
Late submission of coursework policy: Late submissions will be processed in accordance with current University regulations which state: *"the time period during which a student may submit a piece of work late without authorisation and have the work capped at 40% [50% at PG level] if passed is **14 calendar days**. Work submitted unauthorised more than 14 calendar days after the original submission date will receive a mark of 0%. These regulations apply to a student's first attempt at coursework. Work submitted late without authorisation which constitutes reassessment of a previously failed piece of coursework will always receive a mark of 0%."*			
Academic Offences and Bad Academic Practices: These include plagiarism, cheating, collusion, copying work and reuse of your own work, poor referencing or the passing off of somebody else's ideas as your own. If you are in any doubt about what constitutes an academic offence or bad academic practice you must check with your tutor. Further information and details of how DSU can support you, if needed, is available at: http://www.dmu.ac.uk/dmu-students/the-student-gateway/academic-support-office/academic-offences.aspx and http://www.dmu.ac.uk/dmu-students/the-student-gateway/academic-support-office/bad-academic-practice.aspx			
Tasks to be undertaken: **See next page.**			
Deliverables to be submitted for assessment: **See next page**			
How the work will be marked: **See next page**			
Module leader/tutor name:	**D Smallwood**		
Contact details:	**drs@dmu.ac.uk**		

Introduction
Throughout the first term the weekly exercises (from week 3) each contain a special *portfolio* assignment. You have been maintaining these as directed in a special *portfolio* directory. Each of the exercises required you to implement or modify a program using a particular classical data structure or add methods to the data structure itself.

Assessment
The assessment will take place using a *viva voce* - the tutor will interview you individually and ask you to demonstrate and explain a sample of the portfolio questions. The sample will not be advertised in advance so you should be prepared to demonstrate and explain any of your portfolio exercises.

Preparation
NB: You MUST use the correct names for the filenames as directed in the portfolio exercises. Specifically your portfolio directory must contain the following (Note that the modified `clist.c` library file is copied to the portfolio directory and also that the `pfbst_char.h` and `pfbst_char.c` files are contained in the `portfolio` directory too.) The list of mandatory files is given below:

```
clist.c
pfbst.c
pfbst_char.c
pfbst_char.h
pfclist.c
pfpq.c
pfqueue.c
pfstack.c
```

The programs should compile with the following command-line instructions. (These instructions will be executed in the viva by a script-file so please ensure that these commands do work with your portfolio).

```
gcc -I$HOME/include -L$HOME/lib pfstack.c -o pfstack -larray_stacks
gcc -I$HOME/include -L$HOME/lib pfqueue.c -o pfqueue -larray_queues
gcc -I$HOME/include -L$HOME/lib pfpq.c -o pfpq -larray_pqueues
gcc -I$HOME/include clist.c -c
gcc -I$HOME/include clist.o pfclist.c -o pfclist
gcc -I$HOME/include pfbst_char.c -c
gcc -I$HOME/include pfbst_char.o pfbst.c -o pfbst -lm
```

Submitting Your Work
When you are ready to submit your work create a "tape archive" (tar-file) of your portfolio directory on or before Sunday 4th January 2015 and this should reside in your area on the University filesystem. The following Unix command, entered when you are in your ctec2901 directory, will create the archive. (Be careful to type it in correctly)

```
tar cvf portfolio.tar portfolio
```

Alternatively you may wish to use the shell script provided on Blackboard (check-portfolio.sh). Download this file into your ctec2901 directory and run it as a shell script: ./check-portfolio.sh

You should upload your archive to Blackboard using the Blackboard assignment file upload feature. This must also be done before the deadline of 23:59 on Sunday 4th January 2015.

We will keep the uploaded version as a record of your submission and for the External Examiner to access. However, we will use the version of the tar file that you save in your area on the University filesystem when we hold the viva. Therefore DO NOT EDIT OR CHANGE your portfolio.tar file once you have created and uploaded it.

Scheduling the Viva
Your viva will take place during one of your scheduled lab sessions during weeks 15 – 18. Your lab tutor will let you know in advance in which session your assessment will take place. Please stick to the session you have been allocated. Failure to attend at the allotted time will be deemed as a failure to submit for assessment.

During the Viva
During the viva voce we will ask you to untar the archive and then we will ask you to demonstrate and explain a randomly selected sample of the work in your portfolio. We will make notes while we do this and present you with the results at the end of the viva. The viva will last approximately ten minutes.

Assessment Grid

Forename: _____

Student PNumber: P_____

NB: The assessment requires two of the exercises to be selected for the basis of discussion. These will be chosen at random. If a selected exercise is not available then it will score zero – a substitute may not be chosen because the random sampling is a necessary part of the assessment and a consistent approach must be used to ensure fairness.

Criterion	Marks available	Mark
Portfolio Exercise: Stacks Queues Priority Queues Circular Lists Trees	For each program: Not available / does not compile (0) Available and compiles (1)	0 1 2 3 4 5
Selected Exercise 1: Strength of attempt (relative to specification)	Not available (0) Basic/perfunctory (1) Partial/reasonable (2) Complete (3)	0 1 2 3
Selected Exercise 1: Question relating to code and/or algorithm	No answer (0) Very weak/lack of understanding (1) Reasonable but needs prompting (2) Good answer (3) Fully explained/understood (4)	0 1 2 3 4
Selected Exercise 2: Strength of attempt (relative to specification)	Not available (0) Basic/perfunctory (1) Partial/reasonable (2) Complete (3)	0 1 2 3
Selected Exercise 2: Question relating to syntax or algorithmic modification	No answer (0) Weak explanation/understanding (1) Reasonable but needs prompting (2) Good answer (3) Fully explained/understood (4) Full answer and extra flair shown (5)	0 1 2 3 4 5
Total	Marks possible = 20	