Foundation Year in Computing Sciences

Foundation Programming – G6065

Autumn term 2020 – Programming Project 1 – Knockout Competition

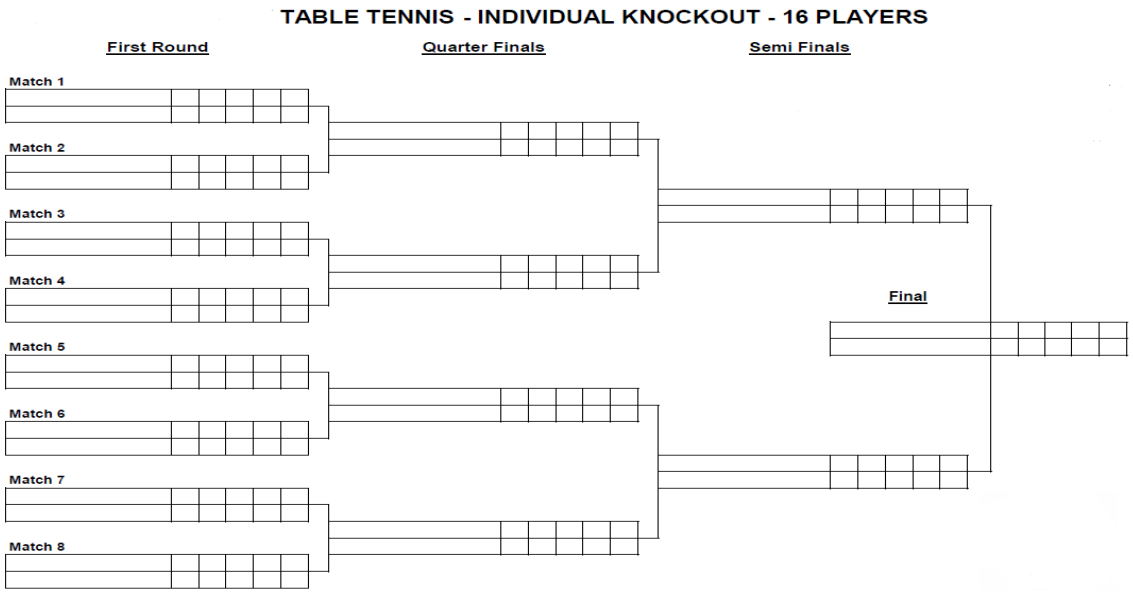
Set:	Wednesday 28 October 2020
Due:	Week 8 – Thursday 19 November 2020 – E-Submission
Format:	A single word processed document.
Learning Outcomes Assessed	1. Employ a range of basic programming constructs to develop a programming solution in a suitable high-level, imperative programming language 2. Transform a program specification into a design using a standard top-down design technique 3. Use a programming environment to edit, debug and compile a simple program 4. Design and use a test plan for verification of a program, and draw conclusions from the outcomes

Specification and Tasks:

You are required to design, write and test a C program to handle a table tennis knockout competition. The competition starts with 16 players, giving a total of 8 matches in the first round. Each match continues until one player has won 3 games, ie the best of 5 games. Only the winner of a match progresses to the next round, see the diagram below.

Your program starts by allowing the user to enter the 16 player names for the first round. Then a menu list should be displayed to allow the user the following options:

1. Enter a match result
2. Display a round
3. Exit program



What to submit:

A single word processed document containing all tasks attempted listed below.

The tasks required are:

1. A word processed document containing the design, the C programming code, the test logs and a written evaluation of the program. A contents page using appropriate page numbering should be included. (8 marks)
2. The design should include screen layouts, data storage design (arrays), a test plan, and skeleton code at level 1 and 2. (10 marks)
3. The program to allow 16 player names to be entered at the keyboard and stored. (10 marks)
4. The program to allow the number of games won by each player in a selected match to be entered. It then stores the winner's name in the next round's list. (14 Marks)
5. The program displays the results of matches played for a selected round. (10 Marks)
6. A number of small appropriate user-defined functions are used, with the layout conforming to the course's "Style Rules for C Programming". (14 marks)
7. Four test logs that use the data specified in the design test plan plus additional tests as appropriate. The logs must show how the program dealt with invalid data, and what worked and what did not work. (16 marks)
8. A good user interface with clear prompts, where items are set out neatly in rows and columns. Additionally box characters may be used. (8 marks)
9. The written evaluation with word count (500 words). This should clearly describe what works and what does not work in the program. It should also outline the skills you used, highlighting what research or help was needed for the various sections of the project. (10 marks)