ASSESSMENT BRIEF 2012/2013

Class: Pre-Degree Computing (2012/2013)

Title of Component: Computer Programming - C20013

Assessment Technique: Assignment

Weighting %: 30

Teacher's Name: Colm Sloan

- Title: Prime numbers less than 100

- Guidelines: (Including the format in which the assessment is to be presented)

  The code for the program must be emailed from the student account of the student being accessed to the email account of the teacher. They must also submit a hard copy of the program. They must also undergo an interview about the submitted code to judge their understanding of the code.

- Assessment Criteria:

  The submission of a program meets the assignment specification including well commented code and effect code.

Issue Date: 20-11-2012 Deadline : 26-02-2013 Feedback Date: 19-03-2013

- Completed assessments must only be submitted to the relevant subject teacher during class time or any other arrangements must be identified in the assignment brief. In the event of the teacher being absent on the submission date students should hold their assessment until the next class contact period with the teacher.
- In using the college IT system for completing assessments students must use the network account they have been assigned. In keeping with good IT practice, students are strongly advised to keep a backup copy of all assessment work on a USB memory stick. Under no circumstances, should any assessment work be stored on the hard disk in the pc in the computer rooms. This is public space and therefore not secure.
- Assessment evidence must be submitted in a format that is compatible with the college IT system.
- Assessments must not be submitted using poly-pockets.
- A completed "Submission of Assessment Form" must be placed at the front of each assessment certifying that the work presented is your own unaided work.

Assessment Malpractice: All work submitted for marking must be the students own work. Submitting another person's work or copying from the internet, for example, and presenting it as your own is assessment malpractice. This is regarded as a serious breach of the Code of Behaviour and may result in zero marks being awarded.

Appeal: Upon receipt of feedback on the submitted work you may appeal the grade awarded by completing the appeal form and submitting it to the Deputy Principal.

Programming in C Assignment

Deadline: 26-02-2013 before 10:00pm

Marking Schedule: 90 total marks

- Clearly documented program code – 15 marks
  - what the code does AND how it does it
  - in this case, let the comments be the documentation
- Excellent screen layout – 15 marks
  - console output should be information, neat and readable
- Effective code layout – 15 marks
  - following the style guide (http://google-styleguide.googlecode.com/svn/trunk/cppguide.xml)
  - e.g. proper indentation, spacing, brace placement etc.
- Accurate programming (syntactically and semantically) – 30 marks
  - marks for each step in the process that works
  - try to repeat code as little as possible
  - prefer simple solutions
  - minimizes processing and memory requirements
- Appropriate testing – 15 marks
  - Validate user input i.e. warn user for every possible mistaken input they can give e.g. too high an index, too low an index etc.

Assignment:

A prime number is a positive integer greater than 1 that can be evenly divided (no remainder) by itself and 1. See Wikipedia and other resources if this definition is still unclear. A program should be created that calculates all prime numbers less than 100, display all of those prime numbers, display the number of prime numbers found and allow a user to print out the n^{th} prime by typing the integer n e.g. if the user enters 3, the 3^{rd} prime number, 5, should be displayed. The user should be shown informative instructions. Inform the user of any invalid user input to make sure it is a valid index and inform the user of why there was an error e.g. the user enters an index value less than 1. Allow the user to re-enter their input if their input is invalid. Allow the user to exit the program by entering -1 as input. Inform the user that -1 exits the program.

Prime numbers must be calculated within the program. They cannot simply be hard-coded by the programmer i.e. the programmer cannot simply hand-write a list of the prime numbers such as {2, 3, 5, 7, 11, …}. These prime numbers must be found using at least one for loop and one if statement. The prime numbers must be stored in an array.

All console message output should be neat and easily understood. No functions or procedures should be called other than the main function, printf and scanf. This includes built in C functions such as sqrt.

Submission:

E-mail program code and hand in a printed copy of the code by the deadline. Each student will undergo an interview about their code to make sure they understand it. Results will be received within three weeks of submission (before 19-03-2013).