1E3 Practical 9
23 March 2016

Objectives: To familiarise yourself with arrays in C++.

Task#1:
Marks: 2
Summary: a program to read a sequence of integers from a file and plot the corresponding graph.
Details: Write a C++ program to draw a bar graph like the one below from an input sequence of 70 integers in the range 0 to 20, representing a time sequence of some sort.

Sample output: This is an extract of what is produced for P9adata.txt

Task#2:
Marks: 3
Summary: a program to read model answers of an MCQ exam, then read a set of students' answers in that exam, and then display a score for each student by comparing his/her answer to the model answer.
Details: Write a program to score multiple choice exams. The program first reads in the 20 model answers (i.e. correct answers) to the multiple choice exam questions (each answer being a, b, c, d or e). It then reads a series of answer sets for students – each of these consists of a student number (an integer) followed by 20 answers, each of which is a, b, c, d, e, or x (meaning no answer given). The input is terminated by a negative number in place of a student number. See MCQ.txt copied below.

The program should output each student number followed by their score on the exam. Correct answers get 2 points, wrong answers -1 and no answer (i.e. "x") gets 0.

Function Requirements: Your program should use functions wherever appropriate. As a basic minimum, your program **MUST** at least implement the following **TWO functions:**

1. A function to read in an answer set (the same function should be used for both the correct answer set and each actual answer set).
2. A function to score each individual's exam (i.e. the function compares an actual answer set with the correct answers to compute a score).

Think about the name, type and parameters of each function.

Sample MCQ.txt

a b c d e a b c d e a b c d e a b c d e
100 a b c d d a b c e x a b x d e b b b d x
101 a b c d e a b c d x a x c d e a b c d e
110 a b c d e a b b b b a b c d e x x x x e
-1

Sample output

100 22
101 36
110 23

Notes/Hints/Additional Details:

Reminder: Use file redirection to read input in from a file. For example run the programme `myprog` on input file `data.txt` by typing

```
./myprog < data.txt
```