CAB201 Programming Principles

Second 10% Assignment
Yearly Rainfall Report
Due date: 31st August 2015

Specification

In this assignment you are to implement a program which will report on some simple aspects of yearly rainfall data. The main goal of this assignment is to demonstrate the manipulation of values stored in arrays and to use enumeration and Random variables competently.

The program will

- Output for each month the rainfall amount for any day on which rainfall occurred
- Request the user to enter which month that they want to see the rainfall report
- The monthly rainfall report consists of
    - The number of days with no rain and the number of days with rain
    - The maximum amount of rainfall on any one day in that month
    - What day of the month the maximum rainfall fell
    - The average daily rainfall for the month

Similar to screenshots 1 - 4 at the end of this document.

More Details

Your program will initially randomly generate the daily rainfall amount for each month according to the following restrictions. The probability of raining falling on any day is 25% (1 in 4). On any day when it does rain less than 28mm will fall.

You should use two Random variables, one for deciding on the likelihood of rain falling on a particular day and the other for the amount of rain that falls. Both variables should be declared with a seed value as in `Random randomValue = new Random(10);// 10 is seed`

Assignment Requirements

In this assignment, you are not to use **any** of the **System.Array** class methods, eg **Array.BinarySearch(…)**, **Array.Sort(…)**, etc or non-static array methods such as **Count(…)**. You are allowed to use the **Length** property of an array as it is not a method**.** Your Main method will be solely a test driver code to show that your methods produce the desired outcome.

The only statements that will be in **Main** will be method calls to methods which you have written or assignment statements for receiving the returned value from a method. There are to be no **Write** or **WriteLine** calls within the body of **Main.**

You are to use the near empty **Program.cs** of **Array Assignment** Project which has been provided. Do NOT start you own New Project. Do not change the array declarations of `daysInMonth` or `rainfall`.

Electronic Submission

You will submit your assignment via the link in the Assessment folder on Blackboard (Bb) before 11:50pm on 31st August 2015. Information on the assignment submission is available on Bb in the document, **Second Assignment Submission Details.docx** which is similar to the first assignment submission details. (You should not be surprised by this!), however you must read the document and follow the requirements contained within it.

It is recommended that you upload your file to Bb from a lab at QUT. Inability to access Bb from home is not a sufficient reason for submitting the assignment late or requesting an extension.

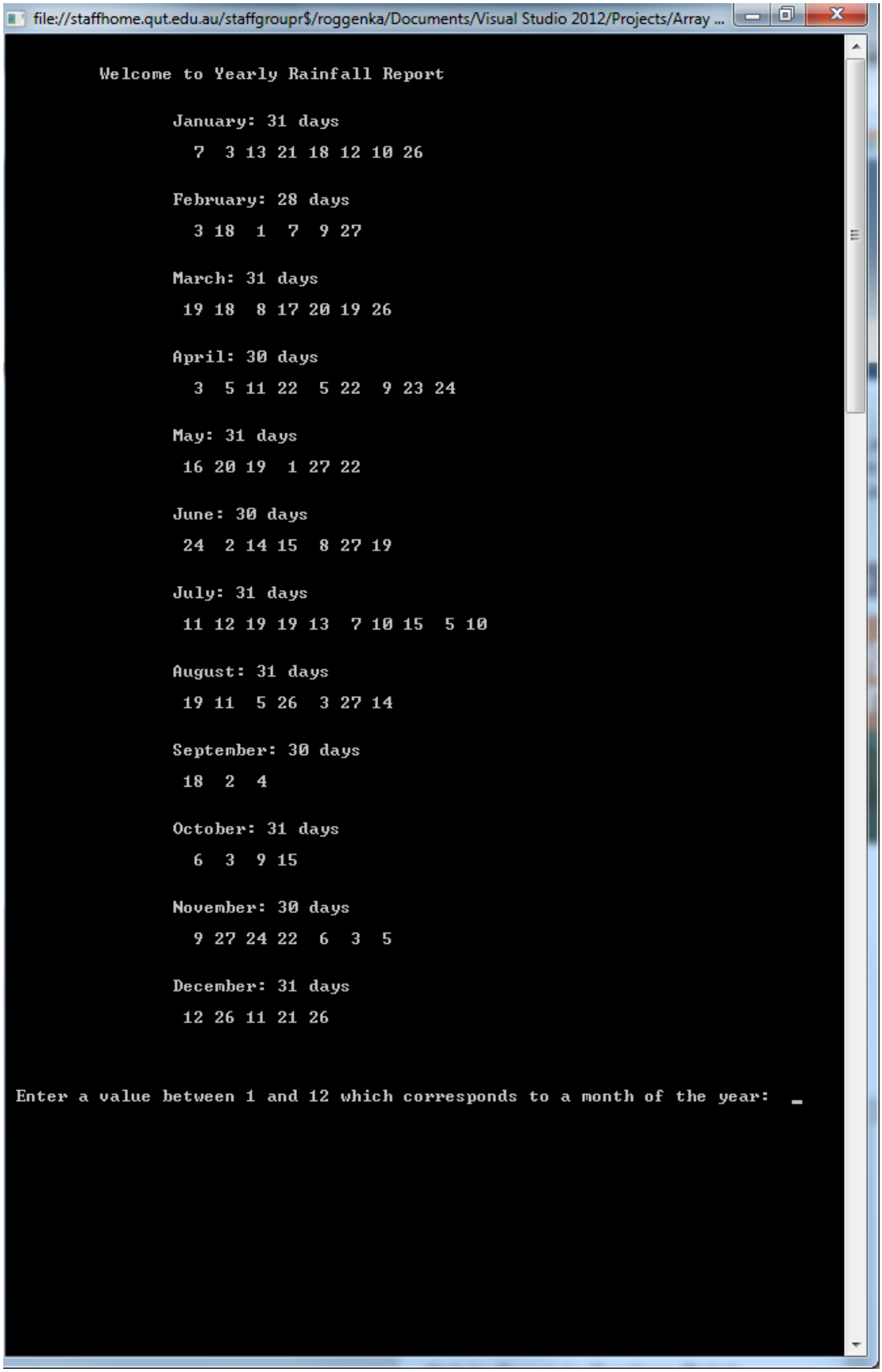
Final Comments

You must use the supplied project folder as a starting point. The code in **Program.cs** compiles successfully and runs with albeit no functionality. You should ensure that your assignment always compiles and does something. Remember incremental development and incremental implementation as well as following the DRY principle.

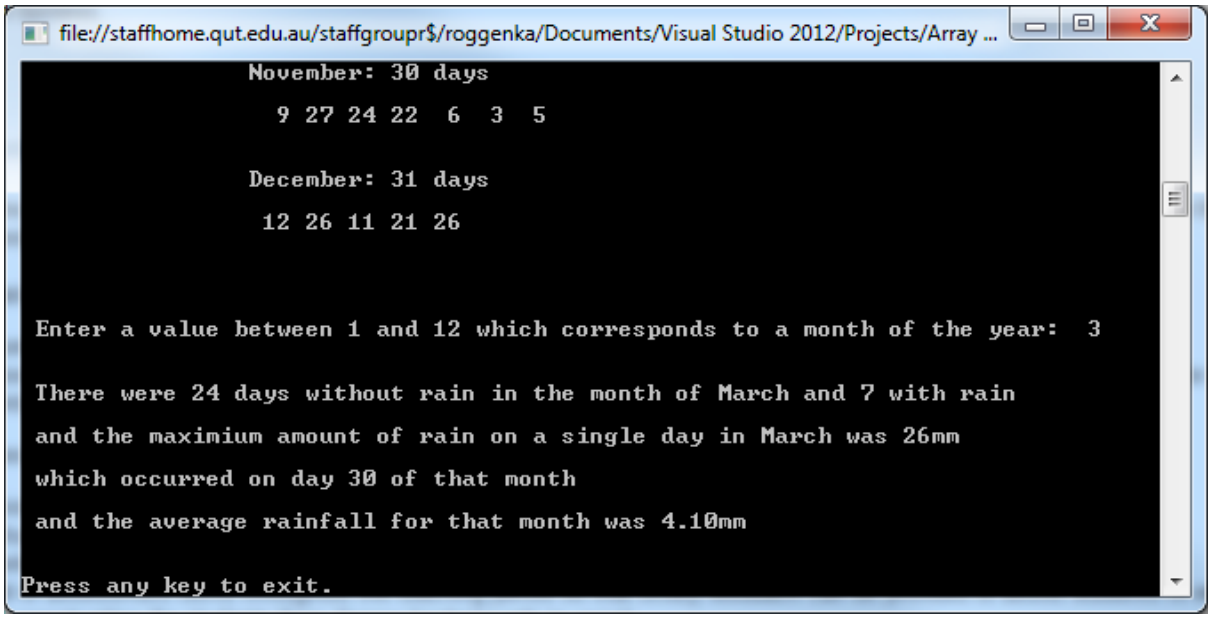
Whatever you do, do not share your code with a friend or develop the actual code in collaboration with another person; the assignment is to be your own work. If you are found to have engaged in Academic Misconduct, you will receive 0 for this assignment item and it will be reported as a case of Academic Misconduct which will remain on your student record forever.

Any questions regarding this assignment should be emailed to Mike, and not posted on Facebook if you want the definitive answer.

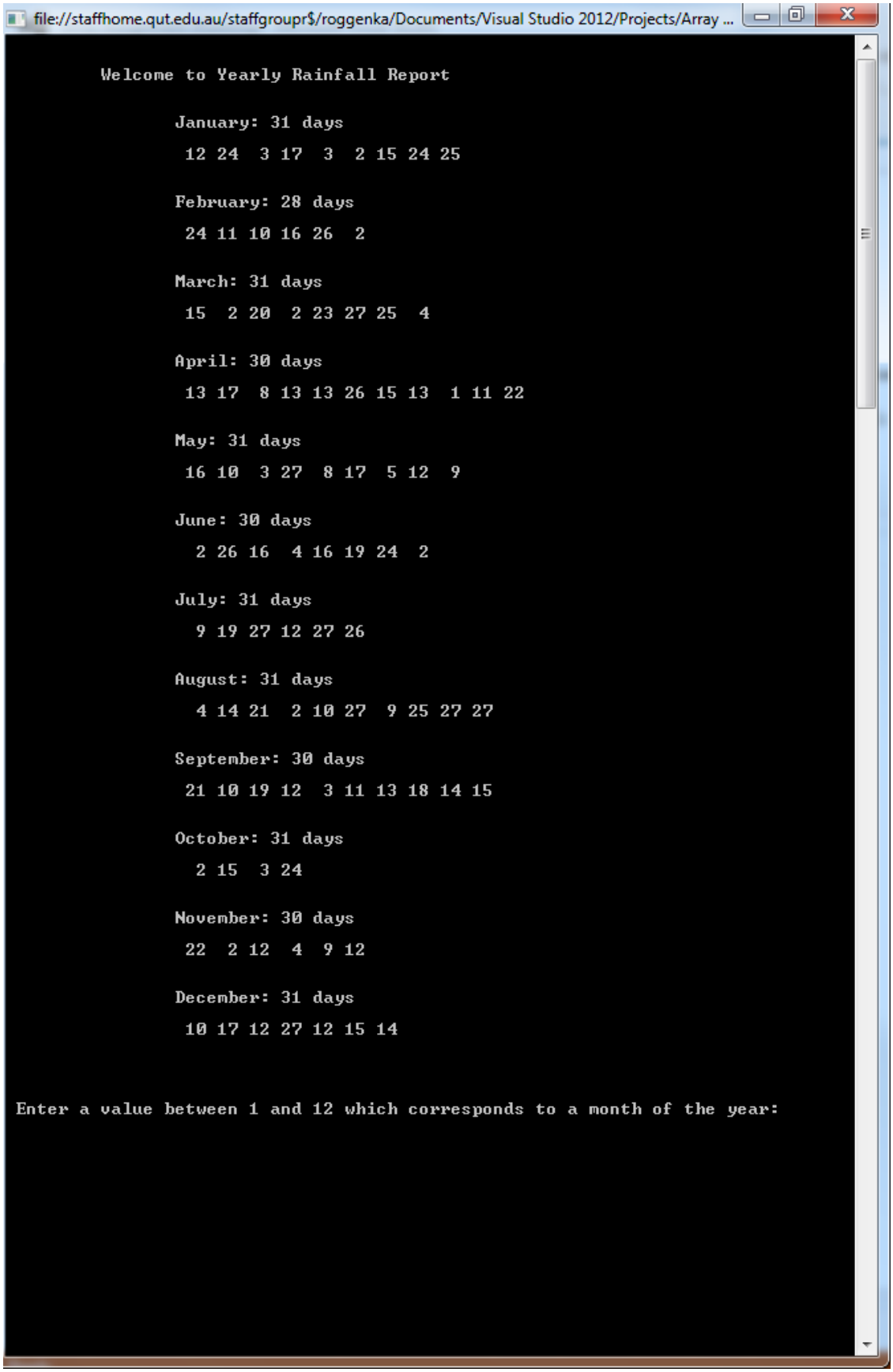
That's all folks!



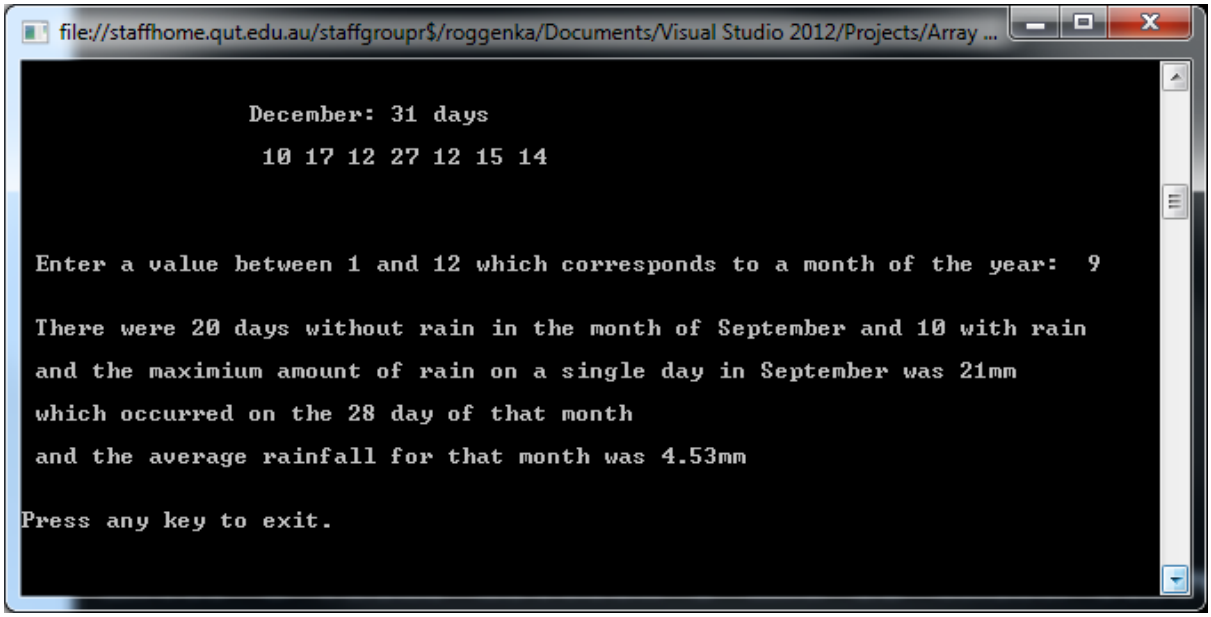
Screenshot 1: Initial display of the daily amount of rainfall during each month of the years for those days when rainfall occurred.



Screenshot 2: Shows the rainfall report for the month of March.



Screenshot 3: A subsequent execution without a specific seed value in "new Random()" , to show the "randomness" of the rainfall data.



Screenshot 4: Selecting September.