

Program: BS (CS)

Class:

CS19-E

Assignment: 01

Programming Fundamentals - Lab

Submission Date:

Friday (20<sup>th</sup> September, 2019)

Course Instructors:

Ebad Majeed/Saba Ghani

**Total Marks: 15**

**Design following programs in Visual C++:**

1. A program that obtains from the user an hourly pay rate and the number of hours worked for the week. The program calculates and outputs their weekly pay according to the following: **(05 marks)**
  - a. Regular pay is the pay up to 40 hours.
  - b. Overtime pay is pay for the hours over 40. Overtime is paid at a rate of 1.5 times the hourly rate.
  - c. Gross pay is the sum of the regular pay and the overtime pay.
2. Design a C++ solution for following problem. There are four types of fruits Apples, Oranges, bananas and Grapes. Each student can pick up to two fruits. There are some conditions which have to be used to pick up the fruits. Draw a flowchart which can take the name of first fruit as an input from user and print the names of second fruit(s) that can be picked up. The conditions are: **(03 marks)**
  - a. If you pick an apple, you can pick banana
  - b. If you pick orange, you can pick grapes
  - c. If you pick grapes, you can pick banana
3. Write a program that prompts the user to input an integer between 0 and 35. If the number is less than or equal to 9, the program should output the number; otherwise, it should output A for 10, B for 11, C for 12...and Z for 35 **(02 marks)**
4. Write selection statements in C++ to do the following: **(05 marks)**
  - a. if character variable taxCode is 'T', increase price by adding the taxRate percentage of price to it
  - b. If integer variable opCode has the value 1, read in double values for X and Y and calculate and print their sum
  - c. If integer variable currentNumber is odd, change its value so that it is now 3 times currentNumber plus 1, otherwise change its value so that it is now half of currentNumber (rounded down when currentNumber is odd)
  - d. Assign true to the boolean variable leapYear if the integer variable year is a leap year. (A leap year is a multiple of 4, and if it is a multiple of 100, it must also be a multiple of 400.)
  - e. Assign a value to double variable cost depending on the value of integer variable distance as follows:

Distance	Cost
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0 through 100	5.00
More than 100 but not more than 500	8.00
More than 500 but less than 1,000	10.00
1,000 or more	12.00

**Submission:**

**This is an individual assignment and each student has to submit a printed solution of all the problems.**

**Marking Scheme:**

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|-----------------------------------|-----|
| 1. Validity (Code and data types) | 70% |
| 2. Commenting and indentation     | 20% |
| 3. Naming Convention              | 10% |