National University of Computer and Emerging Sciences

Lab Manual # 3

Programming Fundamentals

(Section BSC-1C)

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Lab Manual

Objectives

The objectives of this lab are to cover the following:

- Input output
- If else statement
- Nested If else
- Switch statement

1) if / else statement

If else statements in C++ is also used to control the program flow based on some condition, only the difference is: it's used to execute some statement code block if the expression is evaluated to true, otherwise execute else statement code block.

Syntax

```
if(test_expression)
{
   //execute your code
}
else
{
   //execute your code
}
```

2) Switch Statement

A **switch** statement allows a variable to be tested for equality against a list of values. Each value is called a case, and the variable being switched on is checked for each case.

Syntax

```
switch(expression) {
   case constant-expression:
      statement(s);
      break; //optional
   case constant-expression:
      statement(s);
      break; //optional
```

```
    // you can have any number of case statements.
    default : //Optional
        statement(s);
}
```

3) Nested If-else

```
if(condition) {
    //Nested if else inside the body of "if"
    if(condition2) {
        //Statements inside the body of nested "if"
    }
    else {
        //Statements inside the body of nested "else"
    }
}
else {
    //Statements inside the body of "else"
}
```

Problems

Problem 1: (5 marks)
Write a program that prompts the user to enter a weight of a person in kilograms and output the equivalent weight in pounds. (Note that 1kg = 2.2 pounds)

Problem 2: (5 marks)
Write a C++ program that takes age of user as an input and check accordingly either they are eligible for voting or not i.e. age greater than 18 are eligible to vote.

Problem 3: (5 marks)
Write a program that take a number from the user, test whether it is positive or negative and then display accordingly.

Example Input:

Enter a Number

Number = 12

Output:

Number is positive

Problem 4: (5 marks)

Write a C++ program to input any alphabet and check whether it is vowel or consonant.

Problem 5: (7.5 marks)

Nested If/else Design a C++ program that takes the year from user as input and prints days of all months, for February check the leap year and print days accordingly.

Problem 6: (7.5)
(Switch Structure) Write a program that prompts the user to enter a number from 1 to 7. If a user enters 1 then the output should be "Today is Friday" and so on.

Input:

"Enter a number from 1 to 7:"

 User enters 2

 Output:

Today is Saturday

Problem 7: (5 marks)

Write a program that gets three number from user for integer variables suppose a,b and c. if a is non zero find out it is common divisor of b and c using nested if-else condition.

Input

a = 2

b = 6

c = 8

Output

a is common divisor of b and c