Introduction to C/C++

Comp 295

Spring 2023

Department of Computer Science

Forman Christian College University

Lab 1
Input/Output
Variables

Question #	Total Marks
Question 1	-
Question 2	-
Question 3	-
Question 4	-
Question 5	-
Question 6	-
Question 7	-

Example Code

To read input from the user in C++, we use the cin object. To output to the console, we use the cout object. These objects are part of the iostream library, which is included by default in C++.

Here is an example of using the cin and cout objects:

```
#include <iostream>
using namespace std;

int main()
{
   int age = 25;
   float weight = 65.5;
   cout << "Age: " << age << endl;
   cout << "Weight: " << weight << endl;
   return 0;
}
```

In the code above, we declare two variables: 'age' of type int and 'weight' of type float. We then assign the values 25 and 65.5 to these variables, respectively. Finally, we use the cout object to output the values of these variables to the console.

In Lab Problem

Question 1. Write a program that reads the length, width, and height of a rectangular prism from the user, and calculates and outputs its surface area and volume.

$$\text{Lateral Surface Area} = 2h(l+b)$$

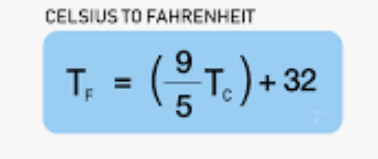
$$\text{Total Surface Area} = 2(lb+bh+lh)$$

Question 2. Write a program that reads two inputs from the user and outputs if the second number is the factor of the first number. A factor is a number that divides the original number with no remainder.

Question 3. Write a program that takes in a sentence from the user, and outputs the number of characters in the sentence.

- `string.length()` gives the length of a string
- cannot use cin to read the entire sentence as in cin space is considered the breaking point of input. So use the following to read the entire sentence
  `getline(cin, sentence);` // read in the entire sentence, including spaces

Question 4. Write a program that takes in a temperature in Celsius from the user, and outputs the temperature in Fahrenheit.



Question 5. A car rental agency charges a base rate of $30 per day, plus an additional $0.50 per mile driven. Write a program that takes in the number of days and miles driven, and outputs the total cost of the rental. (Display the appropriate message for the input)

Question 6. Write a program that takes in a user's weight and height, and outputs their body mass index (BMI). The BMI is calculated as weight (in kilograms) divided by height squared (in meters)

Question 7. Write a program that takes in a user's age as an integer (total number of days), and outputs their age in years, months, and days. Hint: Use integer division and modulus to separate the years, months, and days.