

SODV 1101

# Programming Fundamentals

Assignment 1

## Restaurant Bill

# Assignment 1: Written Questions

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1. What is the difference between a syntax error and a logic error?

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2. What will the function call `q2(5, 5, 2)` return?

/ 10

```
double q2(double x, int y, int z)
{
    x /= z;
    y /= z;
    return x + y;
}
```

3. In the following function implementation there are 3 syntax errors and 1 logical error. Mark the errors in the code below with a circled number corresponding to the spaces provided, and **either** briefly explain why it is an error **or** give a fix for it.

/ 12

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

double FahrenheitToCelsius(double fahrenheit)
{
    return (fahrenheit - 32) * (5 / 9)
}

int main()
{
    double fahrenheit;
    cout << "What is the temperature in Fahrenheit? ";
    cin << fahrenheit;
    cout << "The temperature in celsius is: ";
    double celsius;
    FahrenheitToCelsius(fahrenheit) = celsius;
    cout << celsius;
    cout << endl;
    return 0;
}
```

1) Syntax Error: \_\_\_\_\_

\_\_\_\_\_

2) Syntax Error: \_\_\_\_\_

\_\_\_\_\_

3) Syntax Error: \_\_\_\_\_

\_\_\_\_\_

4) Logic Error: \_\_\_\_\_

\_\_\_\_\_

# Assignment 1: Restaurant Bill

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## Overview

Write a program to split a restaurant bill evenly between a given number of people.

## Directions

Write a tool for calculating and splitting restaurant bills. Your program should ask the user how much the bill is before tax, what percentage the sales tax is, what percentage tip they would like to add, and how many people are splitting the bill. Calculate the final cost of the bill by first adding the sales tax, then adding the tip. Find the cost per person by dividing the bill by the number provided. Print each value to the console: the bill before tax, the bill after tax, the bill after tip, and the bill per person.

The listing below shows an example of what the input and output for this program might look like. Input by the user is listed in **blue**.

```
How much is the bill? 57.75
How much is the tax (%)? 5
How much is the tip (%)? 20
How many people are paying? 3

Bill before tax: 57.75
Bill after tax: 60.64
Bill after tip: 72.76
Bill per person: 24.26
```

## Evaluation

This assignment has 3 main components, assigned marks as follows:

Task	Marks
Written Questions	30
Code Quality	20
Code Functionality	50
Total	100

Marks for written questions are indicated beside each question.

Code quality is worth 20 marks, but will be assigned a grade of 20, 15, 10, 5, or 0.

	<i>20 - Excellent</i>	<i>15 - Good</i>	<i>10 - Fair</i>	<i>5 - Poor</i>
<i>Code quality</i>	Code is well organized, clear, and easy to read. Style is consistent throughout and comments are used where needed.	Code is mostly clear. A few inconsistencies in style, or locations where comments would help with readability.	Code is disorganized or could use some refactoring. Style is inconsistent with little to no documentation.	Code is very difficult to read.

Functionality will be tested with standard automated tests. Students are also encouraged to run their own tests on their code.

## Bonus

Round each calculation as follows: calculating taxes should round the result to the nearest cent; calculating tip should round down; calculating individual person bill should round up.