# Answers to Questions from TT1.2

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1. **Desk Check Task: Calculate Bill Total**

## Required Variables:

## ***Real (floating point):***

## ***appetizer\_price, main\_price, dessert\_price***

## ***total\_price***

## Pseudocode:

## ***Read the value of*** *appetizer\_price*

## ***Read the value of*** *main\_price*

## ***Read the value of*** *dessert\_price*

## *total\_price = appetizer\_price + main\_price + dessert\_price*

## ***Print ‘$’ then the value of*** *total\_price* ***to the terminal showing two decimal places.***

## Test Data:

|  |  |  |
| --- | --- | --- |
|  | First data set | Second data set |
| *appetizer\_price* | 10.30 | 12.40 |
| *main\_price* | 34.00 | 41.00 |
| *dessert\_price* | 8.50 | 9.80 |

## Expected Result:

|  |  |  |
| --- | --- | --- |
|  | First data set | Second data set |
| *Output:* | $52.80 | $63.20 |

## **Desk check** - fill this in by hand-tracing/hand-executing the pseudocode provided with the test data above:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Statement | *appetizer**\_price* | *main**\_price* | *dessert**\_price* | *total**\_price* | *output* |
| ***First Pass*** | ***Read the value of*** *appetizer\_price* | ***10.30*** |  |  |  |  |
| ***Read the value of*** *main\_price* |  | ***34.00*** |  |  |  |
| ***Read the value of*** *dessert\_price* |  |  | ***8.50*** |  |  |
| ***Calculate the*** *total\_price* |  |  |  | ***52.80*** |  |
| ***Convert to dollars*** |  |  |  | ***$52.80*** |  |
| ***Output the*** *total\_price* |  |  |  |  | ***$52.80*** |
| ***Second Pass*** | ***Read the value of*** *appetizer\_price* | ***12.40*** |  |  |  |  |
| ***Read the value of*** *main\_price* |  | ***41.00*** |  |  |  |
| ***Read the value of*** *dessert\_price* |  |  | ***9.80*** |  |  |
| ***Calculate the*** *total\_price* |  |  |  | ***63.20*** |  |
| ***Convert to dollars*** |  |  |  | ***$63.20*** |  |
| ***Output the*** *total\_price* |  |  |  |  | ***$63.20*** |

1. **Complete Program Calculate Bill Total**

Now check the actual code produces the output you expected

Do this by completing the missing code in **bill\_total.rb** in **Task 1.3** then running the program.

1. **Short Answer Questions:**

**Focus in the following on using the correct computing terminology.**

Here are some terms that may help you: Assignment, evaluate, increment,

## Using a few sentences explain why it may be important to execute statements in the correct sequence. (eg: what might happen if the last statement in Program 2 was executed earlier)

It is important to execute statements in the correct sequence as to ensure the program has all the correct information it needs at the correct line to ensure it will run properly. If the line to calculate the total price was run earlier, such as before a value was assigned to dessert\_price, the total price printed would exclude the dessert price and therefore, be incorrect.

## 2: The code **main\_price = 10** is an example of which kind of programming statement?

This is an assignment statement.

## 3: What **actions** does the computer perform when it executes **a = a + b**?

The computer first reads the previous values for **a** and the value for **b** and adds them together

Then it assigns the new value to **a**

## 4: How would the value of variable i change in the statement **i = i + 1**?

The value of i will be be increased by 1

## 5: ***What sort of types*** ***will Ruby use to store the following variables*** (given the associated variable values)?

|  |  |  |
| --- | --- | --- |
|  | **Data** | **Type** |
|  | A person's name e.g: “Fred Smith” | String |
|  | Number of students in a class e.g: 23 | Integer |
|  | Average age of a group of people e.g: 23.5 | Float |
|  | A temperature in Celsius e.g: 45.7 | Float |
|  | True or false e.g: 1 == 2 | Boolean |

Note: possible types include: Integer, String, Float, Boolean

## 6: ***Variables have a scope – what are two different scopes variables can have in Ruby?***

1. Global variables (variables that can be modified by anyone using the program, accessed globally)
2. Local variables (variables that can be accessed and modified only within the function it was defined)

*See the lesson materials for help with Question 6. You could also see:*

[*https://www.tutorialspoint.com/ruby/ruby\_variables.htm*](https://www.tutorialspoint.com/ruby/ruby_variables.htm)