# 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* | ***10.30*** | ***34.00*** | ***--*** | ***--*** | ***--*** |
| ***Read the value of*** *dessert\_price* | ***10.30*** | ***34.00*** | ***8.50*** |  |  |
| ***Calculate the*** *total\_price* | ***10.30*** | ***34.00*** | ***8.50*** | ***52.80*** |  |
| ***Convert to dollars*** | ***10.30*** | ***34.00*** | ***8.50*** | ***52.80*** | ***$*** |
| ***Output the*** *total\_price* | ***10.30*** | ***34.00*** | ***8.50*** | ***52.80*** | ***$52.80*** |
| ***Second Pass*** | ***Read the value of*** *appetizer\_price* | ***12.40*** |  |  |  |  |
| ***Read the value of*** *main\_price* | ***12.40*** | ***41.00*** |  |  |  |
| ***Read the value of*** *dessert\_price* | ***12.40*** | ***41.00*** | ***9.80*** |  |  |
| ***Calculate the*** *total\_price* | ***12.40*** | ***41.00*** | ***9.80*** | ***63.20*** |  |
| ***Convert to dollars*** | ***12.40*** | ***41.00*** | ***9.80*** | ***63.20*** | ***$*** |
| ***Output the*** *total\_price* | ***12.40*** | ***41.00*** | ***9.80*** | ***63.20*** | ***$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 that code executes in sequence. It allows programmers to design processes of steps in a particular order for the computer to run so that it does what is being asked as efficiently as possible. It would be almost impossible to write code if it wasn’t executed in sequence because it would be very hard to predict what statement would go next and designing complicated software would not be possible.

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

This is a declaration statement.

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

The computer first reads the variable ‘a’

Then it reads the variable ‘b’

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

The value of i will be 1 digit greater than it was (i+1) for example: if ‘i’ was 2, then the new ‘i’ would be 3

## 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 | Bool |

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

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

Global variables and Local variables

*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)