# Answers to Questions from Pass Task 1.3

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

## Required Variables:

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

## ***Real (floating point): total\_price***

## Pseudocode:

## ***Read the value of*** *appetizer\_price* ***(in cents)***

## ***Read the value of*** *main\_price* ***(in cents)***

## ***Read the value of*** *dessert\_price* ***(in cents)***

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

## *total\_price = total\_price / 100* **#Comment: convert to dollars**

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

## **Test Data:**

|  |  |  |
| --- | --- | --- |
|  | First data set | Second data set |
| *appetizer\_price* | 1030 | 1240 |
| *main\_price* | 3400 | 4100 |
| *dessert\_price* | 850 | 980 |

## **Expected Result:**

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

## **Desk check:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Statement | *appetizer**\_price* | *main**\_price* | *dessert**\_price* | *total**\_price* | *output* |
| ***First Pass*** | ***Read the value of*** *appetizer\_price* | ***1030*** |  |  |  |  |
| ***Read the value of*** *main\_price* |  | ***3400*** |  |  |  |
| ***Read the value of*** *dessert\_price* |  |  | ***850*** |  |  |
| ***Calculate the*** *total\_price* |  |  |  | ***5280*** |  |
| ***Convert to dollars*** |  |  |  |  | ***52.80*** |
| ***Output the*** *total\_price* |  |  |  |  | ***$52.80*** |
| ***Second Pass*** | ***Read the value of*** *appetizer\_price* | ***1240*** |  |  |  |  |
| ***Read the value of*** *main\_price* |  | ***4100*** |  |  |  |
| ***Read the value of*** *dessert\_price* |  |  | ***980*** |  |  |
| ***Calculate the*** *total\_price* |  |  |  | ***6320*** |  |
| ***Convert to dollars*** |  |  |  |  | ***63.20*** |
| ***Output the*** *total\_price* |  |  |  |  | ***$63.20*** |

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)

The placement of statement of sequence are important to get correct answers like calculations. If a total calculation was made before assigning a value to a variable, the intended result will not be displayed because of the wrong sequence of statements

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

Assignment statement

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

The variable ‘a’ uses it’s own value and adds with another variable (in this case ‘b’) and updates the value of ‘a’ with the sum of the 2 variables.

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

The value of variable i increases by 1

## 5: ***What sort of types*** ***will you 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 | int |
|  | 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 C? Write a simple program to demonstrate these scopes (You only need probably 5 lines of code to demonstrate).***

*For help with Question 6 you could also see:*

<https://www.freecodecamp.org/news/scope-of-variables-in-c-local-and-global-scope-explained/>

Local and global variable

#include <stdio.h>

int main ()

{

int num1= 10;

printf("\n%d", num1);

    {

        int num2=60;

        printf("\n%d", num1);

    }

printf("\n%d", num2);

}

The code does not compile properly because num2 is not defined. It is only defined in the “local” inner block and not the “global” outer block. This shows the main difference between local and global variables. With local variables only working within their respective blocks and any inner blocks but not any outer block.