CISC1600: Computer Science I
Father's Day is coming up, let's go shopping....
20 points

Objective: To develop a deeper understanding of *conditional* logic and use of ***(if .. else)*** and ***switch*** statments in the C++ programming language. Specifically to show an understanding of the logically appropriate use of *single*, *double*, and *multiple* conditional statements. To *reinforce* our understanding of *data types* and *variables*. Namely, how to create, initialize, display and perform basic arithmetic operations on those variables and to write and call functions.

Assignment: Write a program in C++ that allows a customer to go on-line shopping. This is a start-up venture and the stock of our on-line company is currently limited to the following items:

1. A gift card to Home Depot, $50.00
2. A bottle of cologne (The One by Dolce Gabbana), $24.00
3. A key chain with a bath tub ornament, $14.00
4. A card, $4.00

Although all items are in stock, the customer should only be made aware of the items that he or she can afford. In addition, demand for our services has been so strong that we can only allow each customer to purchase one item. Each available item has a specific *int* purchase code associated with it. To purchase the desired item, the customer has to enter the specified code. Please be aware that there are many customers who just want to waste our precious computer time and will try to go shopping without any money, we cannot allow this.

The program should work as follows:

- Prompt the customer to enter his or her *first* name and the *amount* of money they have to spend.
- If they have no money or **worse** they are in debt and enter a negative amount, just tell them that they need to earn some money first and do not display any choices.
- If they have money to spend, the program should determine which items, *if any*, they can afford to purchase.
- Each item they can afford should be displayed along with the unique *single digit* purchase code required to select that item.
- Assuming a purchase can be made *(i.e. the customer can afford at least one item)*, prompt the user to enter the purchase code of the item they wish to

purchase. *You can assume that the customer will only enter a purchase code from the displayed list of options.*

- Once the customer has indicated his or her choice, the program should ask the customer if they would like an on-line receipt. The program should then prompt them for their preferred e-mail address or not.
- As a final courtesy, the program should inform the customer how much cash they still have available to spend, just in case they choose to go shopping again.

Challenge:

1. Write a function **displayChoices** that display the list of choices they can afford using a correct numerical order. Think what argument you will need to pass to it. Example: '
    1. A gift card to Home Depot, $50.00
    2. A bottle of cologne, $24.00
    3. A key chain with a bathtub ornament, $14.00
    4. A card $4.00

    or

    3. A key chain with a bathtub ornament, $14.00
    4. A card $4.00

2. **getName,** returns the user name.
3. **displayItems**, displays the items that the user can afford
4. **canAfford**, returns true if the user can afford a specific item, false otherwise. This function should be called from function **displayItems**.
5. **getChoice**, returns the user choice (1-4). This function uses the return value of function **canAfford** to determine if the user can afford the item they selected.
6. **shopMore**, returns true if the user wishes to continue shopping, false otherwise.
7. Use **constants** to represent the prices of the different items.
8. Be careful of customer's who try and pull a fast one and enter a purchase code of an item that was not in their list of choices.
9. Allow the customer the option of continuing to shop if they still have money available after making a purchase. *Note that this involves implementing a loop*.
10. You can write more helper functions.

Following is one possible sample run:

```
Who do I have the pleasure of assisting today? Larry
Excellent Larry, and how much money do you have to spend? $ 30

Well Larry that means you can afford:
  3. A key chain with a bath tub ornament, $14.00
  4. A boring old card, $3.99

Please enter the item number you wish to purchase (0 to cancel): 3
```

```
Thank you Larry!

You spent $14.00, and have $16.00 left to spend!!

Well Larry that means you can afford:
  3. A key chain with a bath tub ornament, $14.00
  4. A boring old card, $3.99

Please enter the item number you wish to purchase (0 to cancel): 0

Thank you for shopping with us today Larry, please come again!
```

Important

1. Think through the conditional logic carefully. If you find yourself repeating blocks of code, stop and re-think the logic.
2. Follow an incremental approach in writing your program. In other words, write a few lines of code, make sure it compiles and executes as expected, then continue with more code.
3. If the program compiles but does not work as expected, consider using cout statements to display the value of variables in order to identify the errors.

For full credit be sure to:

- Include a descriptive Comment Block.
- Use correct indentation and allignment.
- Use descriptive identifiers for variable names as well as appropriate data types.
- Use blank lines to separate the code into appropriate blocks.
- Include comments to help others understand your program, and help yourself think!