**Programming Challenges 2 of Chapter 1**

**Available Credit**

**Step 1 – Define what the application is to do**

|  |  |
| --- | --- |
| **Purpose** | To calculate the customer’s available credit |
| **Input** | Amount of credit used, customer’s maximum amount of credit. |
| **Process** | Subtracts the amount of credit used by the customer from the customer’s maximum of credit. The result is the customer’s available credit. |
| **Output** | Display a message indicating the user’s (customer’s) available credit |

**Step 2 – Visualize the User Interface**

Credit Calculator

Credit Limit

Credit Used

$0.00

Credit Available:

Calculate Credit Available

Close

**Step 3 – Determine Needed Controls**

|  |  |  |
| --- | --- | --- |
| Control Type | Control Name | Description |
| Form | (Default) | A small form that will serve as the window onto which the other controls will be placed |
| Label | (Default) | Displays the message *Credit limit* |
| Label | (Default) | Displays the message *Credit Used* |
| Label | (Default) | Displays the message *Credit Available* |
| TextBox | txtCreditLimit | Allows the users to enter their *Credit Limit* (Maximum amount of Credit) |
| TextBox | txtCreditUsed | Allows the user(customer) to enter the amount she/she has used. |
| Label | lblCreditAvailable | Displays the credit available, after the *btnCalcCreditAvailable* button has been clicked |
| Button | btnCalcCreditAvailable | When clicked, subtracts the amount of credit used by the customer’s from the customer’s maximum amount of credit; stores the result in a variable and displays it in the *lblCreditAvailable* |
| Button | btnClose | When clicked, terminates the application |

**Step 4 – Define the Controls Relevant Properties**

|  |  |  |
| --- | --- | --- |
| Control Type | Control Name | Text Property |
| Form | (Default) | “Credit Calculator” |
| Label | (Default) | "Credit Limit" |
| Label | (Default) | “Credit Used” |
| Label | (Default) | “Credit Available” |
| Label | lblCreditAvailable | “$0.00” |
| TextBox | txtCreditLimit | “” |
| TextBox | txtCreditUsed | “” |
| Button | btnCalcCreditAvailable | “Calculate Credit Available” |
| Button | btnClose | “Close” |

**Step 5 – Determine Needed Event Handlers**

|  |  |
| --- | --- |
| Event Handler Name | Description |
| btnCalcCreditAvailable | Subtracts the amount of credit used by the customer from the customer’s maximum amount of credit; these values are retrieved from the *txtCreditLimit* and *txtCreditUsed* TextBox controls and the result of the Subtraction is stored in the *lblCreditAvailable* label’s Text property |
| btnClose | Terminate the application |

**Step 6 – Create a Flowchart/Pseudocode for Each Event Handler**

1. Flowchart

Store the value of *dblCreditAvailable* in the *lblCreditAvailable* control’s Text property.

Subtract the amount of credit used from the maximum amount of credit (Credit Limit). Store result in *dblCreditAvailable*.

End

Start

1. Psuedocode
   1. *Store customer’s credit limit*– *customer’s credit used in the dblCreditAvailable variable*.
   2. *Store the value of the dblCreditAvailable variable in the lblCreditAvailable control’s Text property*.