ENG TECH 1PR3 Programming Principles

Sub and function procedures introduction

Lab 03

Be sure to assign all input to appropriate variables. Do NOT use the control name directly in the calculations. Instead, assign the value of a control to a variable and use the variable in the calculations. Assign the result of the calculations to an appropriate form control. Ensure the forms are well-behaved. A form must contain an Exit button, sensible tabbing and alt-shortcuts where appropriate. **DO NOT USE FORM/CLASS LEVEL VARAIBLES**.

1. A famous departmental store is planning to announce the weekend sale and for this reason all items in the store were divided into two colors, RED and YELLOW. If a person buys RED tag item(s) of the same kind, then the discount will be given as follows:
20% discount for one item, 30% discount for two items and 40% discount for more than two items. For example, if you buy 1 or 2 or 3 Red tag items with posted price of $10 then you will pay $8 or $14 or $18 respectively without TAX. For YELLOW tag items there is 10% discount for two items and 15% discount for more than two items.

   Write a VB program that will calculate the total sale of each customer. User should be able to enter item's name, quantity and posted price in textbox controls. Provide two radio buttons for the selection of RED or YELLOW tag item. When the user presses **btnAdd** button, it should

   (a) validate user input
   (b) call **price()** function to calculate the price of item(s) based on RED or YELLOW selection.
   (c) display item's name, quantity, posted price and calculated price in a listbox control.
   (d) clear textboxes.

   Include a checkbox in your design. When the user presses **btnAdd** button with checkbox selected, it should display the Subtotal, HST, and Total amount in the listbox control mentioned above. Use appropriate formatting string to format your receipt and **btnClear** button to reset your form.

2. A **prime number** is a positive integer greater than one that has no positive integer divisors other than 1 and itself.

   Write a VB program that will insert all prime numbers in a list box control between *m* and *n* (inclusive), where m and n are positive integers such that $m < n$. Use textboxes for receiving user input. Include and use the following functions and sub procedure in your program.

   resetControls(): This sub procedure will clear the textboxes and the list control that contains the result. Create a "Reset" button on the form and call this sub procedure in the click event handler for this button control.

   isPrime(): This function accepts an integer number and returns true if the number is a prime number otherwise false.

isInputValid(): This function accepts two numbers m and n and verify the conditions given above. If numbers are valid, it will return true otherwise false.

Submitting the Lab

In order for your Lab/Assignment to be eligible for grading you must submit the following:

- The code must contain your Full Name and Student ID in a comment block at the top of each form module.
- A .zip compressed file containing the entire VB.NET project to AVENUE. Use .zip compression only (no RAR, TAR etc). If there is more than one project, create a separate .zip file for each individual project. Be sure to add all project files and folders to the .zip file. If the compressed file is missing files/folders such that the project will not open or run, the lab/assignment will receive a grade of 0.
- A Word .doc (or .docx) file containing:
    - A cover page that includes your name, Student ID, and MAC ID
    - The form code (event and other subprocedures and functions) including programmer's block
    - Screen captures of the form showing sample input and output.

Upload the Word file and .zip file(s) **separately** to the appropriate assignment drop-box on AVENUE.

Labs and assignments will not be accepted for evaluation if any of the above items are omitted and will result in a grade of 0.