PROG 8010 Assignment 3

You are only required to complete the programming problem that has been assigned to your group. However, you are encouraged to work through as many programming problems as possible.

Each group is to submit one solution to eConestoga. Someone from your group will be selected at random to present their solution to the class. Your mark on the assignment will depend on a combination of the quality, functionality, and adhesion to coding standards of your code. If you are absent without excuse, your mark for the presentation portion of the assignment (20%) is zero.

Group 1/9 Problem – Book Club Points

Serendipity Booksellers has a book club that awards points to its customers based on the number of books purchased each month. The points are awarded as follows:

- If a customer purchases 0 books, he or she earns 0 points
- If a customer purchases 1 book, he or she earns 5 points
- If a customer purchases 2 books, he or she earns 15 points
- If a customer purchases 3 books, he or she earns 30 points
- If a customer purchases 4 or more books, he or she earns 60 points

Create an application that lets the user enter the number of books that he or she has purchased this month and displays the number of points awarded.

Group 2/10 Problem – Software Sales

A software company sells a package that retails for $99. Quantity discounts are given according to the following table:

Quantity	Discount
10-19	20%
20-49	30%
50-99	40%
100 or more	50%

Create an application that lets the user enter the number of packages purchased. The program should then display the amount of the discount (if any) and the total amount of the purchase after the discount.

Group 3/11 Problem – Roman Numeral Converter

Create an application that allows the user to enter an integer between 1 and 10. The program should display the Roman numeral version of that number. If the number is outside the range of 1 through 10, the program should display an error message. The conversion is:

1->I, 2->II, 3->III, 4->IV, 5->V, 6->VI, 7->VII, 8->VIII, 9->IX, 10->X

Group 4/12 Problem – Mass and Weight

Scientists measure an object's mass in kilograms and its weight in Newtons. If you know the amount of mass of an object, you can calculate its weight, in Newtons, with the following formula:

*Weight= Mass * 9.8*

Create an application that lets the user enter an object's mass and then calculates its weight. If the object weighs more than 1000 Newtons, display a message indicating that it is too heavy. If the object weighs less than 10 Newtons, display a message indicating that it is too light.

Group 5/7 Problem – Magic Dates

The date June 10, 1960, is special because when it is written in the following format, the month times the day equals the year:

6/10/60

Create an application that lets the user enter a month, a day and a two digit year. The program should then determine whether the month times the day equals the year. If so, it should display a message saying the date is magic. Otherwise, it should display a message saying the date is not magic.

Group 6/8 Problem – Color Mixer

The colors red, green, and blue are known as the primary colors because they cannot be made by mixing other colors. When you mix two primary colors, you get a secondary color, as in:

- red + green = yellow
- red + blue = purple
- green + blue = cyan

Create an application that lets the user select two primary colors from two different sets of Radio buttons. The form should also have a Mix button. When the user clicks the Mix button, the form's background should change to the color that you get when you mix the two selected primary colors. If the user picks the same color from both sets of Radio buttons, set the form's background to that color.