PROG 8010 Assignment 5

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 1/11 Problem – Distance Calculator

If you know a vehicle's speed and the amount of time it has traveled, you calculate the distance traveled as follows:

Distance = Speed x Time

Create an application that allows the user to enter the vehicle's speed and the number of hours traveled into textboxes. When the user clicks the Calculate button, the application should use a loop to update a ListBox control with the distance the vehicle has traveled for each hour of that time period. That is, if the user enters Time = 3, then there should be three entries in the ListBox, for distance traveled after hour 1, after hour 2, and after hour 3.
Also write the data to a file. For each time the user clicks the calculate button, first put the speed and time entered, then put each line from the ListBox.

Group 2/12 Problem – Population

Create an application that predicts the approximate size of a population of organisms. The application should use textboxes to allow the user to enter the starting number of organisms, the average daily population increase (as a percentage), and the number of days the organisms will be left to multiply.

Use a ListBox to display the population size for each day of the simulation.

If the user clicks the Save button, save the current prediction to a file.

Group 3/7 Problem – Dice Simulator

Create an application that simulates rolling a pair of dice. When the user clicks a button, the application should generate two random numbers, each in the range of 1 through 6, to represent the value of the dice. Save each roll of the dice to a file.

Bitmap images of die can be found in the resources folder.

Group 4/8 Problem – Addition Tutor

Create an application that generates two random integers, each in the range of 100 through 500. The numbers should be displayed as addition problems on the application's form, such as:

247 + 129 = ?

The form should have a textbox for the user to enter their answer. When a button is clicked, the application should:

- Check the user's input and display a message indicating whether it is correct or not
- Save each question, then user's answer and the correct answer to a file
- Generate two new random numbers and display them in a new problem on the form

Group 5/9 Problem – Random Number Guessing Game

Create an application that generates a random number in the range of 1 through 100 and asks the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high, try again". If the user's guess is lower than the random number, the program should display "Too low, try again". If the user guesses the number, the application should congratulate the user and then generate a new random number so the game can start over.

The application should save the number to be guessed and each of the user's guesses for each trial. Write the guess on a line by itself and on the next line write all the guesses for that number.

Group 6/10 Problem – Pennies for Pay

Susan is hired for a job, and her employer agrees to pay her every day. Her employer also agrees that Susan's salary is 1 penny the first day, 2 pennies the second day, 4 pennies the third day, continuing to double each day. Create an application that allows the user to enter the number of days that Susan will work and calculates the total amount of pay she will receive over that period of time.

Save the days worked and pay calculated amounts to a file. Use a separate line for each pair of numbers.