Mr. Bellavia

ASSIGNMENT 01 – UNIT 2

File Names:

- *last_name_first name*_U2_A01_1.cs *last_name_first name*_U2_A01_2.cs

1. Speeding Ticket Program:

Imagine you are to write a piece of software to be used with a radar gun used by police to determine if cars on the road are speeding. Your program should issue a ticket displaying the fine that the person driving will pay, and the amount of demerit points they will incur. The speed limit in the United States is measured in miles per hour (mph), whereas the speed limit in Canada is measured in kilometers per hour (km/h). Your program is going to work for both countries! The table below shows the fines and demerit points that can be incurred by a speed offender for various speed ranges.

mph	km/h	Fine ($)	Demerit Points
35-45	50-60	$60	3
46-65	61-80	$180	4
>65	>80	$360	6

If an offender has previous speeding tickets, then their fine is multiplied by the number of previous offences they have had. For example, if an offender has already 3 previous tickets, and they were caught travelling at 65km/h, then their total fine would be equal to 3 x $180 = $540.

Along with a fine, a person can accumulate demerit points. This is a point system used to penalize an offender's license. We will assume that if an offender has accumulated 15 or more demerit points, then their license will be suspended!

You are going to write a program that determines the total fine and total demerit points incurred by a speed offender. Your program should also determine if the offender should lose their license (i.e., if they have incurred a total of 15 or more demerit points).

Program Steps:

- Ask the user for the offender's full name.
- Ask the user for the number of offences the offender previously committed.
- Ask the user for the number of Demerit points the offender previously incurred.
- Ask the user if they wish to enter a speed in mph or km/h. This should be a menu with two options '1' or '2' ('1' for mph, and '2' for km/h).
- Ask the user for the speed travelled by the offender registered by the radar gun.
- Display a ticket that looks like the following:

```
Name: John Smith
-------------------------------------------
Previous Offences: 2
Previous # Of Demerit Points: 12

Registered Speed: 76 km/h
Fine: $180 x 2 = $360

Demerit Points Incurred: 4
Current # of Demerit Points: 16

***Your license has been suspended!!!
-------------------------------------------
```

*****<u>IMPORTANT</u>:**

- You must decide the most appropriate **data type** to use for each type of user input (ex. '# of previous tickets' should be an *int*).
- You should make use of **try-catch** statements to check for bad input.
- Make use of **logical operators** and **Boolean variables.**

2. **[THINK]** Write a program that asks the user for an amount of electricity units (integer) they have used and calculate the total electricity bill according to the given conditions:

- For first 50 units charge is $0.50/unit
- For next 100 units charge is $0.75/unit
- For next 100 units charge is $1.20/unit
- For all units above 250 charge is $1.50/unit
- An additional surcharge of 20% is added to the total bill