Programming Assignment #4

Calculate a Cell Phone Bill

CS 1428.003 and 004, Fall 2015
Instructor: Jill Seaman

Due: in class Wednesday, 10/7/2015 (upload electronic copy by 10:00am)

Problem:

Your have been asked by a cell phone service provider to write a program that will calculate the amount of the "talk" portion of a customer's monthly cell phone bill. Write a C++ program that will calculate the amount of the bill given which talk plan the customer subscribes to and how many voice minutes they used during the month.

The cell phone service provider offers the following talk plans:

Package A: 450 minutes for $39.99. .45/minute for each additional minute.
Package B: 900 minutes for $59.99. .40/minute for each additional minute.
Package C: Unlimited minutes for $69.99.

Input:

Use the following menu to prompt the user for the customer's cell phone plan:

```
Talk Plans:
A. The 450 minute plan
B. The 900 minute plan
C. The unlimited plan
Enter which talk plan the customer subscribes to:
```

Then ask the user to input the number of voice minutes used in the month.

For both inputs, use an if statement to perform input validation. The user should select only A, B, or C from the menu, and the minutes should be between 0 and 44640 (inclusive). If their input is invalid, ask them to enter the value again.

Processing: Compute the amount of the monthly bill according to the plan descriptions above.

Additionally, for underline package A underline customers compute how much money they would have saved this month a) if they had purchased package B instead and b) if they had purchased package C instead. For underline package B underline customers, compute how much money

they would have saved this month if they had purchased package C instead.

Output: Display the amount of the monthly bill with a dollar sign and formatted to 2 decimal places. Also if the customer would have saved any money by purchasing another plan (as calculated above) output the amount of savings for the other plan(s). **If the savings are 0 or negative for a given plan, no message should be printed.**

```
Talk Plans:
A. The 450 minute plan
B. The 900 minute plan
C. The unlimited plan
Enter which talk plan the customer subscribes to: B
Enter the total number of minutes used during the month: 875

The amount due for the month is $59.99
```

```
Talk Plans:
A. The 450 minute plan
B. The 900 minute plan
C. The unlimited plan
Enter which talk plan the customer subscribes to: D
Please enter A, B, or C: A
Enter the total number of minutes used during the month: 550

The amount due for the month is $84.99
Amount saved if you were on Plan B: $25.00
Amount saved if you were on Plan C: $15.00
```

Additional Requirements:

* Use named constants for all literals!!

* Use proper data types (only use float or double when necessary).

* **Grading Threshold:** Your program **must compile** and run, and **pass** the following 5 test cases, <u>otherwise you will receive a 0.</u>

```
Plan A, 400 minutes : amount due is $39.99
Plan A, 480 minutes : amount due is $53.49
Plan B, 900 minutes : amount due is $59.99
Plan B, 920 minutes : amount due is $67.99
Plan C, 1000 minutes: amount due is $69.99
(there are no savings for these test cases)
```

Style:

See the Style Guidelines document on the course website. The grader will deduct points if your program violates the style guidelines. Make sure it is indented neatly.

Logistics:

Name your file **assign4_xxxxx.cpp** where xxxxx is your TX State NetID (your txstate.edu email id). The file name should look something like this: assign4_js236.cpp

There are two steps to the turn-in process:

1. Submit an <u>electronic copy</u> using the Assignments tool on the TRACS website for this class (<u>tracs.txstate.edu</u>). Submit the .cpp file, (NOT a .cbp file!).

2. Submit a <u>printout</u> of the source file at the beginning of class on the day the assignment is due. Please print your name on the front page, and staple if there is more than one page.

See the assignment turn-in policy on the course website (<u>cs.txstate.edu/~js236/cs1428</u>) for more details.