Programming Assignment #4

Calculate a Cell Phone Bill

CS 1428.254, Spring 2012
Instructor: Jill Seaman

Due: in class Tuesday, 3/6/2012 (upload electronic copy by 9:00am)

Problem:

Your have been asked by a cell phone service provider to write a program that will calculate the amount of a customer's monthly cell phone bill. Write a C++ program that will calculate the amount of the bill given which plan the customer subscribes to, how many minutes they used during the month, and whether or not they subscribe to the data plan.

The cell phone service provider offers the following 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.

Additionally, the user may subscribe to the unlimited data plan for $30.00.

Input:

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

```
Rate Plans:
A. The 450 minute plan
B. The 900 minute plan
C. The unlimited plan
Enter which rate plan the customer subscribes to:
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Then ask the user to input the number of minutes used in the month.

Then ask whether or not they subscribe to the data plan.

For each of the first two inputs, use a while loop for 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 package A 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 package B 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. If there would be no savings, no message should be printed.

After these messages have been displayed, ask the user if they would like to calculate another bill. If they say yes, then present the menu again and repeat the process. Continue until they say no, they do not want to calculate another bill.

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Rate Plans:
A. The 450 minute plan
B. The 900 minute plan
C. The unlimited plan
Enter which rate plan the customer subscribes to: B
Enter the total number of minutes used during the month: 875
Does the customer subscribe to the data plan? (Y/N) N

The amount due for the month is $59.99

Calculate another bill? (Y/N) Y

Rate Plans:
A. The 450 minute plan
B. The 900 minute plan
C. The unlimited plan
Enter which rate plan the customer subscribes to: D
Please enter A, B, or C: A
Enter the total number of minutes used during the month: 550
Does the customer subscribe to the data plan? (Y/N) Y

The amount due for the month is $114.99
Amount saved if you were on Plan B: $25.00
Amount saved if you were on Plan C: $15.00

Calculate another bill? (Y/N) N
```

Style:

See the Style Guidelines document on the course website. The grader will deduct points if your program violates the style guidelines.

Logistics:

Your program must be free of compiler errors.

Include the file documentation header at the top of your source file (as described in the Style Guidelines document).

Do you not use any features of C++ that we have not yet covered in class (use features from Chapters 1-5 only).

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 electronic copy using the upload link on the course webpage (or go directly to https://hwupload.cs.txstate.edu)
   by 9:00am, Tuesday 3/6/2012

2. Submit a printout of the file at the **beginning of class on Tues 3/6/2012**. Please print your name on the front page, staple if there is more than one page.

See the following for details about turning in homework late:
http://www.cs.txstate.edu/~js236/cs1428/assignmentpolicy.txt