

## Programming Assignment #4

Calculate a Cell Phone Bill

CS 1428.003 and 004, Fall 2014

Instructor: Jill Seaman

**Due: in class Wednesday, 10/8/2014** (upload electronic copy by 10:00am)

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### Problem:

You 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 and how many minutes they used during the month.

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.

### 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:
```

Then ask the user to input the number of 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 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(s). If there would be no savings, no message should be printed.

```
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
```

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

```
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
```

```
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
```

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### **Additional Requirements:**

- Your program **must compile** and run, otherwise you will receive a score of 0. (You should compile and test it yourself in CodeBlocks or another IDE before submitting it).
- Use named constants for all literals!!
- Use proper data types (only use float or double when necessary).

**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 properly.

**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 electronic copy using the Assignments tool on the TRACS website for this class ([tracs.txstate.edu](https://tracs.txstate.edu)). Submit the .cpp file, (NOT a .cbp file!).
2. Submit a printout 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 ([cs.txstate.edu/~js236/cs1428](https://cs.txstate.edu/~js236/cs1428)) for more details.