Programming Assignment #3

Mobile Phone Charges

CS 1428.003, Fall 2019
Instructor: Jill Seaman

Due: before class **Wednesday, 10/2/2019** (upload electronic copy by 9:30am)

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 bill. Write a C++ program that will calculate the amount of the bill given the number of lines and the amount of minutes used during the month. Unlimited texting is also offered.

The cellular service provider offers the following options and pricing:

One line for $6/month base cost.
Two lines for $12/month base cost.

The voice rates are as follows:
• No minutes: $0
• 1-400 minutes: $9 total
• 401-800 minutes: $16 total
• over 800 minutes: $16 + 1.9 cents/minute over 800

Unlimited texting is $5 extra.

Input:

The program should ask the user if they have (A) one line or (B) two lines.

Then the program should ask the user to input the number of **minutes** used in the month (no fractional amounts)

Then the program should ask if the user has unlimited text messages (Y or N).

For the first two input values, use an **if** statement to perform input validation. The user should select only A, or B for the number of lines, and the minutes should be between 0 and 44640 (inclusive). If either input is invalid, <u>the program should ask the user to re-enter the value</u> (but only once, no looping). Do not validate the response to the last question.

Processing: Compute the <u>amount</u> of the monthly bill according to the descriptions above.

If the user answered 'y' or 'Y' to the last question, your program should add $5 to the bill.

Output:
Display the amount of the monthly bill with a dollar sign and formatted to 2 decimal places. Here are 5 different sample executions of the program:

```
How many lines:
A. One line
B. Two lines
A
Enter the total number of minutes used during the month: 100
Unlimited text messages? (Y/N): N

The amount due for the month is $15.00
```

```
How many lines:
A. One line
B. Two lines
B
Enter the total number of minutes used during the month: 750
Unlimited text messages? (Y/N): Y

The amount due for the month is $33.00
```

```
How many lines:
A. One line
B. Two lines
A
Enter the total number of minutes used during the month: 850
Unlimited text messages? (Y/N): Y

The amount due for the month is $27.95
```

```
How many lines:
A. One line
B. Two lines
A
Enter the total number of minutes used during the month: 803
Unlimited text messages? (Y/N): y

The amount due for the month is $27.06
```

```
How many lines:
A. One line
B. Two lines
C
Please enter A, or B: A
Enter the total number of minutes used during the month: 1234567
Please enter a number between 0 and 44640 for the minutes: 500
Unlimited text messages? (Y/N): n

The amount due for the month is $22.00
```

Additional Requirements:

- Your program **must compile** and run, <u>otherwise you will receive a 0.</u>

- Do NOT use ANY LOOPS! The program should compute one bill only.

- Do NOT make it harder than necessary! The problem can be solved without using any nested if statements (other than for the ranges of minutes).

Style:

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

- Use named constants for all <u>numeric</u> literals (char literals are permitted). There are a lot of numeric literals in this program!!

- Make sure your code is indented neatly (see the book for good examples: all statements inside of an if or else branch should be indented).

Logistics:

Name your file **assign3_xxxxx.cpp** where xxxxx is your TX State NetID (your txstate.edu email id). The file name should look something like this: assign3_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). Submit the .cpp file only.

2. Submit a **printout** of the .cpp file at the beginning of class on the day the assignment is due. Please print your name on the front page. Print the .cpp file only. Do **not** submit a printout of the output.

See the assignment turn-in policy on the course website (cs.txstate.edu/~js236/cs1428) for more details, including deadlines, penalties, and where to submit printouts after class.