CSC 15 Fall 2016

Project #1

Due date: October 27th and 28th

What to turn in: turn in a soft copy using the following table. Turn in a print out of your code on the due date in class. Your soft copy and hard copy code must match.

Lecture time	Lab Instructor	How to turn in	Subject of the email
T/Th 12:00	**Professor Jackson** **Professor Faroughi**	**Upload to SacCt** **Email to :** codyjackson@csus.edu	Your name CSC 15 project#1, 12:00
T/TH 4:30	**Professor Faroughi**	**Email to: csc15grader@gmail. Com**	Your name, CSC 15 Project#1, 4:30
Friday	Professor Faroughi	**Email to: CSC.Projects@gmail.com**	Your name CSC 15, project#1, Friday

Grading policy: you will be graded based on

1. Proper Indentation
2. Proper naming
3. Logic of your code
4. Correct output

5. Use of methods
6. Comments
7. Following the requirements of the assignment

Note: You are not allowed to use any methods from the String class for this project.

Problem: You are to write a program to do Credit card number validation. A valid credit must follow a certain pattern. The following table shows the details about different credit cards. For example a valid visa card must start with the digit 4 and the number of the digits in the card must be between 13 and 16.

Card type	Begins with	length
visa	4	13 - 16
American express	34, 37	15
Master card	51 to 55	16-19
Discover card	6011, 622126 to 622925, 644 to 649, 65	16

Credit card number must be read as a long integer.

Also a credit card number must be checked to see if the numbers are entered correctly. To do this we use the **Luhn check** or **Mod 10** check algorithm. In this program we will use the mod 10 algorithm. In order to validate a credit card number using the Mod 10 algorithm you must follow the following steps: as an example consider the card number: 4867483921456783

1. Double every even placed digit from right to left. If the result of the doubling the number is a two-digit number add the two digits to get a one digit number:
    a. 8 + 8 = 16 , since 16 is a two-digit number therefore: 1 + 6= 7
    b. 6 + 6 = 12, since 12 is a two-digit number therefore : 1 + 2= 3
    c. 4 + 4 = 8
    d. 2 + 2= 4
    e. 3 + 3= 6
    f. 4 + 4= 8

   g. 6 + 6 = 12, 1 + 2 = 3
   h. 4 + 4 = 8
2. Add all the single digits from the step 1
   a. 7 + 3 + 8 + 4 + 6 + 8 + 3 + 8 = 47
3. Add all the odd placed digits in the credit card number
   a. 3 + 7 + 5 + 1 + 9 + 8 + 7 + 8 = 48
4. Add the steps 2 and 3 result together
   a. 47+ 48 = 95
5. If the result from the step 4 is divisible by 10 the credit card number is valid
   a. 95 is not divisible by 10 therefore the 486748392145678 3 is not valid

Design a program that prompt the user to get the credit card number as a **long integer** and displays weather the number is valid or not.

A shell for your program has been also provided.

You must check your program with different data. Some credit card numbers have been provided for you. The algorithm in this program will not work on American express cards. Here are some valid credit card numbers that you can use to test your program

Visa	Master card	Discover	American Express
4556887847234960	5467981728842911	6011115255225229	349504035738245
4539323054267263	5484085833202703	6011457205319615	379154026275998
4024007181434415	5237348236474547	6011281989119474	372357384805028
4716996673715492	5126791055274304	6011762049484966	
4024007109344696	5399990713934818	6011397131991568	

Sample output

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**********************************************
This program will determine if you
have entered a valid credit card number
Credit cards that we check includes Visa, Master Card, Discover cars and American express
**********************************************
Enter a credit card number: 4024007109344696
This is a valid "Visa" credit card number

Would you like to validate another credit card? y/n y

Enter a credit card number: 53999907134818
The number entered is not 13 or 16 numbers long.
This is not a valid credit card number

Would you like to validate another credit card? y/n y

Enter a credit card number: 5399990713934818
This is a valid "Master Card" credit card number

Would you like to validate another credit card? y/n y

Enter a credit card number: 6011397131991568
This is a valid "Discover" credit card number

Would you like to validate another credit card? y/n y

Enter a credit card number: 372357384805028
This is a valid "American Express" credit card number

Would you like to validate another credit card? y/n y
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Enter a credit card number: 572357384805028
This is not a valid credit card number

Would you like to validate another credit card? y/n n
Have a nice day!
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