

Lab6 - Chapter 5

Q1- Write a statement for each of the following tasks:

1. Generate a random integer number between -50 and 50 where 50 and -50 are included
2. Generate a random integer number between -50 and 50 where 50 and -50 are excluded
3. Generate a random integer number divisible by 3 between -50 and 50
4. Generate a random float number between -50.00 and 50.00 where 50 and -50 are included

Q2- Write a function to generate and return a random capital letter

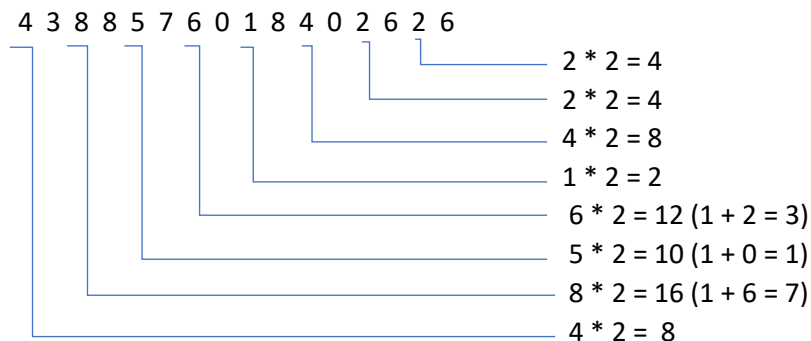
Q3- Write a function to generate and return a random letter

Q4 - Credit card numbers follow certain patterns. A credit card number must have between 13 and 16 digits. The number must start with the following:

- 4 for Visa cards
- 5 for MasterCard cards
- 37 for American Express cards
- 6 for Discover cards

In 1954, Hans Luhn of IBM proposed an algorithm for validating credit card numbers. The algorithm is useful to determine whether a card number is entered correctly or is scanned correctly by scanner. Almost all credit numbers are generated following this validity check, commonly known as the Luhn check or the Mod check. It can be described as follows. (for illustration, consider the card number 4388576018402626.)

1. It must be checked for the valid length (between 13 and 16 digits).
2. It must be checked for valid card type as described above.
3. Double every second digit from right to left. If doubling of a digit results in a 2-digit number, add the two digits to get a single digit number.



4. Now, add all single-digit numbers from step one.
 $4 + 4 + 8 + 2 + 3 + 1 + 7 + 8 = 37$
5. Add all digits in the odd places from right to left in the card number.
 $6 + 6 + 0 + 8 + 0 + 7 + 8 + 3 = 38$
6. Sum the result from step 4, and step 5.
 $37 + 38 = 75$

7. If the result from step 6 is divided by 10 the card number is valid; otherwise, it is invalid. For example, the number 4388576018402626 is invalid, but number 4388576018410707 is valid.

Write a program that prompts the user to enter a credit card number as a string and then validate it by calling different function to cover the above steps.

Q5- Write a function that returns true or false if a given string has exactly 5 consecutive characters with the same value. Note that if the string has less or more than 5 consecutive characters, the function returns false.

write a main function that prompts the user to enter a string and displays if the string contains 5 consecutive characters with the same value. Here are sample runs:

```
Enter a string: 36777776
The string has exactly-Five-consecutives
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Enter a string: This is awesome!!!!!!!!!!
The string has no exactly-Five-consecutives
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