

Python CaseStudies

Control Statements&Loopings

CS1:

Write a program which accepts every even position character(only)from the given input sequence(commaseparated)from console.

Generate a dictionary which key as odd number of character and value as even number of the character from the input. If user enter number or space in between skip and consider only character.

CS2:

Write a program for PASSWORD validation rule. Following are the condition/criteria to check the password:

Minimum 2 letter Maximum 5 between [az]

Minimum 3 and maximum 4 number between [0-9]

Minimum 1 and maximum 2 letter between [A-Z]

Minimum 1 and maximum 2 character from [@#\$*!]

Maximum length of transaction password: 10

Your program should accept input as list of passwords if any of the password accepts the above criteria display the valid password as a another list.

CS3:

Write a program to detect Thursday 18th October:

Introduce a method in Python that accept a list which contains years. (Eg. [1981,1979,1998,2002,2012])

Pass this list as parameters and return True if the year contains 18th October as Thursday. If Yes create a dictionary with key as day of 1st January and year as value (Eg. [Monday:1979, Sunday:2012])

CS4:

Write a program to print the following number pattern using a loop.

```
1
2 8
2 8 18
2 8 18 32
2 8 18 32 50
0 2 6 12
0 2 6
0 2
0
```

CS5:

Write a program to multiply all the numbers from 1 to a given number

Program should accept a number from a user and calculate the multiplication of all numbers from 1 to a given number

For example, if the user entered 5 the output should be 120 ($1*2*3*4*5$)

CS 6:

Write a program to display only those numbers from a list that satisfy the following conditions, The number must be divisible by 12

If the number is greater than 1200; then skip it and move to the next number

If the number is Lesser than 144, then stop the loop

Program should accept a values to form a LIST

CS 7:

Write a program to filter even number from a list. Using those numbers as a position and get the respective alphabetic characters. If character contains "vowels" letter then ignore it and display the remaining characters. If input number > 26 then skip the number and move to next value.

Sample Input:

[22,5,5,20,31,5,3,8,28,14,15,12,15,7,9,5,19,27]

CS8:

Write a program to print the following number pattern using a loop

```
0
0  3
0  3  8
0  3  8  15
0  3  8  15  24
0  3  8  15
0  3  8
0  3
0
```

CS9:

Write a program to extract only numbers from a list that satisfy the below conditions,

Number should be divisible by 13

If the number is ≥ 169 skip and move to next number

If the number is < 104 skip and move to next number

After extracted the values from the list divide the each value with 13 and check if its Even or Odd. If its Even multiply by 2 else multiply by 3.

Finally form a dictionary with Key as previously calculated value and value as "E" if its Even Number else "O"

CS10:

Write a Python program to sum of all the character position(alphabetic order) from the given input. If input contains special character skip and move to next position. If input contains numbers then multiply all the numbers from the input.

convert both result as string and concatenate. Finally find the alphabetic character of each number from the concatenated string.

Print the characters

CS11

Write a program to accept two string as input. Count occurrences of all characters from the two strings.

Based on the occurrences count value, swap the character between two strings.

(E.g, if occurrences of the particular character is 1 from string 1 should move to string 2 based on alphabetic order. Similarly from String 2 to String 1.

CS12

Write a Python program to accept 2Dimensional array as input row count should be divisible by 2 .
Accept only characters in the even row of the 2D array.

After get the input, find the position of each character based on the alphabetic order. Then take the odd row each values (should be number), check if this divisible by the even row character position number. If its divisible then swap the values else move on the next.

Follow the above process for other even rows and odd rows values. After processing display the processed array values

CS13

Write a program to print the below pattern,

```
*  
  
* *  
  
* * *  
  
* * * *  
  
* * * * *  
  
* * * *  
  
* * *  
  
* *  
  
*
```

CS 14: print the following output

1

2 2

3 3 3

4 4 4 4

4 4 4 4

3 3 3

2 2

1

CS 15 : Print below pattern,

A

B B

C C C

D D D D

E E E E E

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

CS 16 : Print below pattern,

A

1

B B

2 2

C C C

3 3 3

D D D D

4 4 4 4

E E E E E

5 5 5 5 5

CS17. Write a program to find the largest word from the string and calculate the total number characters of that string. Then calculate the total characters from the entire sentence. Divide the value of largest word character count with total character from the entire sentence.

Find the equivalent character of alphabet for each number from the result.

(E.g. If final value is 123 then output should be "ABC")

