

Module 2: Sequences and File Operations

Case Study I

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Case Study

1. What is the output of the following code?

```
nums = set([1,1,2,3,3,3,4,4])  
print(len(nums))
```

Hint: Set consists unique element.

2. What will be the output?

```
d = {"john":40, "peter":45}  
print(list(d.keys()))
```

Hint: d.keys() is the function which will show keys.

3. A website requires a user to input username and password to register. Write a program to check the validity of password given by user. Following are the criteria for checking password:

1. At least 1 letter between [a-z]
2. At least 1 number between [0-9]
1. At least 1 letter between [A-Z]
3. At least 1 character from [\$#@]
4. Minimum length of transaction password: 6
5. Maximum length of transaction password: 12

Hint: In case of input data being supplied to the question, it should be assumed to be a console input.

4. Write a for loop that prints all elements of a list and their position in the list.

```
a = [4,7,3,2,5,9]
```

Hint: Use Loop to iterate through list elements.

5. Please write a program which accepts a string from console and print the characters that have even indexes.

Example: If the following string is given as input to the program:

H1e2l3l4o5w6o7r8l9d

Then, the output of the program should be:

Helloworld

6. Please write a program which accepts a string from console and print it in reverse order.

Example: If the following string is given as input to the program:

rise to vote sir

Then, the output of the program should be:

ris etov ot esir

7. Please write a program which count and print the numbers of each character in a string input by console.

Example: If the following string is given as input to the program:

abcdefgabc

Then, the output of the program should be:

a,2

c,2

b,2

e,1

d,1

g,1

f,1

8. With two given lists [1,3,6,78,35,55] and [12,24,35,24,88,120,155], write a program to make a list whose elements are intersection of the above given lists.

9. With a given list [12,24,35,24,88,120,155,88,120,155], write a program to print this list after removing all duplicate values with original order reserved.
10. By using list comprehension, please write a program to print the list after removing the value 24 in [12,24,35,24,88,120,155].
11. By using list comprehension, please write a program to print the list after removing the 0th,4th,5th numbers in [12,24,35,70,88,120,155].
12. By using list comprehension, please write a program to print the list after removing delete numbers which are divisible by 5 and 7 in [12,24,35,70,88,120,155].
13. Please write a program to randomly generate a list with 5 numbers, which are divisible by 5 and 7, between 1 and 1000 inclusive.
14. Write a program to compute $1/2 + 2/3 + 3/4 + \dots + n/n+1$ with a given n input by console ($n > 0$).

Example:

If the following n is given as input to the program:

5

Then, the output of the program should be:

3.55