**Assignment 1**

1. What is the output of the following code?

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

print(len(nums))

**-------> 4**

1. What will be the output? d = {"john":40, "peter":45} print(list(d.keys()))

**-------> [‘john’, ’peter’]**

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

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**import re**

**def is\_valid\_password(password):**

**if len(password) < 6 or len(password) > 12:**

**return False, "Password length should be between 6 and 12 characters."**

**if not re.search("[a-z]", password):**

**return False, "Password must contain at least one lowercase letter."**

**if not re.search("[A-Z]", password):**

**return False, "Password must contain at least one uppercase letter."**

**if not re.search("[0-9]", password):**

**return False, "Password must contain at least one digit."**

**if not re.search("[$#@]", password):**

**return False, "Password must contain at least one special character ($, #, or @)."**

**return True, "Password is valid."**

**password = input("Enter password: ")**

**valid, message = is\_valid\_password(password)**

**print(message)**

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

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

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

**print("Element\tPosition")**

**for i in range(0,6):**

**print(a[i],"\t",i)**

1. 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

**------------>**

**str1 = input("Enter a string: ")**

**for i in range(0,len(str1)):**

**if i%2 == 0:**

**print(str1[i],end = "")**

1. 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**

**------------>**

**str1 = input("Enter a string: ")**

**for i in range(-1,-1\*(len(str1))-1,-1):**

**print(str1[i],end = "")**

1. 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

**---------------->**

**s1 = input("Enter a string: ")**

**count = 0**

**visited = []**

**for i in s1:**

**if not i in visited:**

**for j in s1:**

**if j == i:**

**count += 1**

**visited.append(i)**

**print(i,",",count)**

**count = 0**

1. 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.

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**l1 = [1,3,6,78,35,55]**

**l2 = [12,24,35,24,88,120,155]**

**print(list(set(l1) & set(l2)))**

1. 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.

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**l1 = [12,24,35,24,88,120,155,88,120,155]**

**result = []**

**for i in l1:**

**if i not in result:**

**result.append(i)**

**print(result)**

1. 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].

**----------->**

**l1 = [12,24,35,24,88,120,155]**

**l2 = [i for i in l1 if i != 24]**

**print(l2)**

1. 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].

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**l1 = [12,24,35,70,88,120,155]**

**l2 = [l1[i] for i in range(0,len(l1)) if i not in (0,4,5)]**

**print(l2)**

1. 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].

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**l1 = [12,24,35,70,88,120,155]**

**l2 = [i for i in l1 if not (i%5 == 0 and i%7 == 0)]**

**print(l2)**

1. Please write a program to randomly generate a list with 5 numbers, which are divisible by 5 and 7 , between 1 and 1000 inclusive.

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**import random**

**random\_list = random.sample([i for i in range(1,1001) if (i%5==0 and i%7==0)],5)**

**print(random\_list)**

1. Write a program to compute 1/2+2/3+3/4+...+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

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**n = int(input("Enter a number : "))**

**total = 0**

**if n <= 0:**

**print("Please enter number > 0")**

**else:**

**for i in range(1,n+1):**

**total += i/(i+1)**

**print(f"Result = {total:.2f}")**