1. What is the output of the following code?

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

print(len(nums))

Ans: **4**

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

Ans: **['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

Ans:

**import re**

**def check\_pass(password):**

**if (6 <= len(password) <= 12 and re.search("[a-z]", password) and re.search("[0-9]", password) and re.search("[A-Z]", password) and re.search("[$#@]", password)):**

**return True**

**else:**

**return False**

**password = "Asna@ioo"**

**if check\_password\_validity(password):**

**print("Password is valid.")**

**else:**

**print("Password is invalid.")**

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]

Ans:

**for index, value in enumerate(a):**

**print(f"Position: {index}, Value: {value}")**

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

Ans:

**inputstring = 'H1e2l3l4o5w6o7r8l9d '**

**for i in range(len(inputstring)):**

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

**print(inputstring[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**

Ans:

**def reverse(s):**

**str = ""**

**for i in s:**

**str = i + str**

**return str**

**s = "test of reverse string"**

**print("The original string is : ", end="")**

**print(s)**

**print("The reversed string(using loops) is : ", end="")**

**print(reverse(s))**

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

**Ans:**

**#inputstring = input("Enter a string: ")**

**inputstring = 'Hello'**

**charcount = {}**

**for char in inputstring:**

**if char in charcount:**

**charcount[char] += 1**

**else:**

**charcount[char] = 1**

**print(charcount.items())**

**for char, count in charcount.items():**

**print(f"Character: {char}, Count: {count}")**

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.

Ans:

**list1 = [1, 3, 6, 78, 35, 55]**

**list2 = [12, 24, 35, 24, 88, 120, 155]**

**intersection = list(set(list1) & set(list2))**

**print(f"The intersection of two list is {intersection}")**

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.

Ans:

**def remove\_duplicates(original\_list):**

**seen = set() # To keep track of seen elements**

**result = [] # To store the result with duplicates removed**

**for item in original\_list:**

**if item not in seen:**

**result.append(item) # Add the item to result if not seen**

**seen.add(item) # Mark this item as seen**

**return result**

**# Given list**

**original\_list = [12, 24, 35, 24, 88, 120, 155, 88, 120, 155]**

**# Remove duplicates while preserving the order**

**cleaned\_list = remove\_duplicates(original\_list)**

**# Print the cleaned list**

**print(cleaned\_list)**

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].

Ans:

**# Given list**

**original\_list = [12, 24, 35, 24, 88, 120, 155]**

**# Create a new list excluding the value 24 using list comprehension**

**filtered\_list = [x for x in original\_list if x != 24]**

**# Print the filtered list**

**print(filtered\_list)**

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].

Ans:

**# Given list**

**original\_list = [12, 24, 35, 70, 88, 120, 155]**

**# Indices to remove**

**indices\_to\_remove = {0, 4, 5}**

**# Create a new list excluding elements at the specified indices**

**filtered\_list = [value for index, value in enumerate(original\_list) if index not in indices\_to\_remove]**

**# Print the filtered list**

**print(filtered\_list)**

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].

Ans:

**# Given list**

**original\_list = [12, 24, 35, 70, 88, 120, 155]**

**# Create a new list excluding elements divisible by both 5 and 7**

**filtered\_list = [x for x in original\_list if not (x % 5 == 0 and x % 7 == 0)]**

**# Print the filtered list**

**print(filtered\_list)**

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.

Ans:

**import random**

**def generate\_divisible\_by\_35(min\_value, max\_value, count):**

**# List to store the numbers**

**numbers = []**

**# Generate numbers until we have the required count**

**while len(numbers) < count:**

**# Generate a random number within the range**

**num = random.randint(min\_value, max\_value)**

**# Check if the number is divisible by 35**

**if num % 35 == 0:**

**numbers.append(num)**

**return numbers**

**# Generate a list of 5 random numbers divisible by 35 between 1 and 1000**

**random\_numbers = generate\_divisible\_by\_35(1, 1000, 5)**

**# Print the generated list**

**print(random\_numbers)**

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

Ans:

**#n = (input("Enter a value for n "))**

**n = 5**

**sum = 0**

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

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

**# print("sum", sum , "i" , i)**

**print(f"The result of the series is {sum:.2f}")**