WEEK 05

**1# Write a program to generate 6 digit random secure OTP.**

**Code:**

*import random*

*def OTP():*

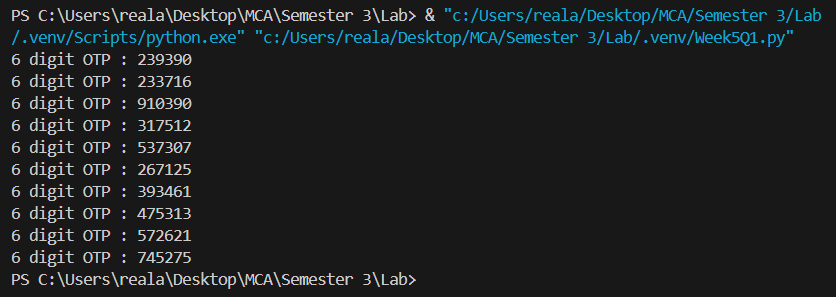
*otp=random.randint(100000,999999)*

*return otp*

*for i in range(10):*

*print(f"6 digit OTP : {OTP()}")*

**Output:**

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**2# Write a program to pick a random character from a given String supplied by the user.**

**Code:**

*import random*

*def randomCharacter(str):*

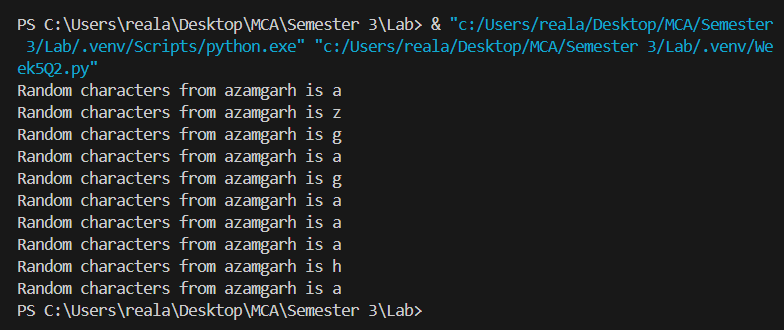
*return random.choice(str)*

*str="azamgarh"*

*for i in range(10):*

*print(f"Random characters from {str} is {randomCharacter(str)}")*

**Output:**



**3# Write a program to generate a random Password which meets the following conditions**

**a) Password length must be 10 characters long.**

**b) It must contain at least 2 upper case letters, 1 digit, and 1 special symbol.**

**Code:**

*import random*

*import string*

*def passwordGenerator():*

*upperCase=string.ascii\_uppercase*

*lowerCase=string.ascii\_lowercase*

*digits=string.digits*

*specialChar=string.punctuation*

*all=upperCase+lowerCase+digits+specialChar*

*password=[random.choice(upperCase) for \_ in range(2)]*

*password+=[random.choice(digits) for \_ in range(1)]*

*password+=[random.choice(specialChar) for \_ in range(1)]*

*password+=random.choices(all,k=6)*

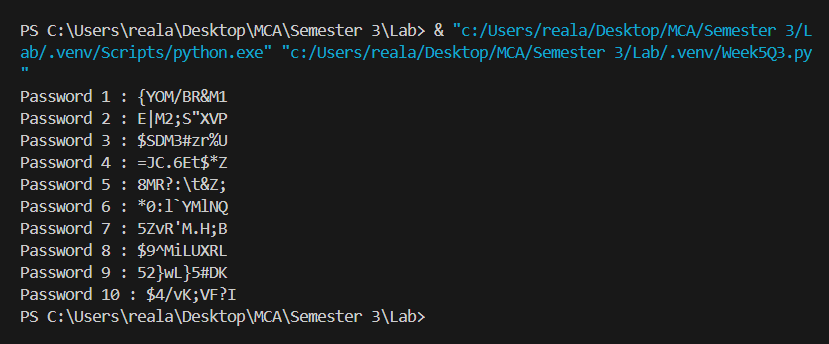
*random.shuffle(password)*

*return ''.join(password)*

*for i in range(10):*

*print(f"Password {i+1} : {passwordGenerator()}")*

**Output:**

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**4# Given a two list of numbers, write a program to create a new list such that the new list should contain odd numbers from the first list and even numbers from the second list.**

**Code:**

*import random*

*def thirdList(list1,list2):*

*list=[]*

*for x in list1:*

*if x%2!=0:*

*list.append(x)*

*for x in list2:*

*if x%2==0:*

*list.append(x)*

*random.shuffle(list)*

*return list*

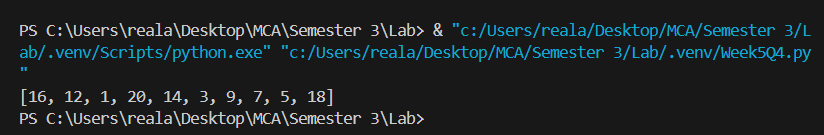
*list1=[1,2,3,4,5,6,7,8,9,10]*

*list2=[11,12,13,14,15,16,17,18,19,20]*

*list=thirdList(list1,list2)*

*print(list)*

**Output:**

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**5# Write a program to create a numpy array and return array of odd rows and even columns from the numpy array.**

**Code:**

*import numpy as np*

*rows=int(input("Enter the number of rows : "))*

*cols=int(input("Enter the number of columns : "))*

*array=[]*

*print("Enter the elements row-wise (separated by spaces):")*

*for i in range(rows):*

*elements=list(map(int, input().split()))*

*array.append(elements)*

*np\_array=np.array(array)*

*print("The numpy array looks like this : ")*

*print()*

*print(np\_array)*

*print()*

*print("The array of odd rows and even columns is : ")*

*resultArray=[]*

*for i,row in enumerate(np\_array):*

*if i%2==1:*

*resultArray.append(row.tolist())*

*transposedNumpy=np\_array.T*

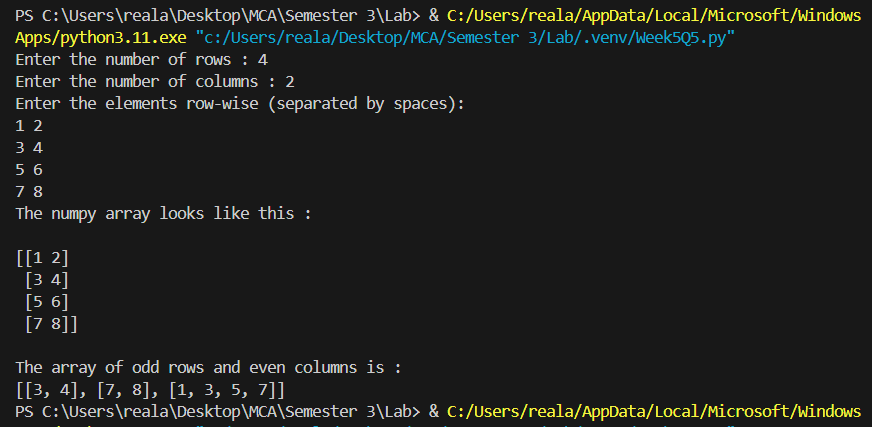
*for i,row in enumerate(transposedNumpy):*

*if i%2==0:*

*resultArray.append(row.tolist())*

*print(resultArray)*

**Output:**



**6# Write a program create a numpy array and sort as per below cases:**

**a) Case 1: Sort array by the second row.**

**b) Case 2: Sort the array by the second column**

**Code:**

*import numpy as np*

*rows=int(input("Enter the number of rows : "))*

*cols=int(input("Enter the number of columns : "))*

*array=[]*

*print("Enter the elements row-wise (separated by spaces):")*

*for i in range(rows):*

*elements=list(map(int, input().split()))*

*array.append(elements)*

*np\_array=np.array(array)*

*print("The numpy array looks like this : ")*

*print()*

*print(np\_array)*

*print()*

*indices=np.argsort(np\_array[1])*

*print("The array sorted by second row : ")*

*sorted\_by\_row = np\_array[:, indices]*

*print(sorted\_by\_row)*

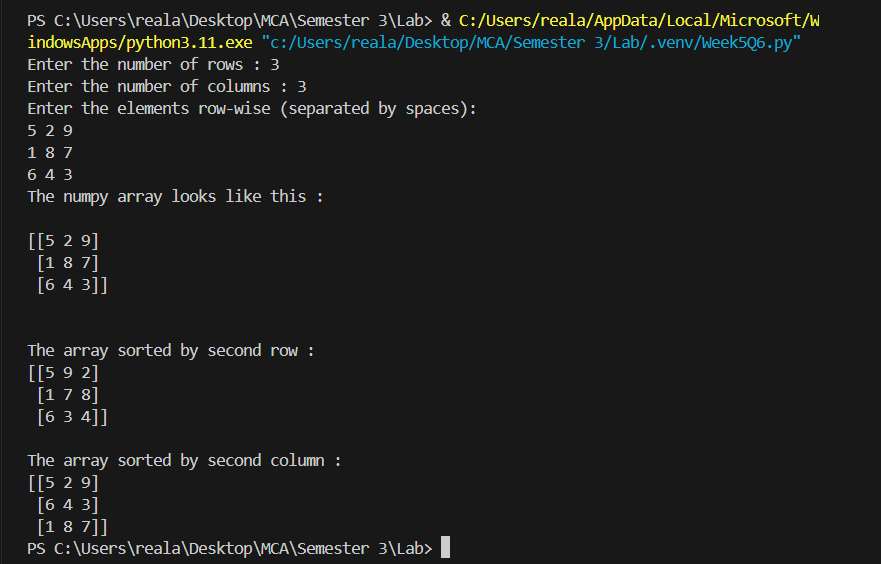
*indexCol=np.argsort(np\_array[:,1])*

*sortedByCol=np\_array[indexCol]*

*print("The array sorted by second column : ")*

*print(sortedByCol)*

**Output:**

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