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| **Netaji Subhash Engineering College**  **Department of Computer Science & Engineering**  **B. Tech CSE 2nd Year 3rd Semester**  **2023-2024**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Name of the Course: IT Workshop (Python)**  **Course Code: PCC-CS393**  **Name of the Student: ARITTRA BAG**  **Class Roll No.: 103**  **University Roll No.: 10900122105**  **Date of Experiment: 01/09/2023**  **Date of Submission: 08/09/2023**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Assignment No.: A5\_01**  **Problem Statement:**  Write a program to find the maximum and minimum of a list of numbers without using built-in functions.  **Python Code:**  **l=list(input("Enter the Numbers(with space): ").split())**  **min\_num=l[0]**  **max\_num=l[0]**  **for num in l:**  **if num>max\_num:**  **max\_num=num**  **if num<min\_num:**  **min\_num=num**  **print(f"Max. Number={max\_num}\nMin. Number={min\_num}")**  **Sample Output(s):**  Enter the Numbers(with space): 10 30 90 -50 75  Max. Number=90  Min. Number=-50Count of u = 0  **Assignment No.: A5\_02**  **Problem Statement:**  Write a program to multiply two matrices as nested lists.  **Python Code:**  **rows\_a=int(input("Enter the Number of Rows for Matrix A: "))**  **cols\_a=int(input("Enter the Number of Columns for Matrix A: "))**  **rows\_b=int(input("Enter the Number of Rows for Matrix B: "))**  **cols\_b=int(input("Enter the Number of Columns for Matrix B: "))**  **if cols\_a!=rows\_b:**  **print("Multiplication of Matrices is not possible!")**  **else:**  **matrix\_a=[]**  **print("Enter the elements for Matrix A:")**  **for i in range(rows\_a):**  **row=[]**  **for j in range(cols\_a):**  **element = int(input(f"Enter the Value for Row-{i+1} Column-{j+1}: "))**  **row.append(element)**  **matrix\_a.append(row)**  **matrix\_b=[]**  **print("Enter the elements for Matrix B:")**  **for i in range(rows\_b):**  **row=[]**  **for j in range(cols\_b):**  **element = int(input(f"Enter the Value for Row-{i+1} Column-{j+1}: "))**  **row.append(element)**  **matrix\_b.append(row)**  **result=[[0 for j in range(cols\_b)]for i in range(rows\_a)]**    **for i in range(rows\_a):**  **for j in range(cols\_b):**  **for k in range(cols\_a):**  **result[i][j]+=matrix\_a[i][k]\*matrix\_b[k][j]**    **print("Resultant Matrix:")**  **for row in result:**  **print(str(row).replace(","," "))**  **Sample Output(s):**  Enter the Number of Rows for Matrix A: 2  Enter the Number of Columns for Matrix A: 3  Enter the Number of Rows for Matrix B: 3  Enter the Number of Columns for Matrix B: 2  Enter the elements for Matrix A:  Enter the Value for Row-1 Column-1: 1  Enter the Value for Row-1 Column-2: 2  Enter the Value for Row-1 Column-3: 3  Enter the Value for Row-2 Column-1: 4  Enter the Value for Row-2 Column-2: 5  Enter the Value for Row-2 Column-3: 6  Enter the elements for Matrix B:  Enter the Value for Row-1 Column-1: 10  Enter the Value for Row-1 Column-2: 11  Enter the Value for Row-2 Column-1: 20  Enter the Value for Row-2 Column-2: 21  Enter the Value for Row-3 Column-1: 30  Enter the Value for Row-3 Column-2: 31  Resultant Matrix:  [140 146]  [320 335]  **Assignment No.: A5\_03**  **Problem Statement:**  Write a program to find the union of two lists.  **Python Code:**  l1=list(input("Enter the Numbers for List-1(comma separated): ").split(","))  l2=list(input("Enter the Numbers for List-2(comma separated): ").split(","))  result=l1  for i in l2:      if i not in result:          result.append(i)  print(f"Resultant List={result}")  **Sample Output(s):**  Enter the Numbers for List-1(comma separated): 1,2,3,4,5,6  Enter the Numbers for List-2(comma separated): 2,5,6,7,8,9  Resultant List=['1', '2', '3', '4', '5', '6', '7', '8', '9']  **Assignment No.: A5\_04**  **Problem Statement:**  Write a program to concatenate two lists using list comprehension.  **Python Code:**  **l1=list(input("Enter the Numbers for List-1(comma separated): ").split(","))**  **l2=list(input("Enter the Numbers for List-2(comma separated): ").split(","))**  **result=[num for num in l1]+[num for num in l2]**  **print(f"Resultant List={result}")**  **Sample Output(s):**  **Enter the Numbers for List-1(comma separated): 1,2,3,4,5**  **Enter the Numbers for List-2(comma separated): 6,7,8,9,10**  **Resultant List=['1', '2', '3', '4', '5', '6', '7', '8', '9', '10']**  **Assignment No.: A5\_05**  **Problem Statement:**  Write a program to create a list from two given lists ‘list1’ and ‘list2’ of numbers such that it contains numbers that are present in ‘list2’ but not in ‘list1’.  **Python Code:**  l1=list(input("Enter the Numbers for List-1(comma separated): ").split(","))  l2=list(input("Enter the Numbers for List-2(comma separated): ").split(","))  result=[]  for i in l2:      if i not in l1:          result.append(i)  print(f"Resultant List={result}")  **Sample Output(s):**  Enter the Numbers for List-1(comma separated): 1,2,3,4,5  Enter the Numbers for List-2(comma separated): 1,3,6,7,8  Resultant List=['6', '7', '8']  **Assignment No.: A5\_06**  **Problem Statement:**  Write a program to find the distinct pair of numbers whose product is odd from a list of integers.  **Python Code:**  l=list(input("Enter the Numbers (comma separated): ").split(","))  result=[]  for i in l:      for j in l:          if int(i)%2!=0 and int(j)%2!=0:              pair=(int(i),int(j))              if pair in result:                  continue              if (int(j),int(i)) not in result:                  result.append(pair)  print(f"Resultant List={result}")  **Sample Output(s):**  Enter the Numbers (comma separated): 1,2,3,4,5  Resultant List=[(1, 1), (1, 3), (1, 5), (3, 3), (3, 5), (5, 5)]  **Assignment No.: A5\_07**  **Problem Statement:**  Write a program to accept a sequence of comma-separated numbers from the user and generate a tuple with those numbers.  **Python Code:**  print("Tuple=",tuple(int(num) for num in input("Enter the Numbers (comma separated): ").split(",")))  **Sample Output(s):**  Enter the Numbers (comma separated): 1,2,3,4,5  Tuple= (1, 2, 3, 4, 5)  **Assignment No.: A5\_08**  **Problem Statement:**  Write a program to add elements in a tuple without using built-in functions.  **Python Code:**  t1=tuple(int(num) for num in input("Enter the Numbers for Tuple(comma separated): ").split(","))  t2=tuple(int(num) for num in input("Enter Numbers to Append(comma separated): ").split(","))  print("New Tuple=",t1+t2)  **Sample Output(s):**  Enter the Numbers for Tuple(comma separated): 1,2,3,4,5  Enter Numbers to Append(comma separated): 6,7,8,9,10  New Tuple= (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)  **Assignment No.: A5\_09**  **Problem Statement:**  Write a program to calculate the mean of elements in a tuple of integers.  **Python Code:**  t=tuple(int(num) for num in input("Enter the Numbers for Tuple(comma separated): ").split(","))  sum=0  for i in t:      sum+=i  print("Mean=",sum/len(t))  **Sample Output(s):**  Enter the Numbers for Tuple(comma separated): 1,2,3,4,5  Mean= 3.0  **Assignment No.: A5\_10**  **Problem Statement:**  Write a program to display unique and duplicate elements of a tuple.  **Python Code:**  t=tuple(int(num) for num in input("Enter the Numbers for Tuple(comma separated): ").split(","))  un=[]  dp=[]  for i in t:      if i not in un:          un.append(i)      else:          dp.append(i)  for i in dp:      if i in un:          un.remove(i)  print("Unique Values=",tuple(un),"\nDuplicate Values=",tuple(dp))  **Sample Output(s):**  Enter the Numbers for Tuple(comma separated): 1,2,3,4,5,1,2  Unique Values= (3, 4, 5)  Duplicate Values= (1, 2)  **Assignment No.: A5\_11**  **Problem Statement:**  Write a program to count the frequency of all the elements in a tuple.  **Python Code:**  t=tuple(int(num) for num in input("Enter the Numbers for Tuple(comma separated): ").split(","))  l=[]  c=()  for i in range(len(t)):  l.append(0)  if t[i] in c:  continue  else:  c=c+t[i:i+1]  for j in range(len(t)):  if t[i]==t[j]:  l[i]+=1  print(f"Frequency of '{t[i]}' = {l[i]}")  **Sample Output(s):**  Enter the Numbers for Tuple(comma separated): 1,2,3,4,5,2,4,7,8,9  Frequency of '1' = 1  Frequency of '2' = 2  Frequency of '3' = 1  Frequency of '4' = 2  Frequency of '5' = 1  Frequency of '7' = 1  Frequency of '8' = 1  Frequency of '9' = 1  **Assignment No.: A5\_12**  **Problem Statement:**  Write a program to find the distinct pair of numbers whose product is even from a tuple of integers.  **Python Code:**  t=tuple(int(num) for num in input("Enter the Numbers for Tuple(comma separated): ").split(","))  result=[]  for i in t:      for j in t:          if (int(i) \* int(j))%2==0:              pair=(int(i),int(j))              if pair in result:                  continue              if (int(j),int(i)) not in result:                  result.append(pair)  print(f"Resultant Tuple={tuple(result)}")  **Sample Output(s):**  Enter the Numbers for Tuple(comma separated): 1,2,3,4,5  Resultant Tuple=((1, 2), (1, 4), (2, 2), (2, 3), (2, 4), (2, 5), (3, 4), (4, 4), (4, 5)) |