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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: 22/09/2023**  **Date of Submission: 03 /11/2023**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Assignment No.: A8\_01**  **Problem Statement:**  Create a module to check if a passed string is a palindrome or not. Write a program to find whether a string is a palindrome or not using this module.  **Module:**  def is\_palin(s):      s=s.replace(" ", "").lower()      return s==s[::-1]    **Python Code:**  from plaindrome import \*  s = input("Enter a string: ")  if is\_palin(s):      print(f"'{s}' is a palindrome string")  else:      print(f"'{s}' is not a palindrome string")  **Sample Output(s):**  Enter a string: madam  'madam' is a palindrome string  **Assignment No.: A8\_02**  **Problem Statement:**  Create a module to check whether a number is a prime or not. Write a program to find the prime number between two limits using this module.  **Module:**  def find\_primes(start, end):      prime\_numbers = []      for num in range(start, end + 1):          if num <= 1:              continue          is\_prime = True          for i in range(2, int(num\*\*0.5) + 1):              if num % i == 0:                  is\_prime = False                  break          if is\_prime:              prime\_numbers.append(num)      return prime\_numbers  **Python Code:**  from prime import \*  start=int(input("Enter the Starting Number: "))  end=int(input("Enter the Ending Number: "))  print(f"Prime Numbers between {start} and {end} are:",find\_primes(start,end))  **Sample Output(s):**  Enter the Starting Number: 1  Enter the Ending Number: 10  Prime Numbers between 1 and 10 are: [2, 3, 5, 7]  **Assignment No.: A8\_03**  **Problem Statement:**  Create a module to find the factorial of a number and import the module from the main program to find the factorial of a given number.  **Module:**  def fact(n):  if n<0:  print("Not Defined!")  exit(1)  if n == 0:  return 1  else:  return n \* fact(n-1)  **Python Code:**  from factorial import \*  n=int(input("Enter the Number: "))  print(f"Factorial of {n} is:",fact(n))  **Sample Output(s):**  Enter the Number: 5  Factorial of 5 is: 120  **Assignment No.: A8\_04**  **Problem Statement:**  Write a program to find the mean, median, and standard deviation of a list of random numbers between 1 and 10.  **Module:**  import math  import random  def generate\_random\_number(min\_value, max\_value,r):      return [random.randint(min\_value,max\_value) for \_ in range(r)]  def calculate\_mean(numbers):      return sum(numbers) / len(numbers)  def calculate\_median(numbers):      sorted\_numbers = sorted(numbers)      n = len(sorted\_numbers)      if n % 2 == 0:          middle1 = sorted\_numbers[n // 2 - 1]          middle2 = sorted\_numbers[n // 2]          median = (middle1 + middle2) / 2      else:          median = sorted\_numbers[n // 2]      return median  def calculate\_std\_deviation(numbers):      mean = calculate\_mean(numbers)      variance = sum((x - mean) \*\* 2 for x in numbers) / len(numbers)      std\_deviation = math.sqrt(variance)      return std\_deviation    **Python Code:**  from rand import \*  mi=int(input("Enter Minimum Number: "))  ma=int(input("Enter Maximum Number: "))  r=int(input("Enter Range of Numbers: "))  num=generate\_random\_number(mi,ma,r)  print("Generated random numbers:",num)  print("Mean:",round(calculate\_mean(num),2))  print("Median:",round(calculate\_median(num),2))  print("Standard Deviation:",round(calculate\_std\_deviation(num),2))  **Sample Output(s):**  Enter Minimum Number: 2  Enter Maximum Number: 10  Enter Range of Numbers: 5  Generated random numbers: [6, 4, 4, 8, 10]  Mean: 6.4  Median: 6  Standard Deviation: 2.33  **Assignment No.: A8\_05**  **Problem Statement:**  Write a program to shuffle elements of a list of random numbers between given ranges.  **Module:**  import random  def generate\_random\_number(min\_value, max\_value,r):      return [random.randint(min\_value,max\_value) for \_ in range(r)]  def shuffle\_list\_elements(input\_list):      random.shuffle(input\_list)      return input\_list  **Python Code:**  from shuffle import \*  mi=int(input("Enter Minimum Number: "))  ma=int(input("Enter Maximum Number: "))  r=int(input("Enter Range of Numbers: "))  num=generate\_random\_number(mi,ma,r)  print("Original List of random numbers:",num)  print("Shuffled List of random numbers:",shuffle\_list\_elements(num))  **Sample Output(s):**  Enter Minimum Number: 2  Enter Maximum Number: 10  Enter Range of Numbers: 5  Original List of random numbers: [6, 5, 3, 2, 6]  Shuffled List of random numbers: [6, 3, 5, 6, 2]  **Assignment No.: A8\_06**  **Problem Statement:**  Write a program to create a list of random numbers using list comprehension.  **Module:**  import random  def gen\_random(min\_val,max\_val,r):      return [random.randint(min\_val,max\_val) for i in range(r)]  **Python Code:**  from rand2 import \*  mi=int(input("Enter Minimum Number: "))  ma=int(input("Enter Maximum Number: "))  r=int(input("Enter Range of Numbers: "))  print(f"List of Random Numbers between {mi} and {ma} are:",gen\_random(mi,ma,r))  **Sample Output(s):**  Enter Minimum Number: 1  Enter Maximum Number: 10  Enter Range of Numbers: 5  List of Random Numbers between 1 and 10 are: [3, 1, 1, 2, 4] |