Assignment-1

Topics: Input and output |operators |Data Types

1. Write a python script to add two numbers (integers) taken from user through keyboard.
2. Write a python script to calculate area of circle, radius is taken from user.
3. Write a python script to calculate volume of a cuboid, dimensions (float values) taken from user.
4. Write a python script to calculate simple interest, data required should be taken from user.
5. Write a python script to calculate square of a given number (number is taken from user)
6. Write a python script to calculate area of a triangle. Lengths of the sides are given by user.

Assignment-2

Topics: Decision Control

1. Write a python script to check whether a given number is even or odd.
2. Write a python script to check whether a given number is divisible by 5 or not
3. Write a python script to check whether a given number is positive negative or zero
4. Write a python script to find greatest among three numbers.
5. Write a python script to check if a year is leap year or not.
6. Write a python script to take month value in numeric format and display number of days in it.
7. Write a python script to check nature of roots of a given quadratic equation
8. Write a python script to print a set of three words in dictionary order. Words are given by user.
9. Write a python script to accept one complex number from user and display the greater number between real part and imaginary part
10. Write a python script to accept marks of five subjects from user (assuming maximum marks is 100). Display student's result as PASS or FAIL. If the student is PASS then also display his percentage and division.

Assignment-3

Topics: while loop

1. Write a python script to print first 10 natural numbers.
2. Write a python script to print first 10 natural numbers in reverse order.
3. Write a python script to print first 10 odd natural numbers
4. Write a python script to print first 10 even natural numbers
5. Write a python script to print first N natural numbers. Value of N is taken from user.
6. Write a python script to print first N natural numbers in reverse order. Value of N is taken from user.
7. Write a python script to calculate sum of first N natural numbers. Value of N is taken from user.
8. Write a python script to calculate sum of first N odd natural numbers. Value of N is taken from user.
9. Write a python script to calculate factorial of a number. Number is taken from user.
10. Write a python script to calculate product of first N odd natural numbers. Value of N is taken from user.

Assignment-4

Topics: loop

1. Write a python script to check whether a given number is prime or not.
2. Write a python script to print next prime number of a given number.
3. Write a python script to print first N prime number. Value of N is given by user.
4. Write a python script to print all prime numbers between two given numbers
5. Write a python script to check whether two given numbers are co-prime or not.
6. Write a python script to print first N odd natural numbers in reverse order using range function in for loop.
7. Write a python script to print first N even natural numbers in reverse order using range function in for loop.
8. Write a python script to print all prime factors of a given number.
9. Write a python script to calculate LCM of two numbers.
10. Write a python script to calculate HCF of two numbers.

Assignment-5

Topics: for loop | range function

1. Write a python script to print a table of 5.
2. Write a python script to print a table of user's choice.
3. Write a python script to print all Armstrong numbers under 1000.
4. Write a python script to print squares of numbers from a to b. values of a and b are given by user.
5. Write a python script to print a sequence of number with given step size and boundary values. For example boundary values are 10 and 30, step is 2 then your output should be 10,12,14,16,18,20,22,24,26,28,30

Assignment-6

Topics: list

1. Write a python script to sort a list given by user
2. Write a python script to find greatest number in the list of integers given by user
3. Write a python script to calculate sum of all the integers of the list given by user
4. Write a python script to create a list of first N prime numbers. Value of N is given by user.
5. Write a python script to create a list of squares of first N natural numbers. Use for loop to fill list with elements. Value of N is taken from user.
6. Write a python script to print indices of all occurrence of a given element in a given list
7. Write a python script to print distinct list elements along with their frequency of occurrence in the list
8. Write a python script to calculate sum of all even numbers and sum of all odd numbers of the list. List data given by user.

Assignment-7

Topics: strings

1. Write a python script calculate length of the string. String is given by user.
2. Write a python script to count vowels in a given string.
3. Write a python script to reverse a string.
4. Write a python script to count occurrence of a given character in a given string.
5. Write a python script to count words in a given string
6. Write a python script to arrange words in a given string in alphabetical order
7. Write a python script to check whether a given string is a palindrome or not
8. Write a python script to remove duplicate characters from a given string
9. Write a python script to find a pattern in a given string
10. Write a python script to count occurrence of a given pattern in a given string

Assignment-8

Topics: tuple

1. Write a python script to calculate average of tuple values. Assuming values are of int type only.
2. Write a python script to sort a tuple.
3. Write a python script to merge two sorted tuples.
4. Write a python script to reverse a tuple.
5. Write a python script to count elements in the tuple.
6. Write a python script to calculate sum of the elements of the tuple. Tuple input is taken from keyboard (all values are of int type)
7. Write a python script to create tuples with homogeneous elements from a tuple containing heterogeneous elements
8. Write a python script to compare two tuples, whether they contain the same elements in any order or not.
9. Write a python script to compare two tuples, whether they contain the same elements in same order or not.
10. Write a python script to find greatest number from a tuple of int values.
11. Write a python script to check whether a tuple is a subset of another tuple or not
12. Write a python script to count the frequency of elements of a tuple

Assignment-9

Topics: set

1. Write a python script to find out common elements between two sets.
2. Write a python script to create a set of first N prime numbers.
3. Write a python script to take union of two sets.
4. Write a python script to count elements of a set given by user.
5. Write a python script to count distinct elements in a list using set
6. Write a python script to create a power set of a given set
7. Write a python script to check whether a given set is a subset of another given set or not.
8. Write a python script to print all possible subsets of r elements each from a given set of N elements
9. Write a python script to find Cartesian product of two given sets
10. Two sets represent two identical dices. (dice values are from 1 to 6). Write a python script to produce sample space to get a sum of dice values when rolled is N. N is given by user.

Assignment-10

Topics: dict

1. Write a python script to print dict items (KEY, VALUE), each in one line.
2. Write a python script to create a dictionary in which each item is a pair of Roll number(as KEY) and Student Name (as VALUE).
3. Write a python script to sort a dict according to KEY.
4. Write a python script to sort a dict according to VALUE
5. Write a python script to take dictionary from the keyboard and print the sum of values.

Topics: Functions

1. Write a python function to calculate LCM of two numbers. (Takes Something, Return Something)
2. Write a python function to print reverse of a binary representation of a given number. ((Takes Something, Return Nothing)
3. Write a python function to print first N prime numbers. (Takes Something, Return Nothing)
4. Write a python function to count words in a given string. (Takes Something Returns Something)
5. Write a python function to calculate sum of all even numbers and sum of all odd numbers from a given list of int values. (Takes Something, Return Something)
6. Write a python function to find all possible combinations one can make from N items of a given set when two elements are selected at a time. (Take a set of values, Return list of sets)
7. Write a python function to find Nth term of Fibonacci series. (Takes Something, Return Something)
8. Write a python function to find next prime number of a given number. (Takes Something, Return Something)
9. Write a python function which takes a list of strings as an argument and returns a dictionary whose each item is a pair of alphabet (as key) and list of strings begin with that alphabet.
10. Write a python function which takes a tuple of int values and returns a dictionary whose each item is a pair of int value and its frequency in the tuple.

Assignment-12

Topics: Recursion

1. Write a recursive function to print first N natural numbers.
2. Write a recursive function to print first N natural numbers in reverse order
3. Write a recursive function to print first N even natural numbers
4. Write a recursive function to print first N even natural numbers in reverse order
5. Write a recursive function to print first N odd natural numbers
6. Write a recursive function to print first N odd natural numbers in reverse order
7. Write a recursive function to print squares of first N natural numbers
8. Write a recursive function to print squares of first N natural numbers in reverse order
9. Write a recursive function to print cubes of first N natural numbers
10. Write a recursive function to print cubes of first N natural numbers in reverse order

Assignment-13

Topics: Recursion More Questions

1. Write a recursive function to calculate sum of first N natural number.
2. Write a recursive function to calculate sum of squares of first N natural numbers
3. Write a recursive function to calculate sum of cubes of first N natural numbers
4. Write a recursive function to calculate sum of first N odd natural numbers
5. Write a recursive function to calculate sum of first N even natural numbers
6. Write a recursive function to calculate sum of the digits of a given number
7. Write a recursive function to calculate factorial of a number
8. Write a recursive function to print all permutation of a given string
9. Write a recursive function to find Nth term of a Fibonacci series
10. Write a recursive function to calculate HCF of two numbers

Assignment-14

Topics: Classes and Objects

1. Define a class Student with instance variables rollno, name, semester, branch. Also define instance member functions for user input data to set values of instance variables and display students data

2. Define a class Employee with instance variables empid, name, salary. Define constructor to initialize member variables. Define function to show employee data.

3. Using class Employee (Que 2), create a list of employees (data taken from user), and display list of employees in sorted order according to their names. Also define a function to sort list of employees according to their salary in descending order.

4. Define a class Account with static variable rate_of_interest, instance variables balance and account number. Make functions to set values in instance object of Account, show balance, show rate of interest, withdraw and deposit.

5. Define a class Book to store book related information like bookid, title, price, author, publisher. Define functions to input, show, change price.

6. In Book class (Que 5), define function to sort a list of books according to
   a. Title
   b. Price