**Python Programs**

1. **Write a program To put even and odd elements in a list into two different lists.**
2. **Write a program To Merge Two Lists and Sort it.**
3. **Write a program To Sort the List According to the Second Element in Sublist**
4. **To Swap the First and Last Value of a List**
5. **To Remove the Duplicate Items from a List**
6. **To Read a List of Words and Return the Length of the Longest One**
7. **To Remove the ith Occurrence of the Given Word in a List where Words can Repeat**
8. **Write a program which accepts a sequence of comma-separated numbers from console and generate a list and a tuple which contains every number.**

**Suppose the following input is supplied to the program:**

**34,67,55,33,12,98**

**Then, the output should be:**

**['34', '67', '55', '33', '12', '98']**

**('34', '67', '55', '33', '12', '98')**

1. **Write a program which takes 2 digits, X,Y as input and generates a 2-dimensional array. The element value in the i-th row and j-th column of the array should be i\*j.**
2. **Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically.**

**Suppose the following input is supplied to the program:**

**without,hello,bag,world**

**Then, the output should be:**

**bag,hello,without,world**

1. **Write a program that accepts sequence of lines as input and prints the lines after making all characters in the sentence capitalized.**
2. **Write a program that accepts a sequence of whitespace separated words as input and prints the words after removing all duplicate words and sorting them alphanumerically**.
3. **Write a program to generate all sentences where subject is in ["I", "You"] and verb is in ["Play", "Love"] and the object is in ["Hockey","Football"].**
4. **Take in Two Strings and Display the Larger String without Using Built-in Functions**
5. **Check if a String is a Pangram or Not**
6. **Accept a Hyphen Separated Sequence of Words as Input and Print the Words in a Hyphen-Separated Sequence after Sorting them Alphabetically**
7. **Check if a Given Key Exists in a Dictionary or Not**
8. **With a given integral number n, write a program to generate a dictionary that contains (i, i\*i) such that is an integral number between 1 and n (both included) and then the program should print the dictionary.**

**Suppose the following input is supplied to the program:**

**8**

**Then, the output should be:**

**{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64}**

1. **Remove the Given Key from a Dictionary**
2. **Count the Frequency of Words Appearing in a String Using a Dictionary.**
3. **Dictionary with Key as First Character and Value as Words Starting with that Character**
4. **Count the Number of Vowels Present in a String using Sets**
5. **Determine How Many Times a Given Letter Occurs in a String Recursively**
6. **Find the Binary Equivalent of a Number Recursively**
7. **Find the LCM of Two Numbers Using Recursion**
8. **Find the Total Sum of a Nested List Using Recursion**

**Using a Class**

1. **Write a program to convert a roman numeral to an integer using a class.**
2. **Write a program to convert an integer to a roman numeral using a class.**
3. **Write a Python program to find a pair of elements (indices of the two numbers) from a given array whose sum equals a specific target number using a class .**
4. **Write a Python program to find the three elements that sum to zero from a set (array) of n real numbers using a class.**
5. **Write a program that computes the net amount of a bank account based a transaction log from console input. The transaction log format is shown as following:**

**D 100**

**W 200**

**D means deposit while W means withdrawal.**

**Suppose the following input is supplied to the program:**

**D 300**

**D 300**

**W 200**

**D 100**

**Then, the output should be:**

**500**

1. **Write a program to sort the (name, age, height) tuples by ascending order where name is string, age and height are numbers. The tuples are input by console. The sort criteria is:**

**1: Sort based on name;**

**2: Then sort based on age;**

**3: Then sort by score.**

**The priority is that name > age > score.**

**If the following tuples are given as input to the program:**

**Tom,19,80**

**John,20,90**

**Jony,17,91**

**Jony,17,93**

**Json,21,85**

**Then, the output of the program should be:**

**[('John', '20', '90'), ('Jony', '17', '91'), ('Jony', '17', '93'), ('Json', '21', '85'), ('Tom', '19', '80')]**

1. **Write a program to solve a classic ancient Chinese puzzle:**

**We count 35 heads and 94 legs among the chickens and rabbits in a farm. How many rabbits and how many chickens do we have?**

1. **Write a Python program to convert Python objects into JSON strings. Print all the values.**
2. **Write a Python program to convert Python dictionary object (sort by key) to JSON data. Print the object members with indent level 4.**
3. **WAP to print Pascal's triangle program**
4. **WAP Diamond Shaped Character Pattern Program**
5. **Write a Python program to calculate magic square.**

**A magic square is an arrangement of distinct numbers (i.e., each number is used once), usually integers, in a square grid, where the numbers in each row, and in each column, and the numbers in the main and secondary diagonals, all add up to the same number, called the "magic constant." A magic square has the same number of rows as it has columns, and in conventional math notation, "n" stands for the number of rows (and columns) it has. Thus, a magic square always contains n2 numbers, and its size (the number of rows [and columns] it has) is described as being "of order n".**

1. **Check if the rows of a binary matrix can be made unique by removing a single column**
2. **Program for Maximum size square sub-matrix with all 1s**
3. **Find the winner of the Game to Win by erasing any two consecutive similar alphabets**

**Given a string consisting of lower case alphabets.**

**Rules of the Game:**

**A player can choose a pair of similar consecutive characters and erase them.**

**There are two players playing the game, the player who makes the last move wins.**

**The task is to find the winner if A goes first and both play optimally.**

1. **WAP to receive the input and produce the below output**

**i/p : ABAABCCCDCDA**

**O/P : 4A2B4C2D**

1. **An array of length ‘n’ is given which contains the elements that lies between the range of 1 to n. Return good or bad based on the below conitions.**

**Return good if,**

1. **All the elements are unique.**
2. **The elements are not sorted in ascending order.**
3. **The elements lie between the range 1 to n.**
4. **WAP to add the numbers in a list such that if the specified number is present then the sum should contain the previous and next number without considering the secified number.**

**Example:**

**I/p:[1,2,3,4] key=3** 🡪 **O/p : 1**

**I/p:[1,2,3,2,1] key=2** 🡪 **O/p : 0**

**I/p:[1,2,3,] key=1** 🡪 **O/p : 3**

1. **Write a python function which accepts a sentence and finds the number of letters and digits in the sentence.It should return the list containing the first value as lettercount and the second value should be digit count.**
2. **Write a python function to find and display 5 digit whose,**

**1.First digit is 2 more than second digit.**

**2.Third digit is 2 less than second digit.**

**3.Fourth digit is 2 less than third digit.**

**4.Fifth digit is 2 more than fourth digit.**

**5.Sum of all the 5 digits is 19.**

**6.Sum of third, fourth, fifth digits is equal to first digit.**

1. **Write a Python program to create a histogram from a given list of integers.**
2. **Write a Python program to find unique triplets whose three elements gives the sum of zero from an array of n integers.**
3. **Write a Python program to calculate the maximum profit from selling and buying values of stock. An array of numbers represent the stock prices in chronological order.**

**For example, given [8, 10, 7, 5, 7, 15], the function will return 10, since the buying value of the stock is 5 dollars and sell value is 15 dollars.**

1. **The price of a given stock on each day is stored in an array.**

**Write a Python program to find the maximum profit in one transaction i.e., buy one and sell one share of the stock from the given price value of the said array. You cannot sell a stock before you buy one.**