**Mini Project**

**Project 1**

**Q1.** Write a Python function that accepts a hyphen-separated sequence of colors as input and returns the colors in a hyphen-separated sequence after sorting them alphabetically.  
**A1.**

def sort\_colors(color\_string):

color\_list = color\_string.split('-')

color\_list.sort()

return '-'.join(color\_list)

**Q2.** Through command line arguments three strings separated by space are given to you. Each string is a series of numbers separated by hyphen(-). You like all the numbers in string 1 and dislike all the numbers in string 2. Third string contains the numbers given to you.  
**A2.**

import sys

def calculate\_happiness(like\_str, dislike\_str, data\_str):

likes = set(like\_str.split('-'))

dislikes = set(dislike\_str.split('-'))

data = data\_str.split('-')

happiness = 0

for num in data:

if num in likes:

happiness += 1

elif num in dislikes:

happiness -= 1

return happiness

# Example usage

# args = ["60-77-34-5-2", "44-11-99-3", "77-15-13-2-34-3"]

# print(calculate\_happiness(\*args))

**Project 2**

**Q1.** Write a function ispalindrome(name) that checks if the name is a palindrome.  
**A1.**

def ispalindrome(name):

return name == name[::-1]

**Q2.** Write a function count\_the\_vowels(name) to count vowels in a name.  
**A2.**

def count\_the\_vowels(name):

vowels = 'aeiouAEIOU'

return sum(1 for ch in name if ch in vowels)

**Q3.** Write a function frequency\_of\_letters(name) to count frequency of each letter.  
**A3.**

def frequency\_of\_letters(name):

freq = {}

for ch in name:

freq[ch] = freq.get(ch, 0) + 1

return freq

**Q4.** Spiritual function to return the sum of all numbers in a list.  
**A4.**

def sum\_of\_list(lst):

return sum(lst)

**Q5.** Write a function to return the reverse of a string.  
**A5.**

def reverse\_string(s):

return s[::-1]

**Q6.** Write a function to calculate the factorial of a number.  
**A6.**

def factorial(n):

if n == 0 or n == 1:

return 1

else:

return n \* factorial(n - 1)

**Q7.** Write a function to count uppercase and lowercase letters in a string.  
**A7.**

def count\_case(s):

upper = sum(1 for ch in s if ch.isupper())

lower = sum(1 for ch in s if ch.islower())

return upper, lower

**Q8.** Write a function to print even numbers from a list.  
**A8.**

def even\_numbers(lst):

return [x for x in lst if x % 2 == 0]

**Q9.** Write a function to check if a number is prime.  
**A9.**

def is\_prime(n):

if n <= 1:

return False

for i in range(2, int(n\*\*0.5)+1):

if n % i == 0:

return False

return True

**Q10.** Write a program to remove given items from a set.  
**A10.**

def remove\_items(original\_set, items\_to\_remove):

return original\_set - set(items\_to\_remove)

**Q11.** Write a program to create an intersection of sets.  
**A11.**

def intersection\_of\_sets(set1, set2):

return set1 & set2

**Q12.** Write a program to create a union of sets.  
**A12.**

def union\_of\_sets(set1, set2):

return set1 | set2

**Q13.** Write a program to find the maximum and minimum value in a set.  
**A13.**

def max\_min\_in\_set(s):

return max(s), min(s)