Programming with Python

Lab Assignment 2

Q1. Write a program to check whether the given number is a perfect number or not.

A number is called a perfect number if the sum of the factors of that number is equal to the same number. Example: 6 = 1 + 2 + 3

Q2. Write a program to check whether a number can be expanded as the sum of two prime numbers.

For example, the number 9 can be expanded as two prime numbers 2 and 7

9 = 2 + 7.

Q3. Write a program to read a multi word string and print all the words in alphabetical order.

Q4. Write a program to check whether a sentence is a pangram or not. A pangram is a sentence that contains all the letters of the English alphabet at least once. Example: The quick brown fox jumps over the lazy dog.

Q5. Write a program that takes a phrase as a user input and then prints the corresponding acronym.

Q6. Given a dictionary of students and their favorite colors:

```
people= {'Arham':'Blue',
         'Lisa':'Yellow',
         'Vinod':'Purple',
         'Jenny':'Pink'}
```

i. Find out how many students are in the dictionary.
ii. Change Lisa's favorite colour.
iii. Remove 'Jenny' and her favourite colour.

Q7. A website requires the users to input username and password to register. Write a program to check the validity of password input by users. Following are the criteria for checking the password:

i. At least 1 letter between [a-z]
ii. At least 1 number between [0-9]
iii. At least 1 letter between [A-Z]
iv. At least 1 character from [$#@]
v. Minimum length of transaction password: 6
vi. Maximum length of transaction password: 12
vii. No white spaces anywhere in the password.

Your program should accept 5 comma separated passwords in one string and will check them according to the above criteria. Passwords that match the criteria are to be printed on screen.

Q8. Write a program that takes a string as input and builds a frequency listing of the characters contained in it. Represent the frequency listing as a Python dictionary.

Example:

Input String: “Leader”

Output Dictionary: {‘L’:1, ‘a’:1,‘d’:1, ‘e’:2, ‘r’:1}

Q9. Write a program that maps a list of words into a list of integers representing the lengths of the corresponding words.

Q10. Write a program to accept a filename from the user and print the extension of that.

Sample filename: attendance.xlsx

Output: xlsx

Q11. Write a program to print all even numbers from the numbers list given below in the same order and stop the printing if any numbers that come after 449 in the sequence.

```
numbers = [1386, 462, 47, 418, 907, 344, 236, 375, 823, 566, 597, 978,
328, 615, 953, 345, 1390, 162, 758, 219, 918, 237, 412, 566, 449, 248,
866, 950, 626, 949, 687, 217, 815, 67, 104, 58, 512, 24]
```

Q12. Write a program to print all the colors from color_list_1 which are not present in color_list_2.

Test Data:

```
color_list_1 = ["White", "Black", "Red"]
color_list_2 = ["Red", "Green"]
```

Expected Output:

```
Black
White
```