ALAN GEORGE MATHEWS CS6A 11

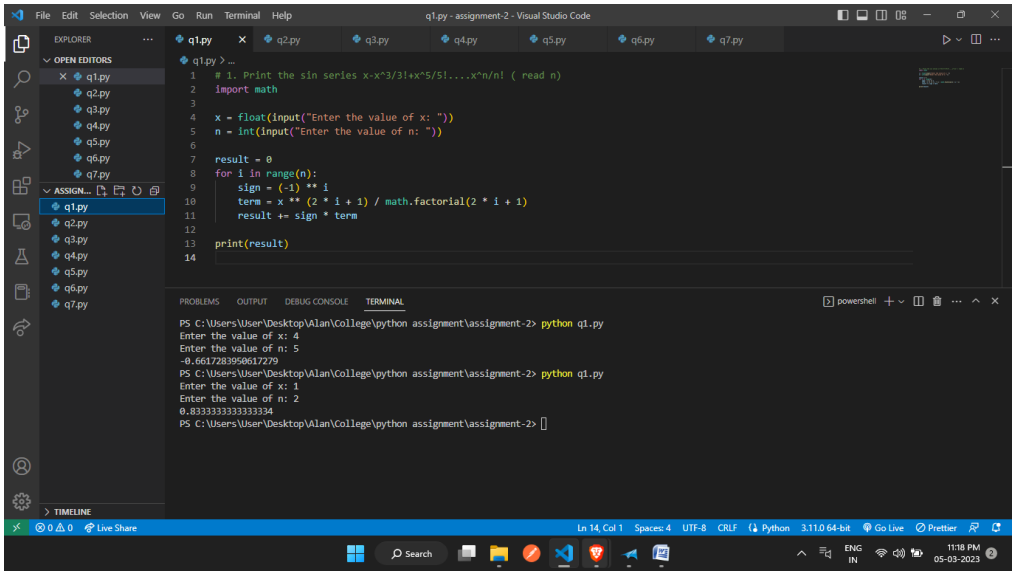
Programming in Python CST 362

Assignment 2

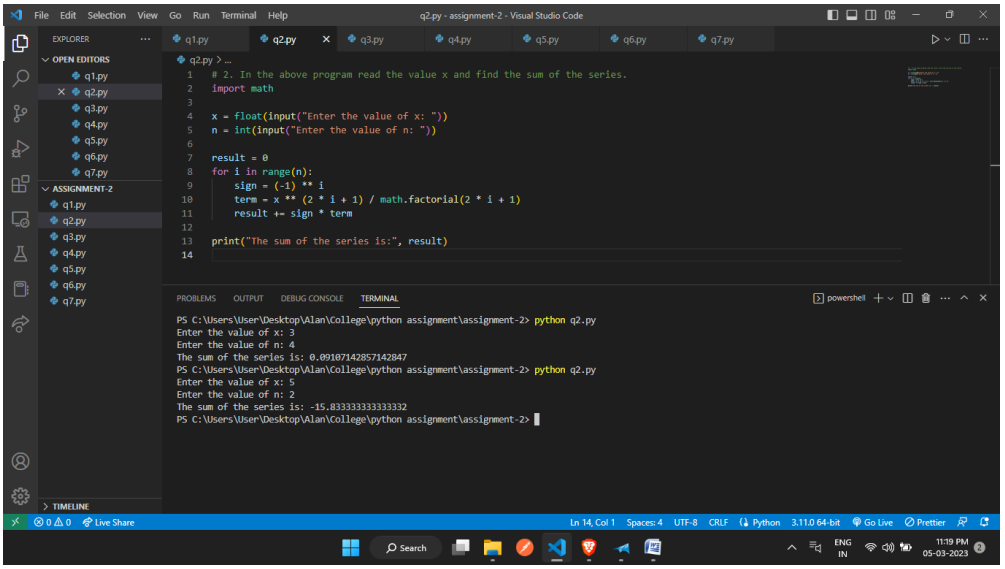
Learning outcome: Learn to use loops ,nested loops and strings

Date of submission:6-March-2023 before 12pm

1. Print the sin series x-x^3/3!+x^5/5!....x^n/n! (read n)



2. In the above program read the value x and find the sum of the series.



3.

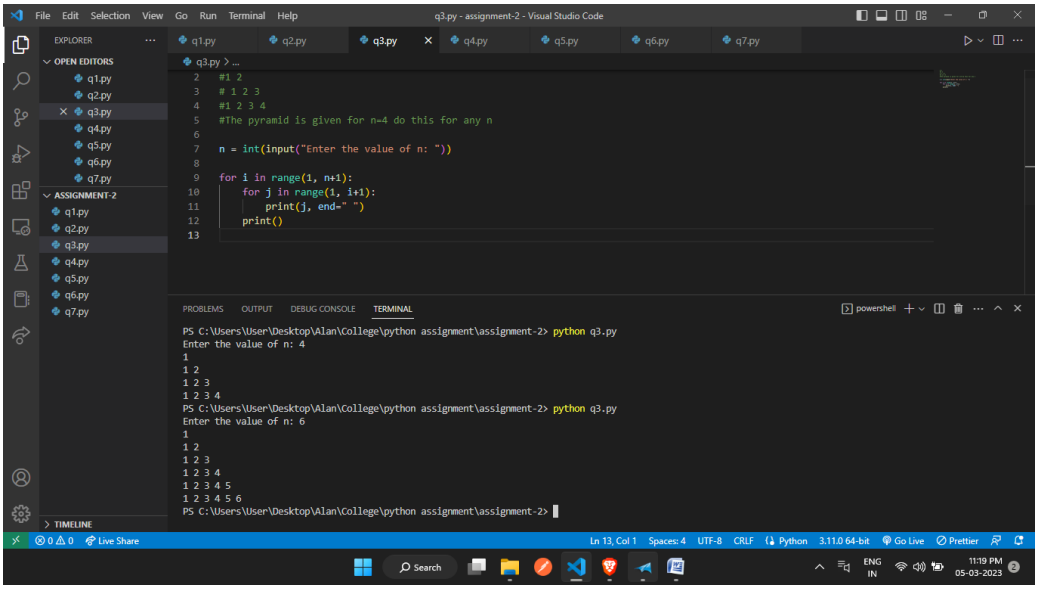
1

1 2

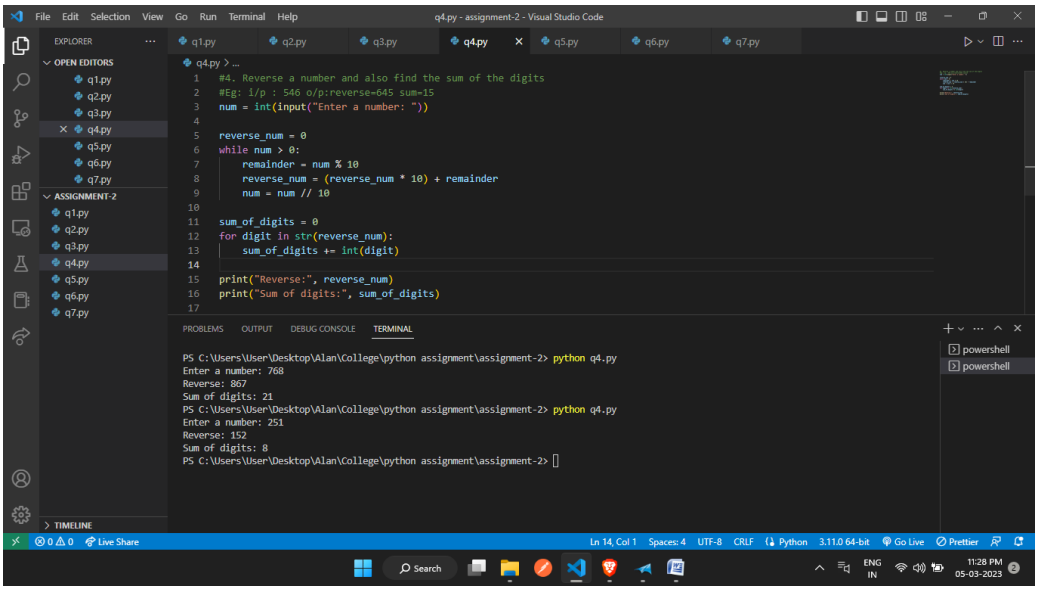
1 2 3

1 2 3 4

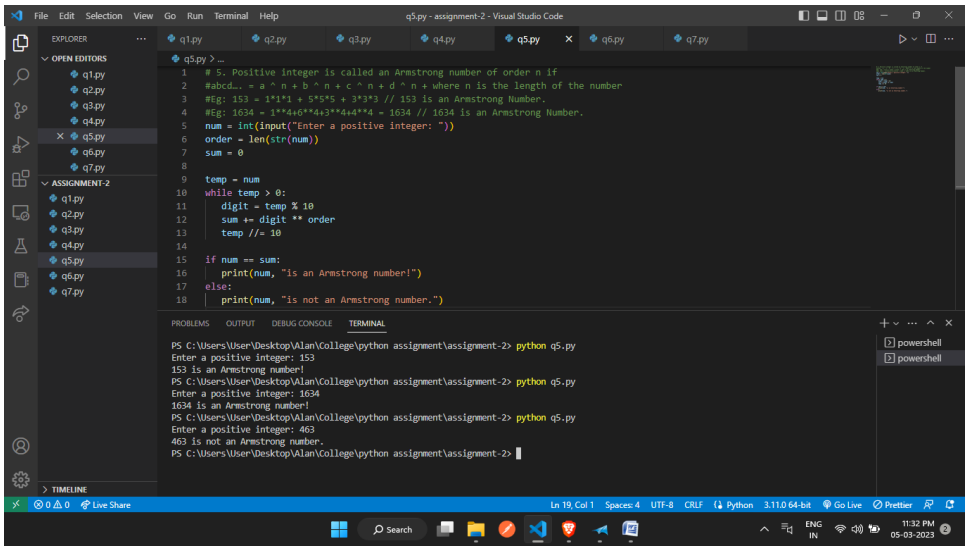
The pyramid is given for n=4 do this for any n



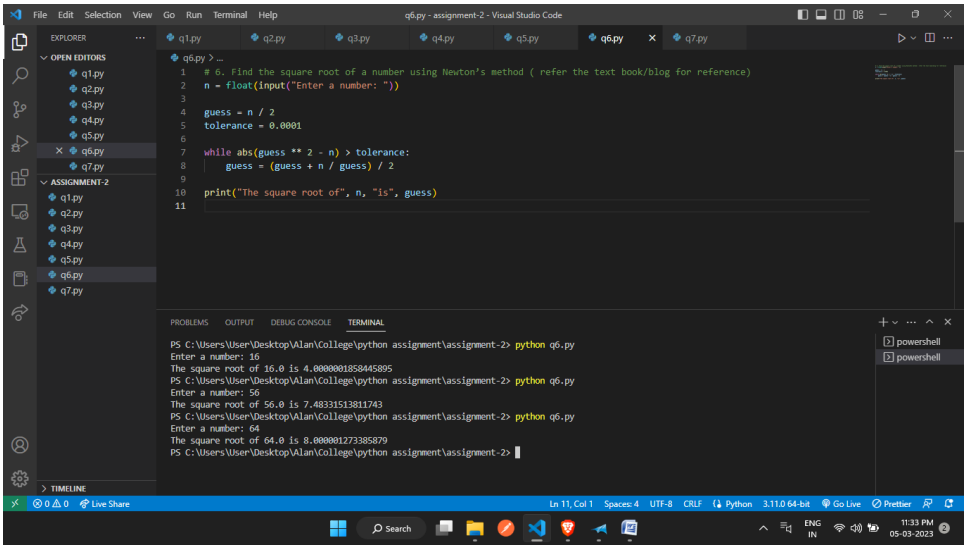
4. Reverse a number and also find the sum of digits



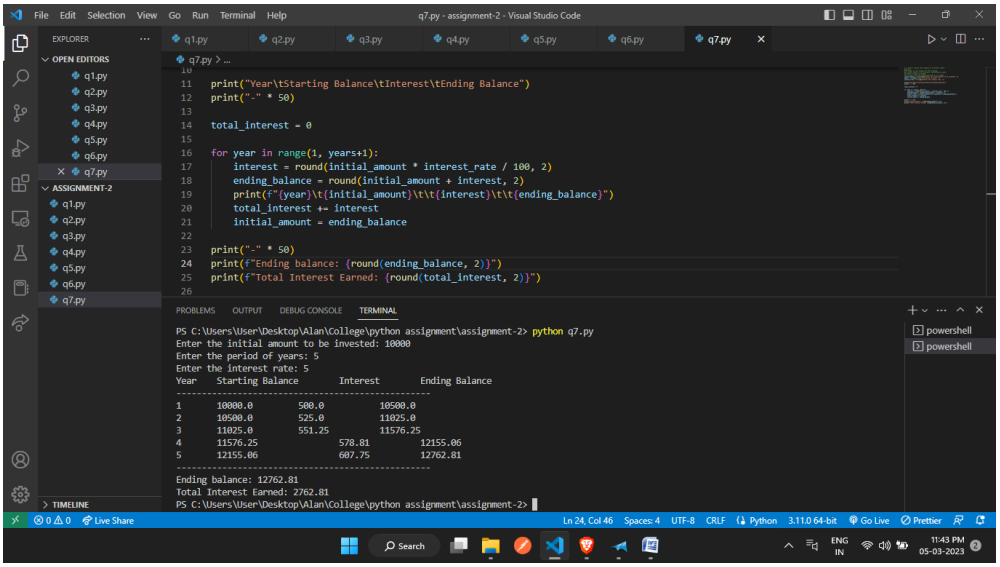
5. **Positive integer is called an Armstrong number of order n if abcd….= a^n + b^n + c^n + d^n + where n is the length of the number Eg: 153 = 1*1*1 + 5*5*5 + 3*3*3 // 153 is an Armstrong Number. Eg:1634= 1**4+6**4+3**4+4**4=1634 //1634 is an Armstrong Number.**



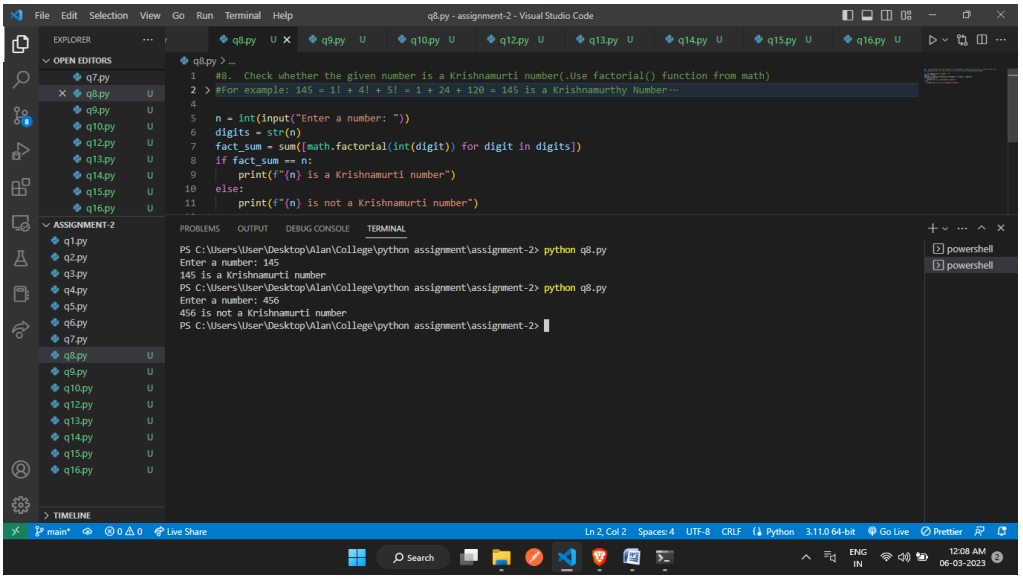
6. **Find the square root of a number using Newton's method (refer the text book/blog for reference)**



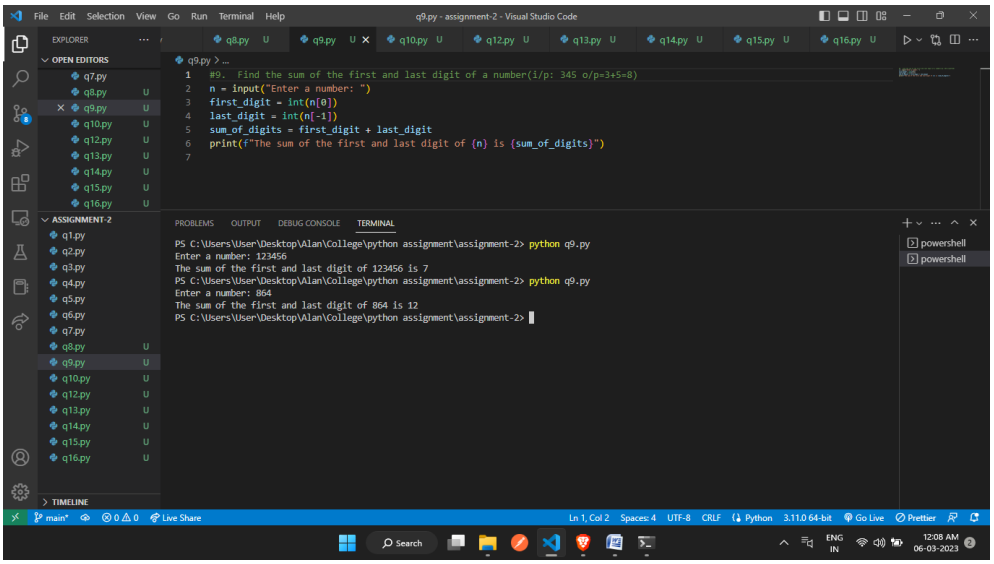
7. Write a program that computes an investment report. The inputs to this program are the following:An initial amount to be invested (a floating-point number),A period of years (an integer), An interest rate (a percentage expressed as an integer)



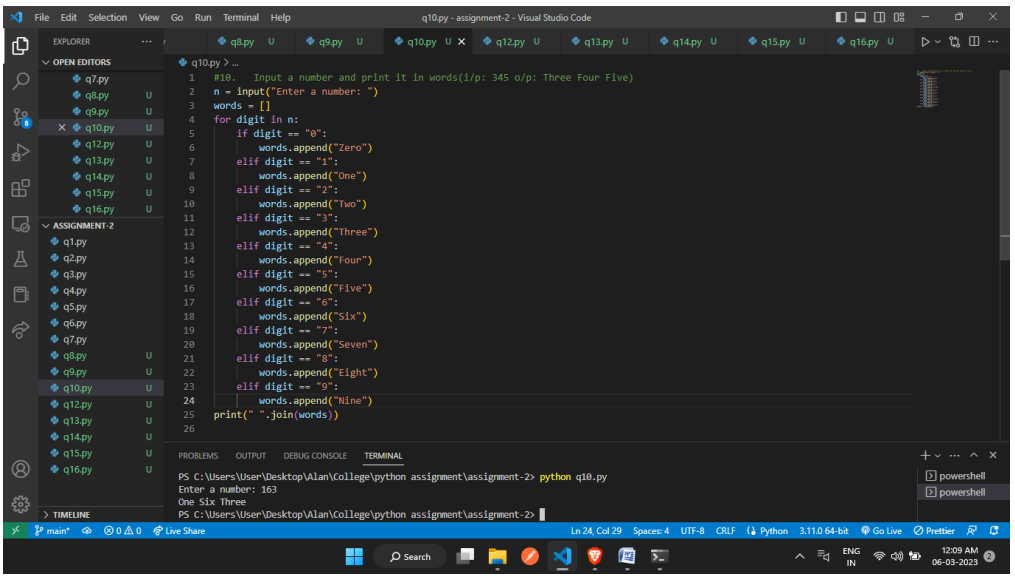
8. Check whether the given number is a Krishnamurti number (.Use factorial () function from math) For example: 145 = 1! + 4! + 5! = 1 + 24 + 120 = 145 is a Krishnamurthy Number



9. Find the sum of the first and last digit of a number(i/p:345 o/p=3+5=8)



10. Input a number and print it in words (i/p:345 o/p: Three Four Five)



Strings

Outcome:Learn String Indexing and slicing, programming with strings

Consider the string str="Python Programming by Yourname" (Replace Yourname with your first name) Write statements in python to implement the following

a) To display the last four characters.

b) To display the substring starting from index 4 and ending at index 8.

c) Find the length of the string,min and max(characters)

d) To trim the last four characters from the string.

e) To trim the first four characters from the string.

f) To display the starting index of the substring 'gr'.

g) To change the case of the given string.(small letter to capital and capital to small)

h) To check if the string is in title case.

i) To replace all the occurrences of letter 'm' in the string with '*'

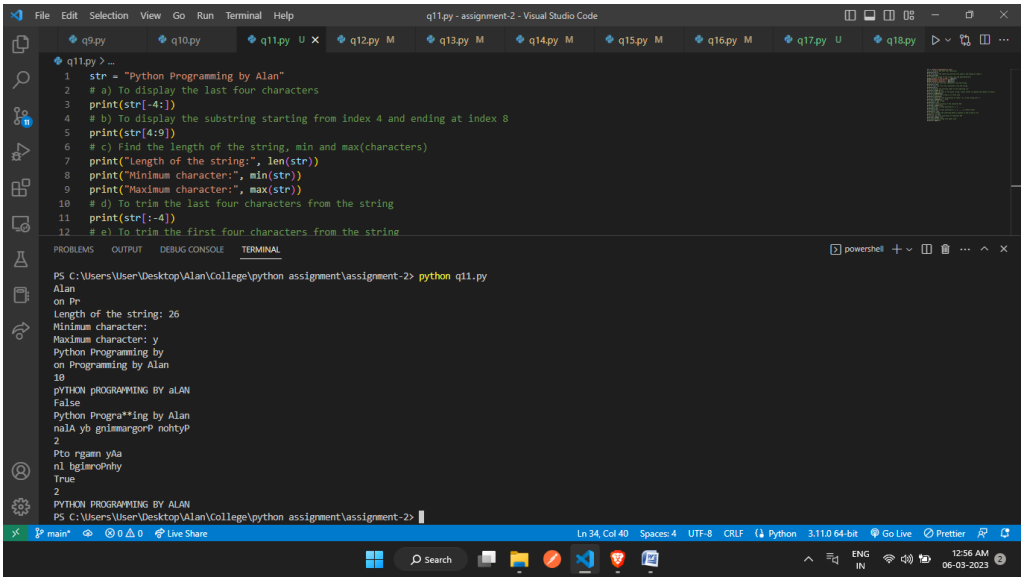
j)reverse the string

k)count the occurrence of the character ‘m’

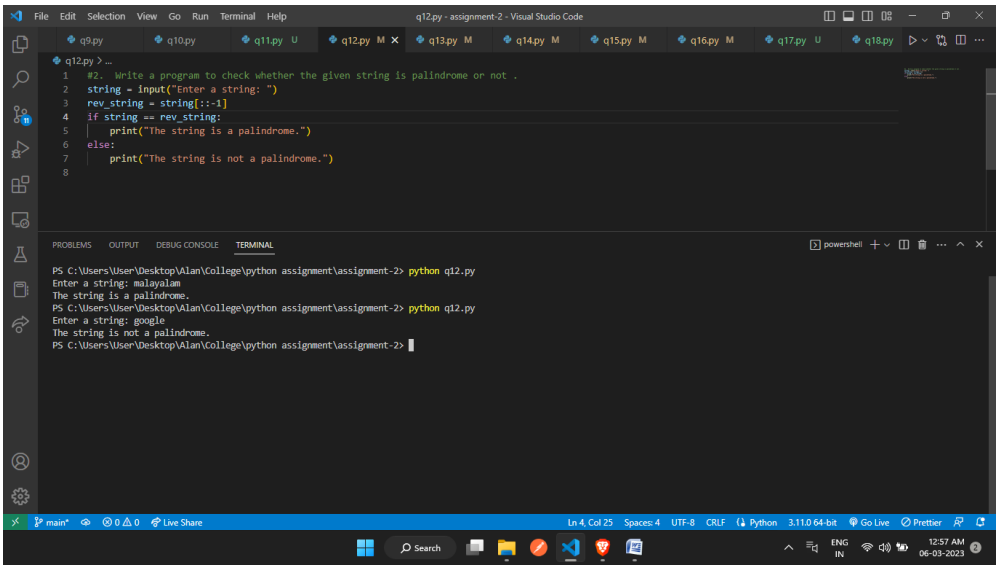
l)characters in even positions 0,2,4,….

m) characters in even positions 0,2,4,…..in reverse order n)check whether the substring ‘on’ is present in the string or not o)Find the first occurrence of character ‘t’

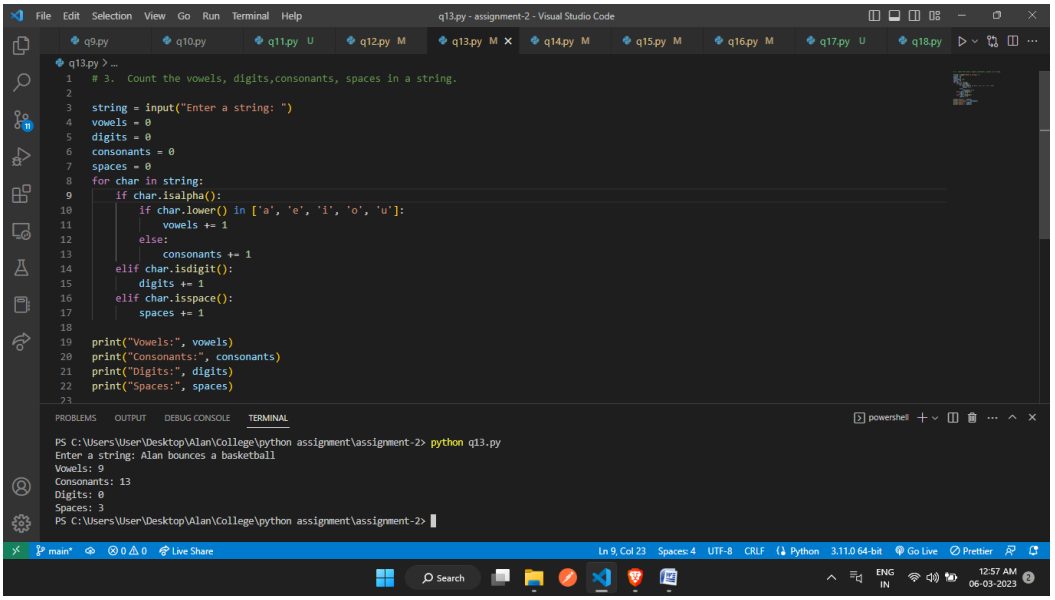
p)convert the string into upper case



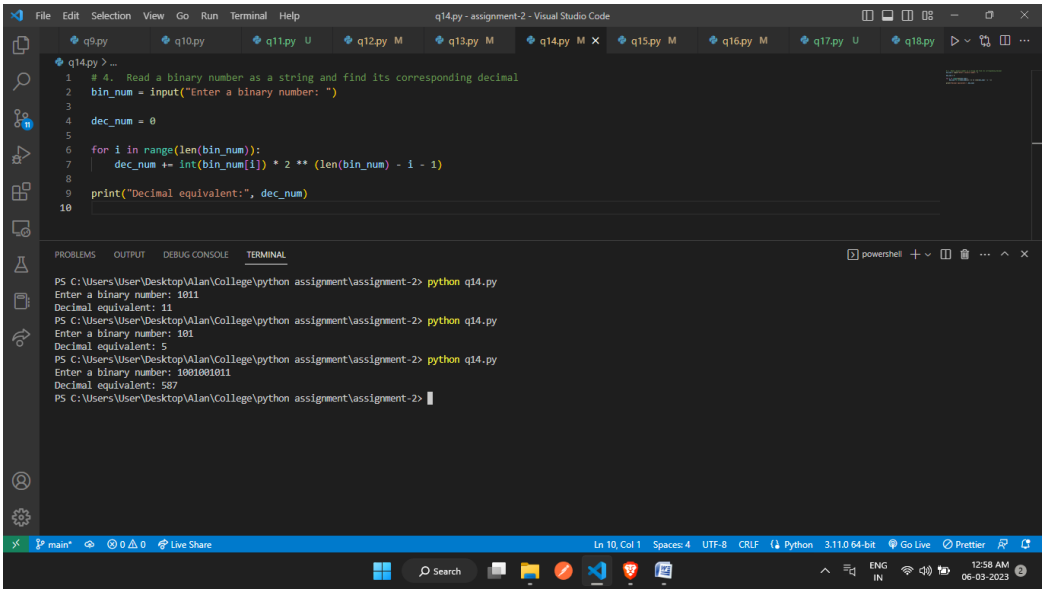
2. Write a program to check whether the given string is palindrome or not.



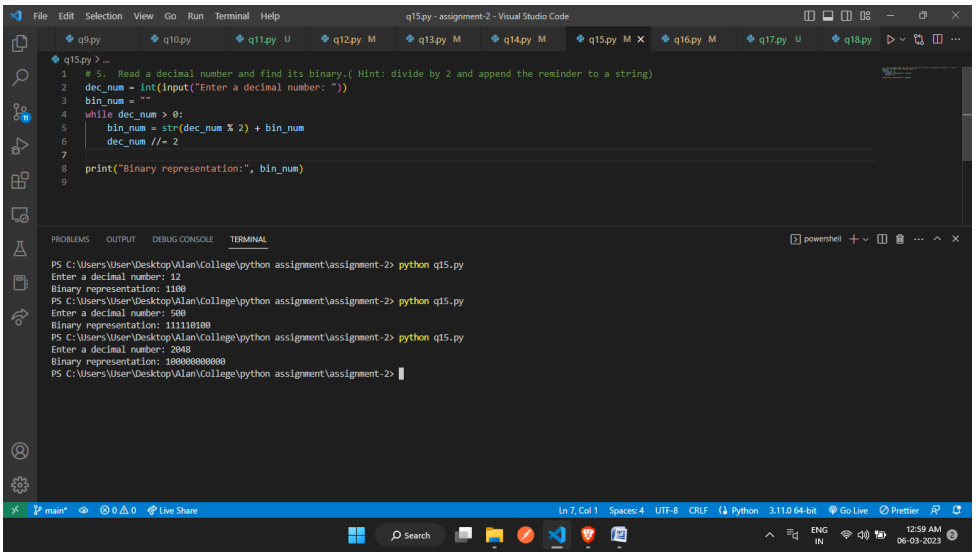
3. Count the vowels, digits,consonants, spaces in a string.



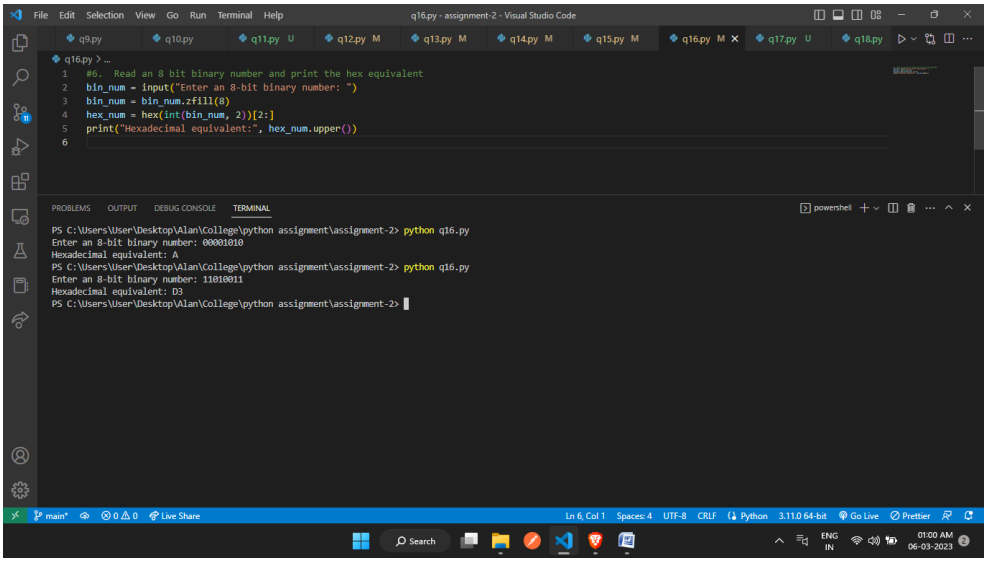
4. Read a binary number as a string and find its corresponding decimal



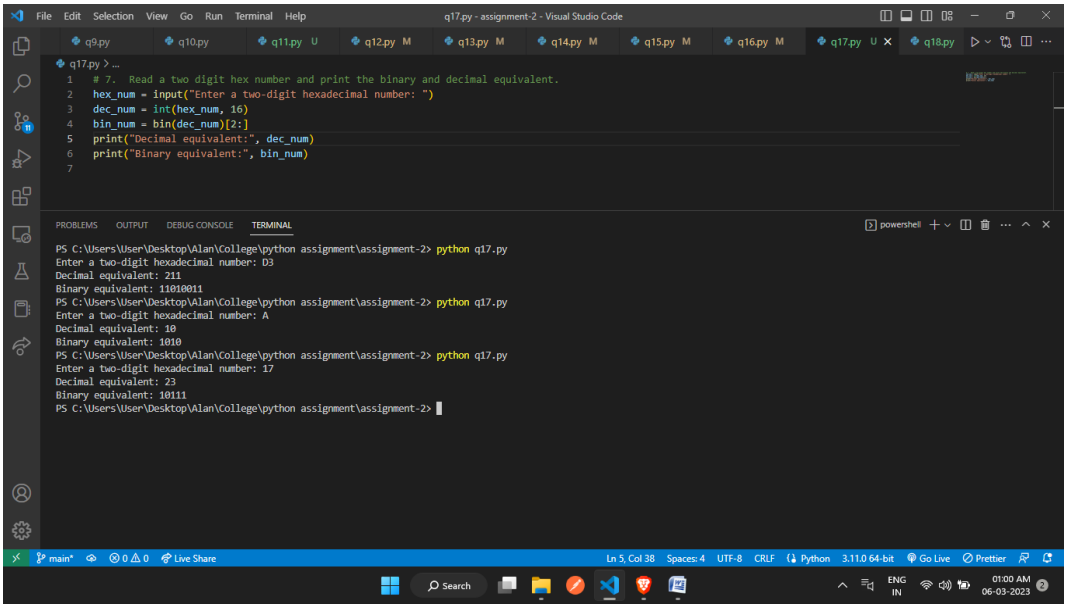
5. Read a decimal number and find its binary.(Hint: divide by 2 and append the reminder to a string)



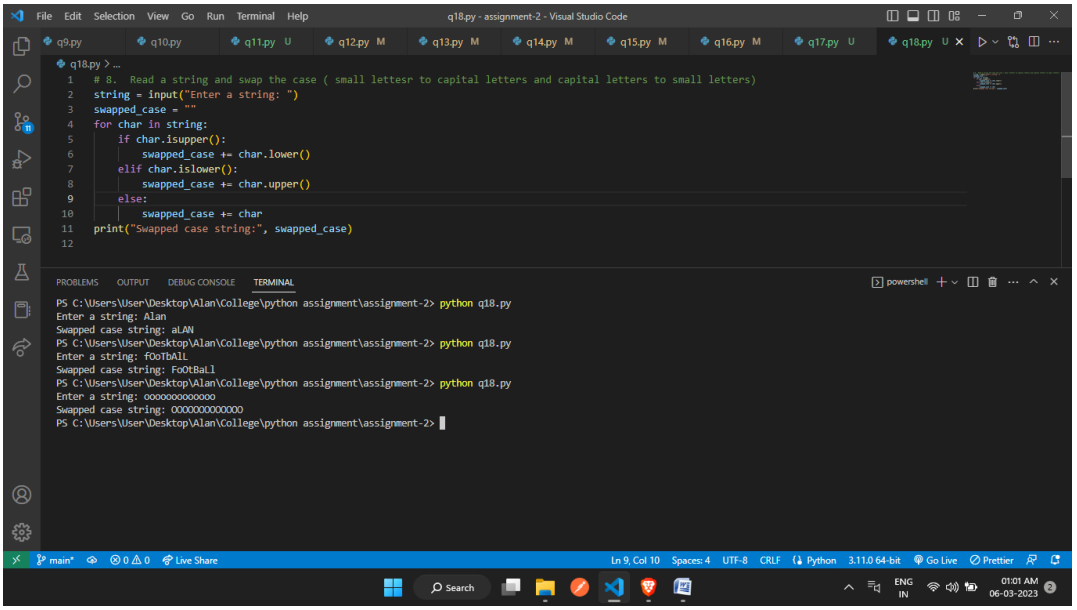
6. Read an 8 bit binary number and print the hex equivalent



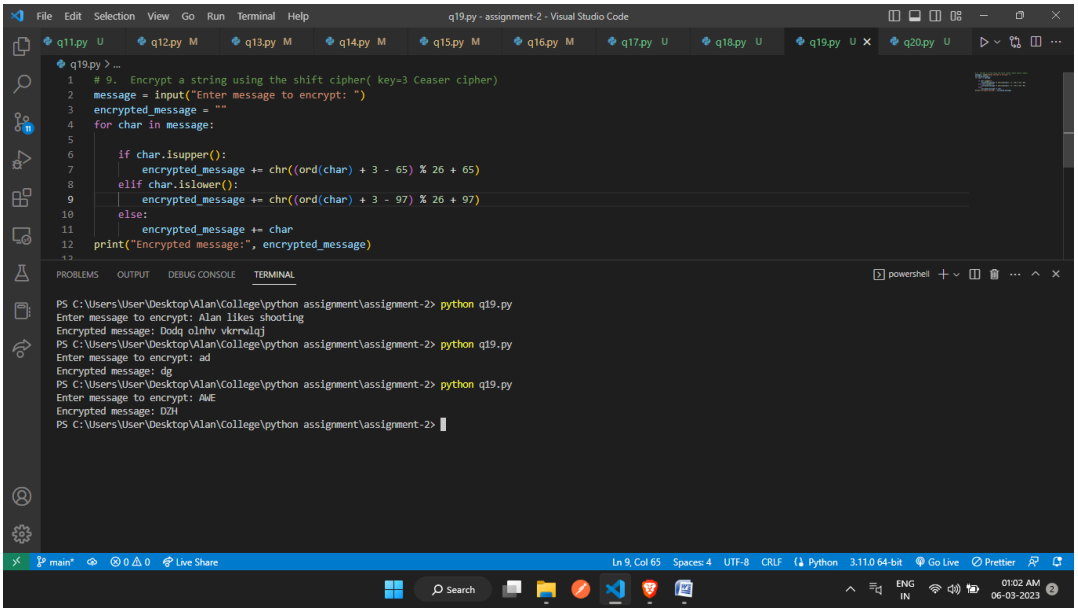
7. Read a two digit hex number and print the binary and decimal equivalent.



8. Read a string and swap the case (small lettesr to capital letters and capital letters to small letters)



9. Encrypt a string using the shift cipher(key=3 Ceaser cipher)



10. Write a Python program to check the validity of a password given by the user.

The Password should satisfy the following criteria:

1. Contains at least one letter between a and z

2. Contains at least one number between 0 and 9

3. Contains at least one letter between A and Z

4. Contains at least one special character from $, #, @

5. Minimum length of password: 8