Q A) Write a Python program that:

1) while loop to repeatedly ask the user to enter a number as a string input.
2) Convert the input to an integer using typecasting.
3) If the input is not a valid number (e.g. "abc"), skip to the next iteration using a control statement.
4) If the number is negative, stop the loop using a control statement.
5) Otherwise, print the number with the message: "You entered: <number>".
6) program should continue until the user enters a negative number.

(**Hint:** use break,continue control statement)

Excepted output:

Enter a number: 10

You entered: 10

Enter a number: abc

Invalid input. Skipping...

Enter a number: 25

You entered: 25

Enter a number: -1

Negative number entered. Exiting...

Q b) Write a Python program that:

1) Use while loop to ask the user to enter a number both real numbers (e.g., 5, 2.5) and complex numbers (e.g., 3+4j).
2) Use typecasting with complex() to convert the input.
3) If the input is invalid (e.g., "abc"), skip using a control statement.
4) If the real part is negative, stop the loop.
5) Otherwise, print the real and imaginary parts separately.
6) Count how many valid complex numbers were entered before stopping.

Excepted output:

Enter a number (real or complex): 3+4j
Real part: 3.0, Imaginary part: 4.0
Enter a number (real or complex): 5
Real part: 5.0, Imaginary part: 0.0
Enter a number (real or complex): abc
Invalid input. Skipping...
Enter a number (real or complex): -2+1j
Negative real part detected. Exiting...

Total valid complex numbers entered: 2

Q D) Given a number num = 100, print it in decimal, hexadecimal, octal, and binary formats, each with the appropriate prefix (0x, 0o, 0b).

Q d) Factorial Calculator with Input Validation .write a Python program that:

1. Repeatedly asks the user to enter a non-negative integer.
2. Use typecasting to convert the input to an integer.
3. If the input is invalid or negative, print "Invalid input. Please enter a non-negative integer." and ask again.
4. If valid, calculate and print the factorial of the number.
5. After showing the factorial, ask the user if they want to calculate another factorial (yes or no).
6. If the user enters "no", stop the program. If "yes", continue.

Q **E) Write a Python program to print Fibonacci series**

Q F) write a Python program to Count vowels in a string using for loop