Assignment/Test

Level 1:

 **Simple Calculator:**

* Create a program that takes two numbers and an operator (+, -, \*, /) as input and performs the corresponding arithmetic operation.

 **Number Guessing Game:**

* Generate a random number between 1 and 100. Prompt the user to guess the number and provide feedback if the guess is too high or too low. Continue until the user guesses correctly.

 **Word Counter:**

* Write a program that takes a string as input and counts the number of words in it. Consider a word as any sequence of characters separated by spaces.

 **Temperature Converter:**

* Develop a program that converts temperatures between Celsius and Fahrenheit. Prompt the user to enter a temperature along with the scale (C or F) and convert it to the other scale.

 **Factorial Calculator:**

* Implement a function to calculate the factorial of a given number. The factorial of a non-negative integer n is the product of all positive integers less than or equal to n.

Level 2:

**1: Class and Object Basics:**

* + Create a class named Rectangle.
  + Include attributes length and width.
  + Implement methods to calculate the area and perimeter of the rectangle.
  + Instantiate objects of the Rectangle class and test the methods.

**2: Inheritance and Method Overriding:**

* + Create a class named Square that inherits from the Rectangle class.
  + Override the \_\_init\_\_ method to accept only one parameter (side length) and set both length and width.
  + Override the area() method to calculate the area of a square.

**3: Encapsulation and Polymorphism:**

* + Create a class named Animal with methods speak() and move().
  + Create subclasses Dog and Bird that inherit from the Animal class.
  + Implement the speak() and move() methods for each subclass.
  + Demonstrate polymorphism by creating a list of Animal objects containing both Dog and Bird instances, and iterate through the list to call the speak() and move() methods for each object.