Exercise 1.5: Object-Oriented Programming in Python

1. In your own words, what is object-oriented programming? What are the benefits of OOP?

OOP is a model that organizes software design around data and/or objects. It has several benefits. One is its modularity making it easier to troubleshoot and reuse code through inheritance, flexibility through polymorphism, and makes problem solving much more effective.

2. What are objects and classes in Python? Come up with a real-world example to illustrate how objects and classes work.

A class is considered a blueprint or objects. An object is an instance of a class. An example that was mentioned in the exercise is ‘Recipe’, and objects related to that class would be ‘name’, ‘difficulty’, ‘ingredients’, and ‘cooking time’.

3. In your own words, write brief explanations of the following OOP concepts; 100 to 200 words per method is fine.

Method	
Inheritance	Inheritance is a concept of OOP that enables user to use one Method for two or more classes by inheriting a method from One class to another instead of having to write the same code.
Polymorphism	Polymorphism is a concept in which two or more methods from Different classes that have the same name but perform different Actions depending on from which instance it’s being called.
Operator Overloading	Operator Overloading is a process in which a user defines a Method to run when python built in operators are called from a Class instance. This is because the built-in python operators do Not work with data type classes and would throw an error if the User tries to use them.