# Exercise 1.5: Object-Oriented Programming in Python

## Reflection Questions

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

   **ANSWER**: Object-Oriented Programming (OOP) is like building with Lego blocks. Each block is an "object" that holds data and things it can do. You make blueprints called "classes" for these blocks. OOP helps organize code, so it's easier to reuse and fix. It's like building structures from pieces, making changes is simpler, and many people can work together. This way, big, complicated things can be made in a neat and organized manner.

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

   **ANSWER**: A class could be described as the blueprint of objects. An object is an instance of a class.
   An example would be the class ‘Recipe’ and instances of this class (objects) are ‘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 | Description |
|---|---|
| Inheritance | Inheritance in OOP is like passing down traits from a parent to a child. It allows a new class (subclass) to inherit properties and methods from an existing class (superclass). This promotes code reuse and hierarchy. The subclass can add or modify inherited features while keeping the core behavior intact. |
| Polymorphism | Polymorphism in OOP is like using the same word in different contexts. It enables objects of different classes to be treated as instances of a shared superclass. This allows diverse classes to share a common interface, simplifying code and promoting flexibility. |
| Operator Overloading | Operator overloading in OOP is like teaching objects to use familiar symbols (+, -, *, etc.) in unique ways. It lets you make your own rules for how these symbols work with your custom objects. This makes your code more intuitive and readable, as objects can respond to operators in ways that match their purpose. |