Exercise 1: Basic Understanding of Nested Classes

Objective: Understand the different types of nested classes.

Instructions:

1. Define a class named `OuterClass`.
2. Inside `OuterClass`, create:
    - A **static nested class** called `StaticNestedClass`.
    - A **non-static nested class** (inner class) called `InnerClass`.
3. Implement a method in `OuterClass` that creates instances of both `StaticNestedClass` and `InnerClass`, and call a method from each nested class.

Expected Output:

Inside Static Nested Class
Inside Inner Class

Exercise 2: Accessing Outer Class Members

Objective: Learn how inner classes can access members of the outer class.

Instructions:

1. Create an `OuterClass` with a private member variable (e.g., `int outerValue`).
2. Implement an inner class `InnerClass` that has a method to print the value of `outerValue`.
3. In the main method of `OuterClass`, create an instance of `InnerClass` and call the method to display the value.

Expected Output:

Outer value is: 10

Exercise 3: Static Nested Class Use Case

Objective: Understand the use case for static nested classes.

Instructions:

1. Create a `Library` class that contains a static nested class `Book`.
2. The `Book` class should have attributes like `title`, `author`, and a method to display book details.
3. In the `Library` class, implement a method to create and display multiple `Book` instances.

Expected Output:

Title: 1984, Author: George Orwell
Title: To Kill a Mockingbird, Author: Harper Lee

Exercise 4: Nested Classes in Action

Objective: Apply nested classes in a real-world scenario.

Instructions:

1. Design a `Car` class that contains a nested class `Engine`.
2. The `Engine` class should have attributes like `horsepower` and `type`, and a method to display engine details.
3. Implement methods in the `Car` class to create an `Engine` object and display both car and engine details.

Expected Output:

Car Model: Ford Mustang
Engine Type: V8, Horsepower: 250
