**ST33 Assessment – 15 Inner Classes and Inner Interfaces**

**Basic Questions:**

1. **Simple Member Inner Class:** Write a program with a class **Outer** that has a member inner class **Inner**. The **Inner** class should have a method **show()** that prints "Hello from Inner Class". Create an instance of the inner class and call the **show()** method.
2. **Local Inner Class:** Create a class **MathOperations** with a method **performOperation**(**int a, int b**) that defines a local inner class Addition. The Addition class should have a method **add()** that returns the sum of a and b. Call the add() method from **performOperation**() and print the result.
3. **Anonymous Inner Class Implementing Interface:** Define an interface **Greeting** with a method **sayHello**(). Create an anonymous class implementing **Greeting** inside a method **greet**() of a class **Greeter**. The anonymous class should print "Hello, World!" when **sayHello**() is called.
4. **Static Nested Class:** Write a program with an outer class **Container** that has a static nested class **StaticNested**. The **StaticNested** class should have a method **display**() that prints "Inside Static Nested Class". Instantiate the static nested class from the main method and call **display**().

**Intermediary Tasks:**

1. **Inner Interface:** Create a class **Device** with an inner interface **Battery**. The **Battery** interface should have a method **charge**(). Implement this interface in a class Phone and provide the implementation of the **charge**() method that prints "Phone is charging".
2. Write a class **Car** with an instance variable **String** **model** and an inner class **Engine** with a method **start**(). The **start**() method should print the car model. Create an instance of **Car**, set the model, and start the engine.