**Day 1-3: Java Basics (Syntax, Data Types, Variables, Operators)**

* **Syntax:** The set of rules that defines how a Java program is written and interpreted.
  + **Case Sensitivity:** Java is case-sensitive, meaning Variable and variable are different.
  + **Class Names:** The first letter should be capitalized (e.g., MyClass).
  + **Method Names:** The first letter should be lowercase (e.g., myMethod()).
* **Data Types:** Define the type of data that can be stored and manipulated.
  + **Primitive Data Types:** Include int, float, double, char, boolean, etc.
  + **Non-Primitive Data Types:** Include String, arrays, classes, etc.
* **Variables:** Used to store data values.
  + **Declaration:** Defines the type and name (e.g., int age;).
  + **Initialization:** Assigns a value to a variable (e.g., age = 25;).
* **Operators:** Symbols that perform operations on variables and values.
  + **Arithmetic Operators:** +, -, \*, /, %.
  + **Relational Operators:** ==, !=, >, <, >=, <=.
  + **Logical Operators:** &&, ||, !.
  + **Assignment Operators:** =, +=, -=, etc.
  + **Unary Operators:** ++, --, +, -.
  + **Ternary Operator:** condition ? expression1 : expression2.

**Day 4-5: Control Statements (Conditional Statements, Looping Statements, Jump Statements)**

* **Conditional Statements:**
  + **if Statement:** Executes a block of code if a condition is true.
  + **if-else Statement:** Provides an alternative block if the condition is false.
  + **else-if Ladder:** Tests multiple conditions in sequence.
  + **switch Statement:** Selects one of many blocks based on the value of a variable.
* **Looping Statements:**
  + **for Loop:** Repeats a block of code a specific number of times.
  + **while Loop:** Continues to execute a block of code as long as the condition is true.
  + **do-while Loop:** Similar to while loop but executes the block at least once.
* **Jump Statements:**
  + **break Statement:** Exits a loop or switch immediately.
  + **continue Statement:** Skips the current iteration of a loop and moves to the next.
  + **return Statement:** Exits a method and optionally returns a value.

**Day 6-7: Object-Oriented Programming (OOP) Concepts**

* **Classes and Objects:**
  + **Class:** A blueprint for objects; it defines attributes (fields) and behaviors (methods).
  + **Object:** An instance of a class, created using the new keyword.
* **Methods:**
  + **Instance Methods:** Belong to an instance of a class and can manipulate its fields.
  + **Static Methods:** Belong to the class itself and can be called without creating an object.
* **Constructors:**
  + **Default Constructor:** Automatically provided if no constructor is defined; initializes objects with default values.
  + **Parameterized Constructor:** Defined by the programmer to initialize fields with specific values during object creation.

**Practice Exercises Completed**

* **Java Basics:**
  + Print "Hello, World!".
  + Calculate the sum of two integers.
  + Check if a number is even or odd.
* **OOP Concepts:**
  + Created a Car class with attributes and methods.
  + Demonstrated inheritance with Vehicle and Car classes.
  + Added elements to a List and used a HashMap for key-value storage.