Lesson 18: Java Classes

Inheritance is one of the key features of OOP that allows us to create a new class from an existing class. The new class that is created is known as subclass (child or derived class) and the existing class from which the child class is derived is known as superclass (parent or base class).

1. The extends keyword is used to perform inheritance in Java.

public class Animal {
// methods and fields
}
//use to perform extends keyword
// to perform inheritance
class Dog extends Animal {
//methods and fields of Animal
//methods and fields of Dog
}
	In the above example , the Dog class is created by inheriting the methods and fields from the Animal
	Class.
	
	Dog- subclass
	Animal- superclass

2. Polymorphism is an important concept of object-oriented programming. That is, the same entity (method/operator or object) can perform different operations in different scenarios.

3. The main purpose of the render() method is to render the shape. However, the process of rendering a square is different than the process of rendering a circle.

4. Encapsulation refers to the bundling of fields and methods inside a single class. It prevents outer classes from accessing and changing fields and methods of a class.

5. A method is a program module that contains a series of statements that carry out a task. To execute a method, you invoke or call it from another method; ***the calling method makes a method call***, which invokes the called method. Any class can contain an unlimited number of methods, and each method can be called an unlimited number of times
   2 types of methods:
   - User-defined Methods: We can create our own method based on our requirements.
   - Standard Library Methods: These are built-in methods in Java that are available to use.
6. User-defined Methods
   Syntax:

```
returnType methodName() {
// method body}
```

- returnType - It specifies what type of value a method returns For example if a method has an int return type then it returns an integer value.
- methodName - It is an identifier that is used to refer to the particular method in a program.
- method body - It includes the programming statements that are used to perform some tasks. The method body is enclosed inside the curly braces { }
- modifier - It defines access types whether the method is public, private, and so on.
- static - If we use the static keyword, it can be accessed without creating objects.
- parameter1/parameter2 - These are values passed to a method. We can pass any number of arguments to a method.

7. A method parameter is a value accepted by the method. As mentioned earlier, a method can also have any number of parameters.