

Core Java

6. Classes: Variables, Scope, Methods

Classes

- Classes are types of objects
- They are the basic building blocks of elements in Java
- Need a Class to start program execution (static main)
- Need to instantiate some classes during program execution
- So what are Classes?

Classes

- Classes contain variables and functions (also known as methods)
- Variables are the attributes of a class, it's composition
- Functions are the behaviors exhibited by a class
- No Structures in Java
- In a related areas, we have Interfaces

Syntax

```
[access_specifier] [other_specifier]
class ClassName {
    [access_specifier] [other_specifier]
    type TypeName;
    [access_specifier] [other_specifier]
    type FunctionName(type ArgTypeName);
}
```

Function

- A Function is a set of statements, *main()* is a Function
- A Function can take certain inputs; This are how Objects modify their behaviors to different Objects
- Function inputs are arguments and the Object's variables
- A Function can return an output, or modify an Object's variable

Variable

- A Variable is a attribute of a Class
- Each Object of that Class will have it's own copy of the variable (unless it's static)
- Variables give objects their primary variations
- Variables can be objects of classes themselves

Access Specifiers

- Protect variables from being manipulated outside the Object
- Requirement of Encapsulation
- Hence providing an Abstract view of the Class

Lifetime

- Every Object is created sometime during program execution
- Until the Object is no more used by any other Object
- The Object is moved to the garbage area
- It gets picked up after a while and is recycled into free memory

Demonstration

- Compile and Execute a few programs

Questions?