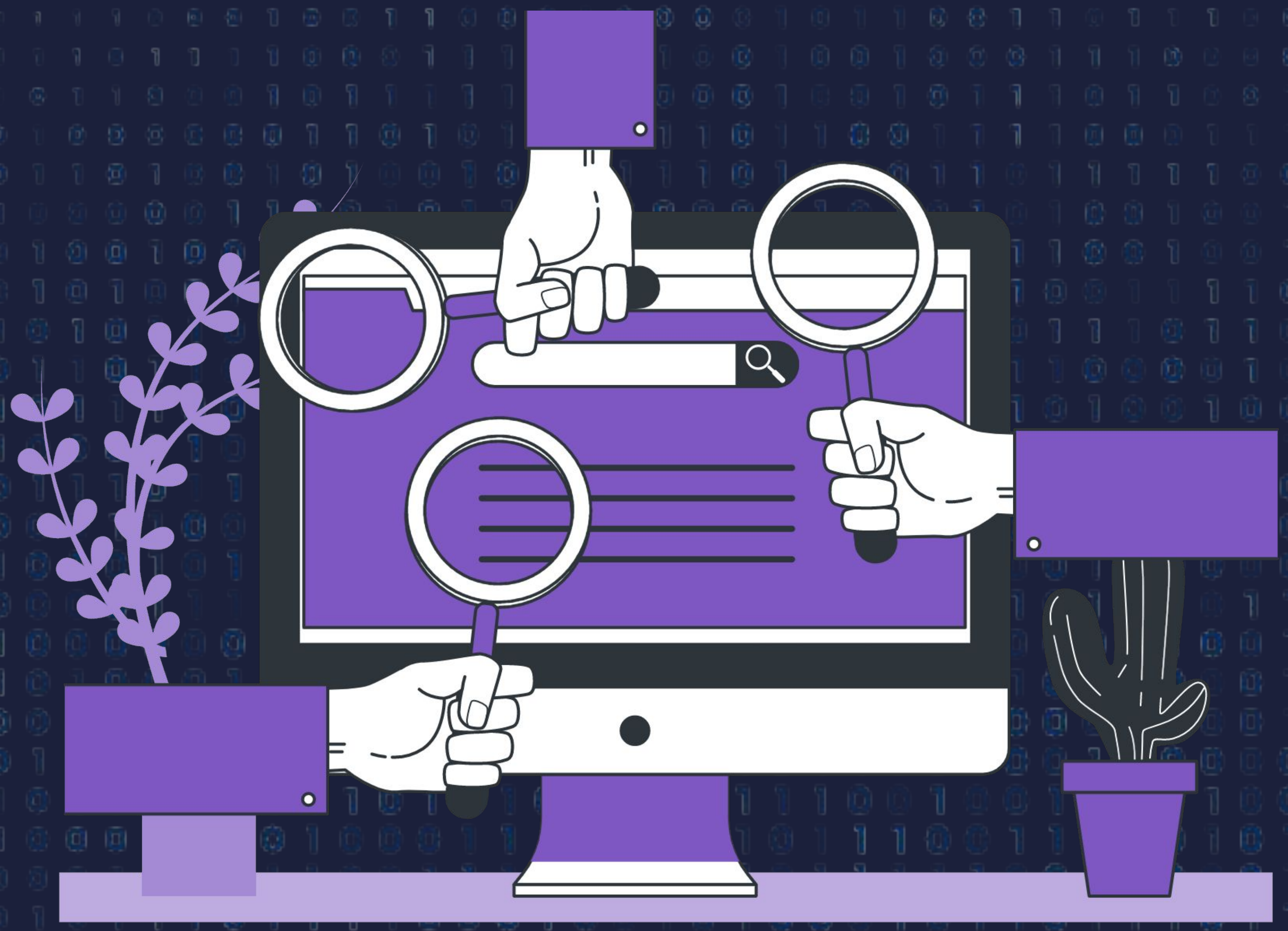
PW SKILLS

Lecture - 18

Static Keyword



List of Concepts Involved:

- Static keyword
- Class loading and How java program actually executes
- Different members Java program
- Static variables
- static methods
- static block
- Differences with respect to Non static and static members of a class

Topics covered Yesterday's Session:

- Mutable String
- String Buffer vs String Builder
- Inbuilt Methods

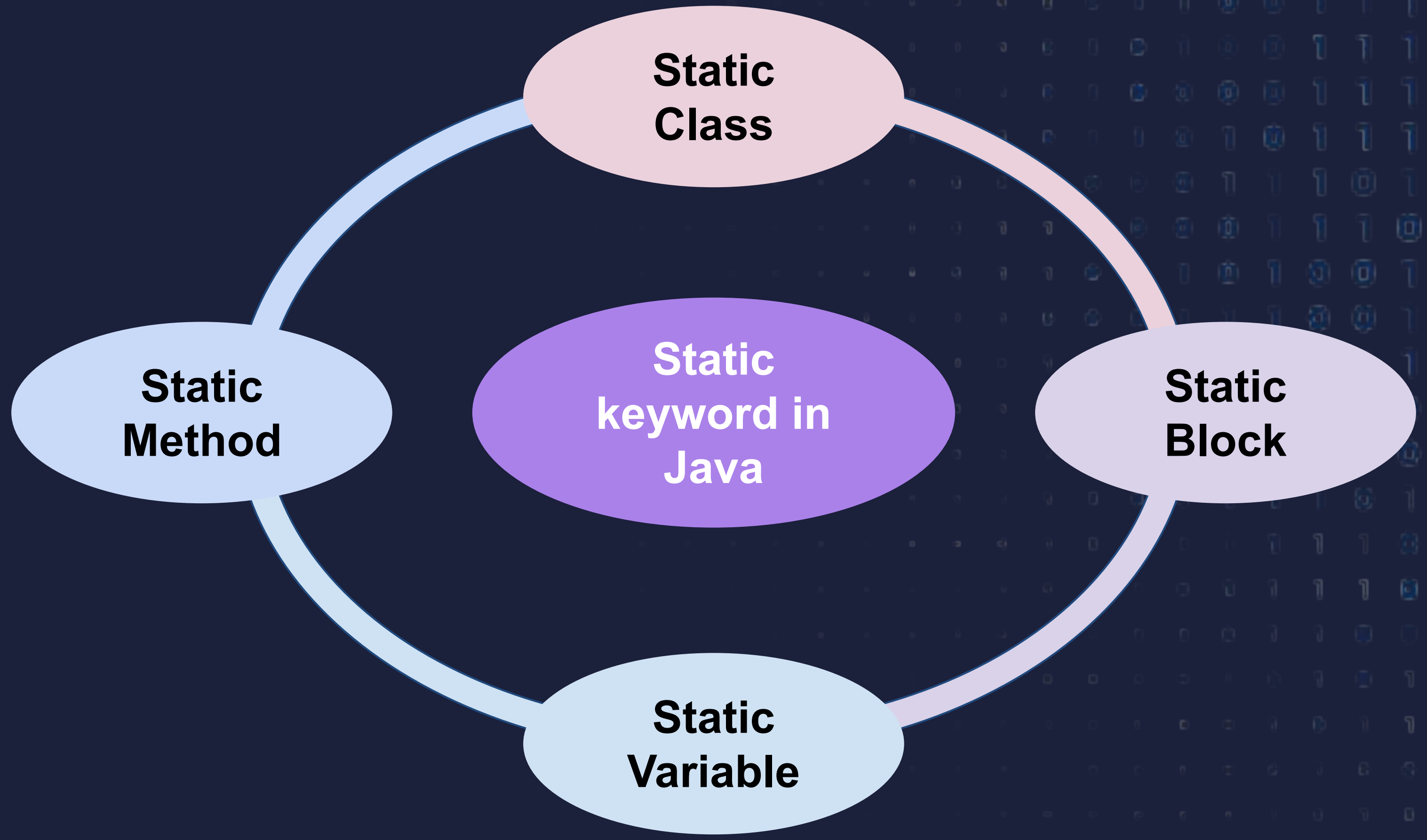
‘static’ keyword

- The static keyword is mainly used for memory management in Java.
- A static keyword can be applied with variables, blocks, functions and class.
- The static keyword is a property of a class rather than an instance of the class.
- The static keyword is used for a constant variable or a method that is the same for every instance of a class.

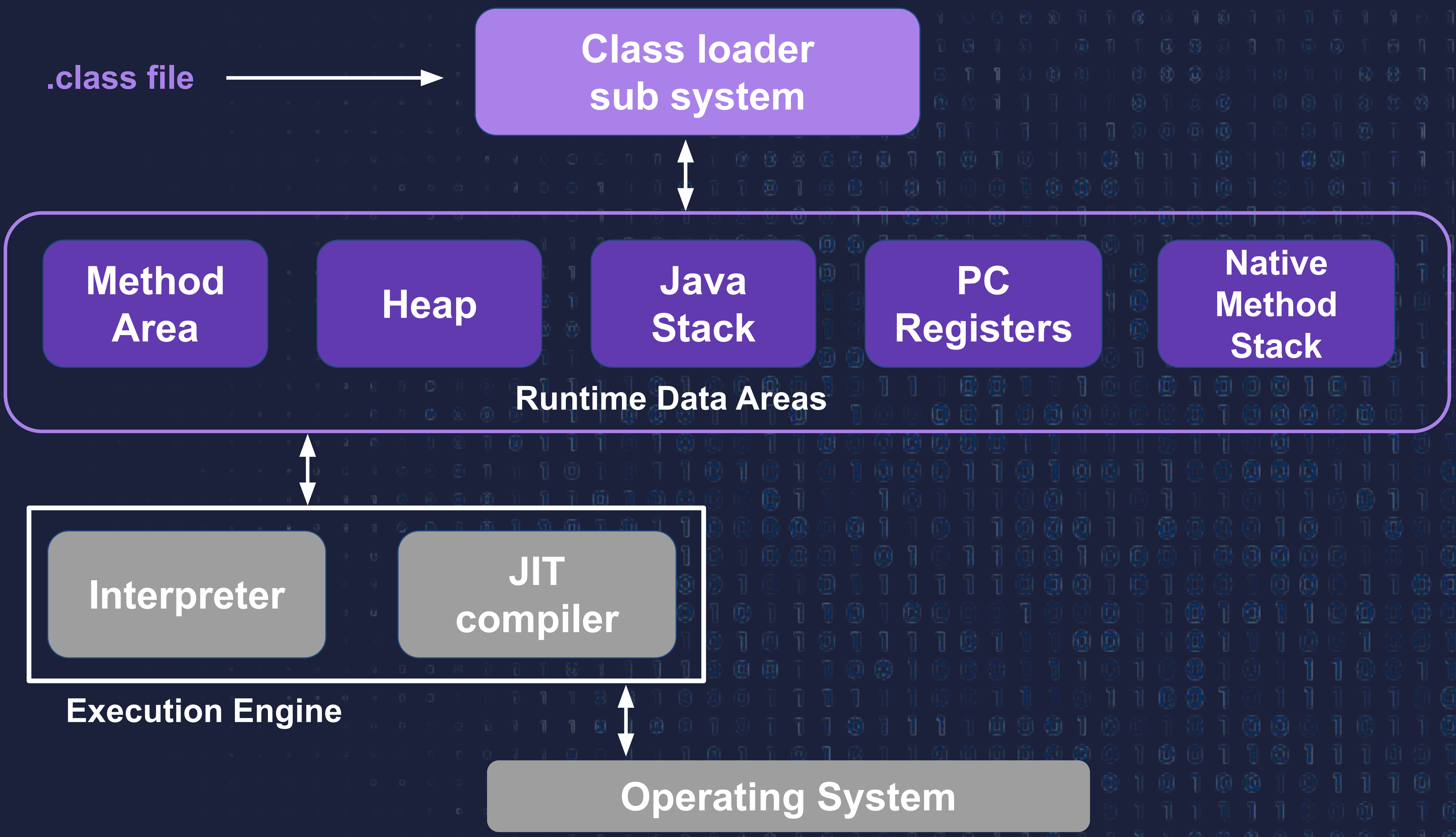
Where is the 'static' keyword applicable ?

The static keyword is a non access modifier in java which is applicable for the following :

1. Variables
2. Methods
3. Blocks
4. Class



How Java program Actually executes



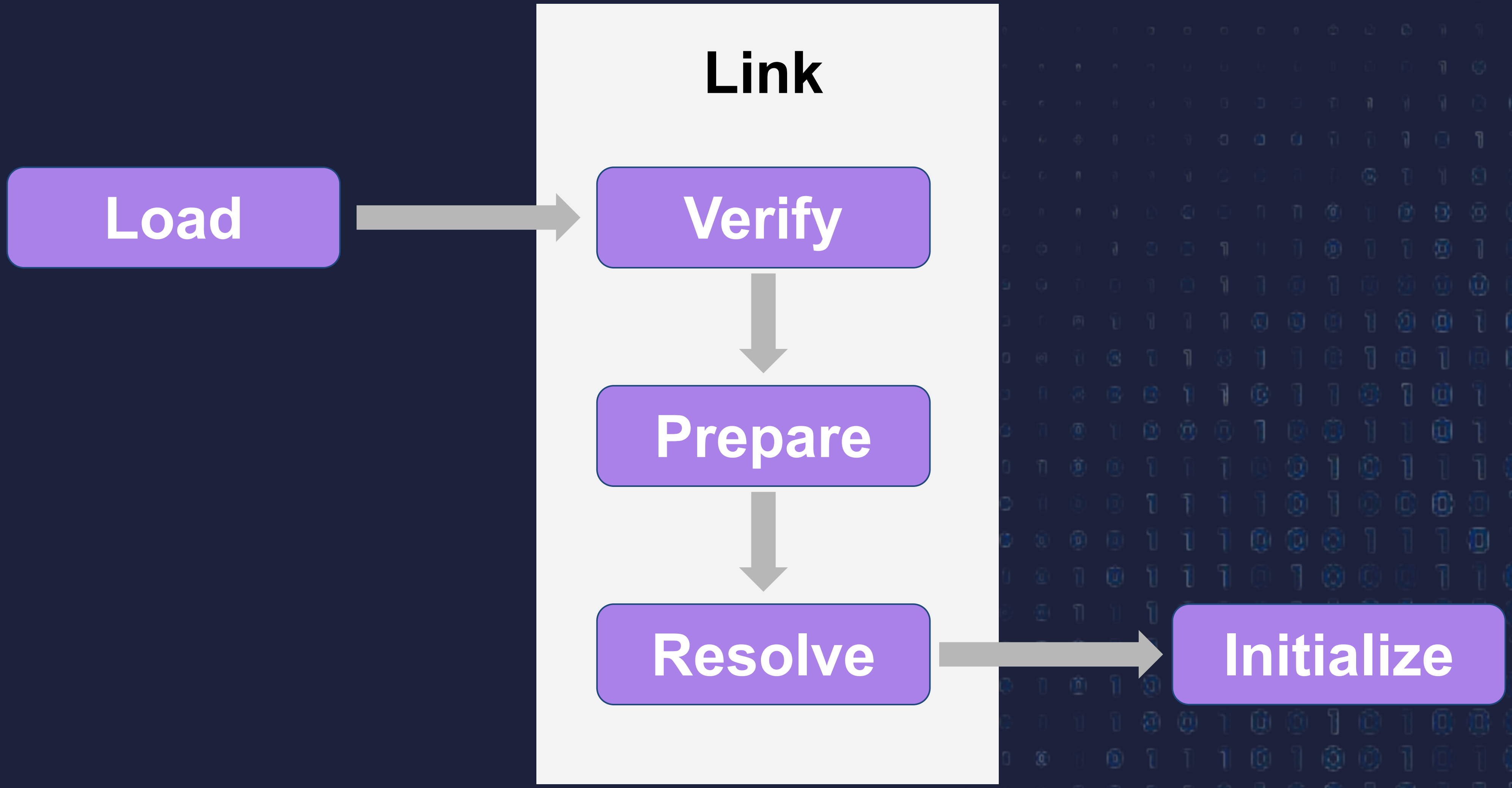
Class Loading

Class Loading: In Java, classloading is the process of loading class files into the JVM (Java Virtual Machine) at runtime. It is responsible for loading classes from various sources, such as the file system, network, and databases, and making them available to the JVM for execution.

The class loading process in Java is divided into three phases:

1. loading,
2. linking,
3. initialization.

Class Loading



Different Members in the Java program

Types of members are:

- Instance Member
- Static Member

Static variables

If the value of a variable is not varied from object to object such type of variables is not recommended to be declared as instance variables.

We have to declare such types of variables at class level by using static modifiers.

In the case of instance variables for every object a separate copy will be created but in the case of static variables for the entire class only one copy will be created and shared by every object of that class.

Static variables will be created at the time of class loading and destroyed at the time of class unloading hence the scope of the static variable is exactly the same as the scope of the .class file.

We can access static variables in 2 ways

- **Using className**
- **Using reference variables**

Static methods

- Methods which are available at the class level are referred to as “static methods”.
- These methods are referred to as utility methods.
- Inside the static methods we can access only static variables.
- If we try to access the instance variables directly then it would result in “CompileTimeError”.

Static blocks

- These are the blocks which gets executed automatically at the loading the .class files
- If we want to perform any activity at the time of loading a .class file we have to define that activity inside the static block.
- We can write any no of static blocks, those static blocks will be executed from top to bottom.
- Normally a static block is used to perform initialization of the static variables.

Difference with respect static and non static members of a class

static

- These variables are called “class variables”.
- These variables will get memory in the method area.
- If the value does not change from object to object then we need to use static variables.
- Inside a static area we can access static variables only.
- Static variables are created using static keywords.

Non-static

- These variables are called “instance variables”.
- These variables will get memory in the heap area.
- If the value changes from object to object then we need to use “non-static” variables.

Next Lecture

- Encapsulation

SKILLS

THANK YOU