



Java

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Agenda

- ▶ Java features
- ▶ Main method
- ▶ Data types
- ▶ Memory allocation
 - ▶ Method data, Heap(objects, instance variables) and stack(local variables)
- ▶ Conditional flow(If else, switch), looping, functions
- ▶ Class, instances – new keyword, constructors
- ▶ variable scopes – class(static), instance and local
- ▶ Understanding JDK, JRE, JVM

Java features

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- ▶ Simple – pointers, operator over loading, garbage collection
- ▶ OO: class, instance, encapsulation, abstraction, Inheritance, polymorphism
- ▶ Architecture neutral, portable, Platform independent: Write once, run any where
- ▶ Multi threading
- ▶ Exception handling
- ▶ Secure –access to client's file system, packaging

Main method

accessible outside the class

accessible without having instance of HelloWorld class

return type of main method

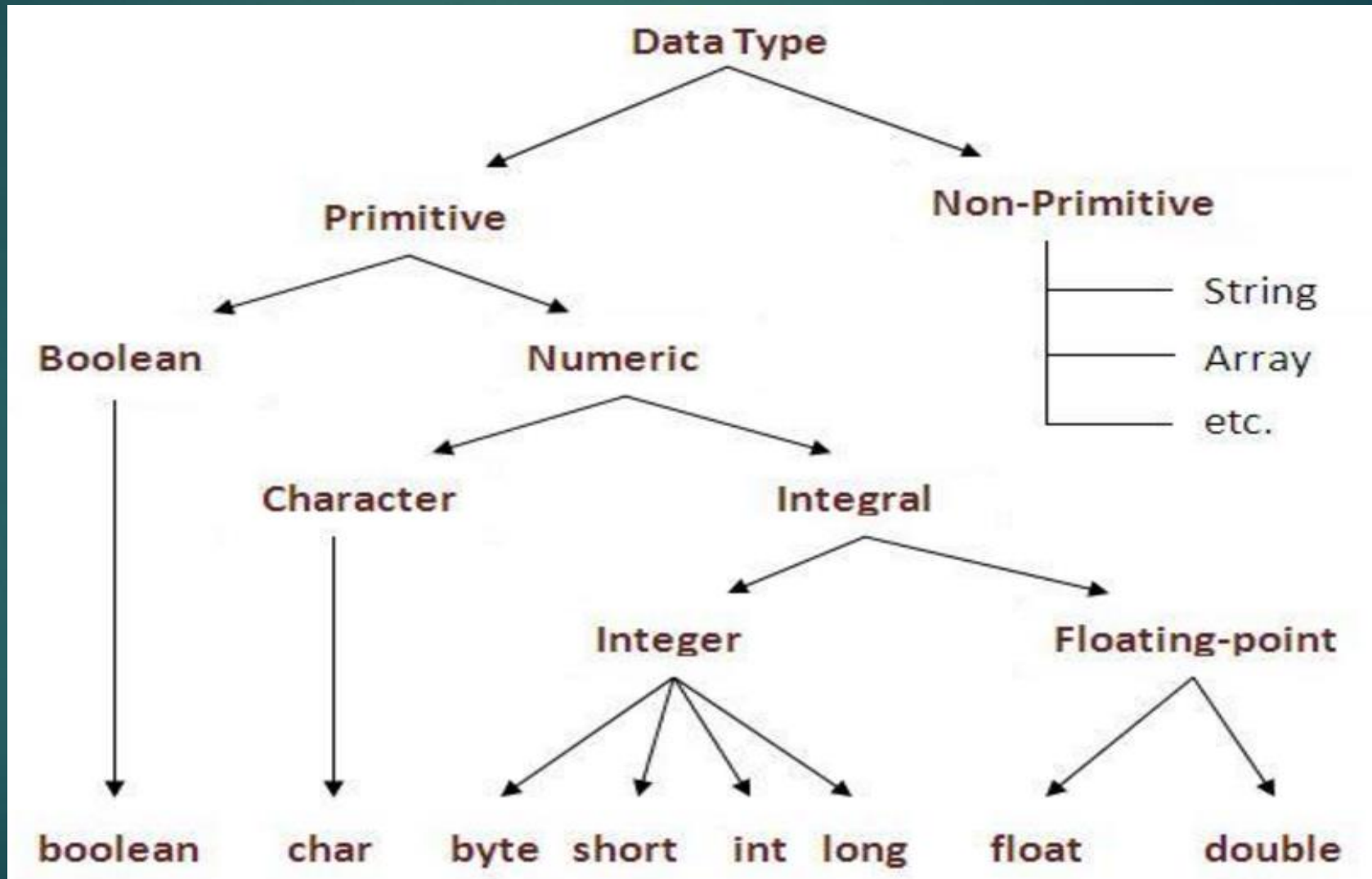
arguments passed from the command line while running the program

```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello World!!");  
    }  
}
```

class name

Data types

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Memory allocation

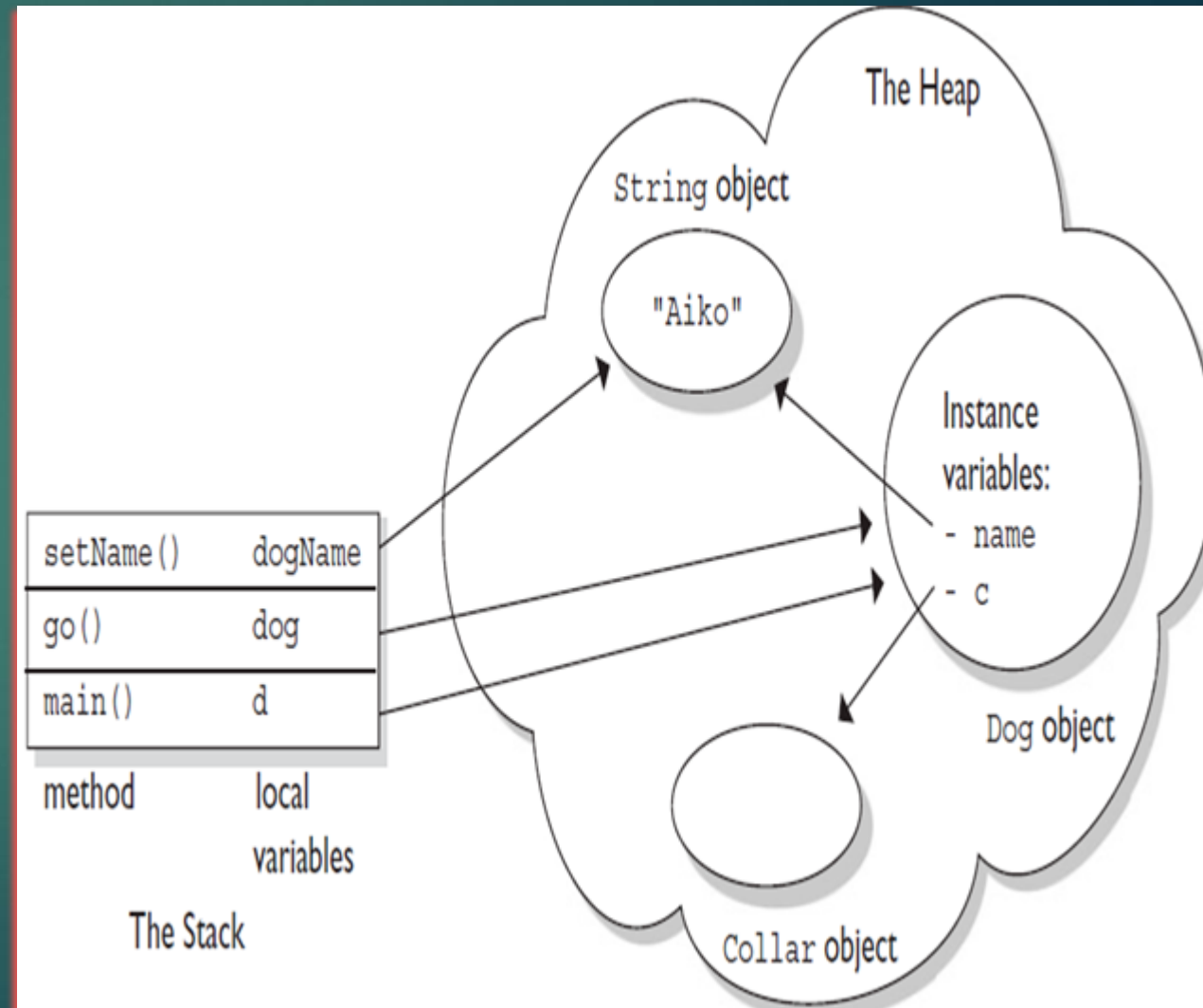
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```
class Collar { }

class Dog {
    Collar c;          // instance variable
    String name;        // instance variable

    public static void main(String [] args) {

        Dog d;          // local variable: d
        d = new Dog();
        d.go(d);
    }
    void go(Dog dog) {   // local variable: dog
        c = new Collar();
        dog.setName("Aiko");
    }
    void setName(String dogName) { // local var: dogName
        name = dogName;
        // do more stuff
    }
}
```



Conditional flow, looping, Arrays

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- ▶ Arrays
- ▶ Conditional flow
 - ▶ If else
 - ▶ Switch
 - ▶ Break
 - ▶ continue
- ▶ Looping
 - ▶ For
 - ▶ While
 - ▶ Do while
- ▶ Demo

Assignments (15min)

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1. Print "Hello world!" to the console
2. Read name from the console and print "hello {name}" to the console
3. Print numbers from 0 to 100 (using while loop)
4. Print prime numbers from 0 to 100 (using for loop)
5. Print odd numbers from 0 to 100

Class, instances, Constructors

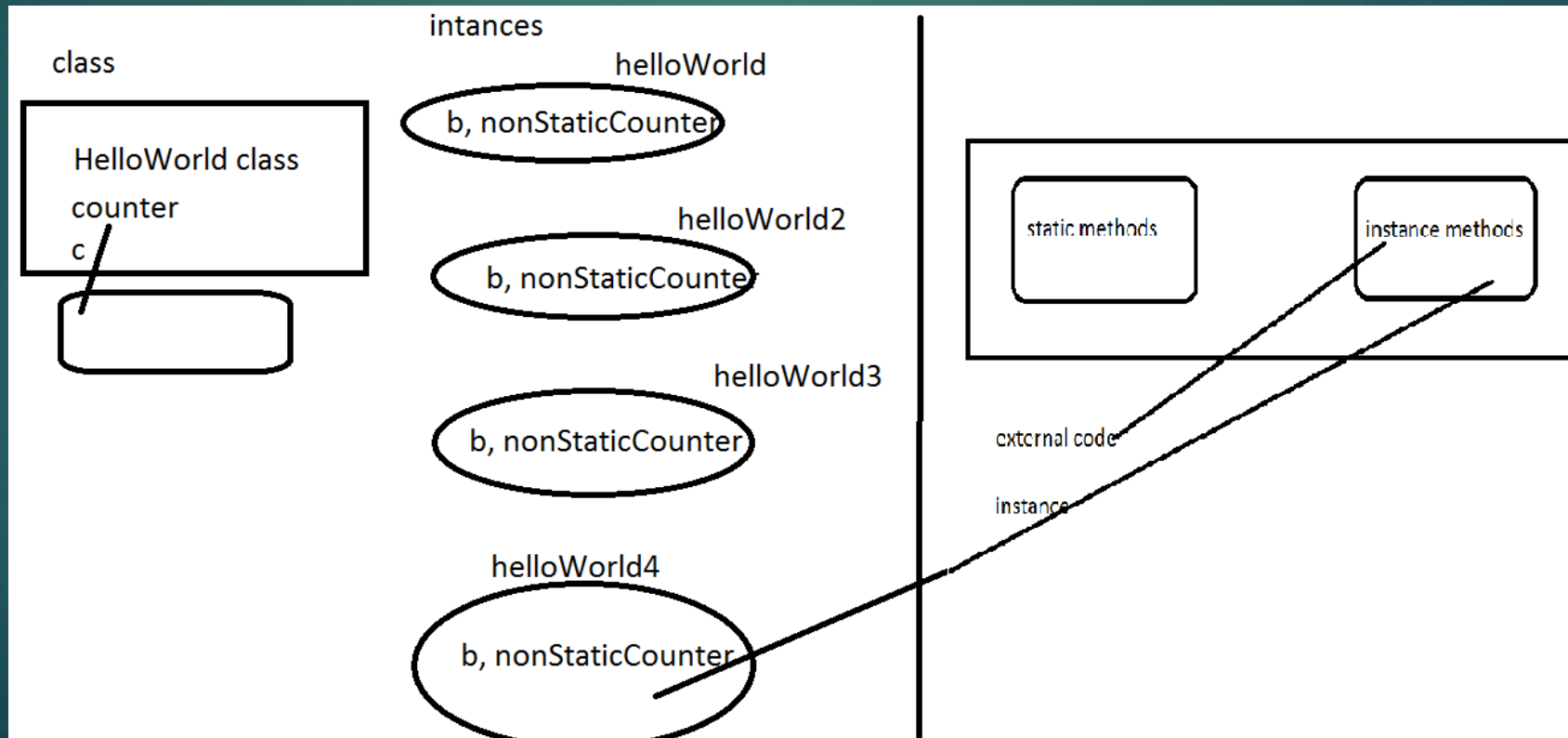
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- ▶ Class
 - ▶ Template
 - ▶ Passive
- ▶ Instance
 - ▶ Active
 - ▶ Represent real time object
 - ▶ Keyword new
 - ▶ Constructors
 - ▶ Default
 - ▶ Parameterized constructors (constructor overloading)

Variables

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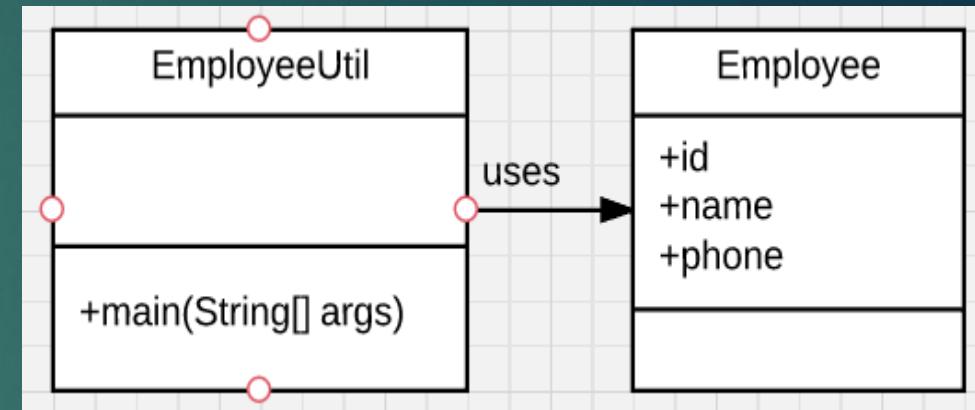
- ▶ Based on the scope/lifespan, declaration
 - ▶ Local – method (function)
 - ▶ Instance – object level
 - ▶ Class –without an instance (static)



Assignments(20+10min)

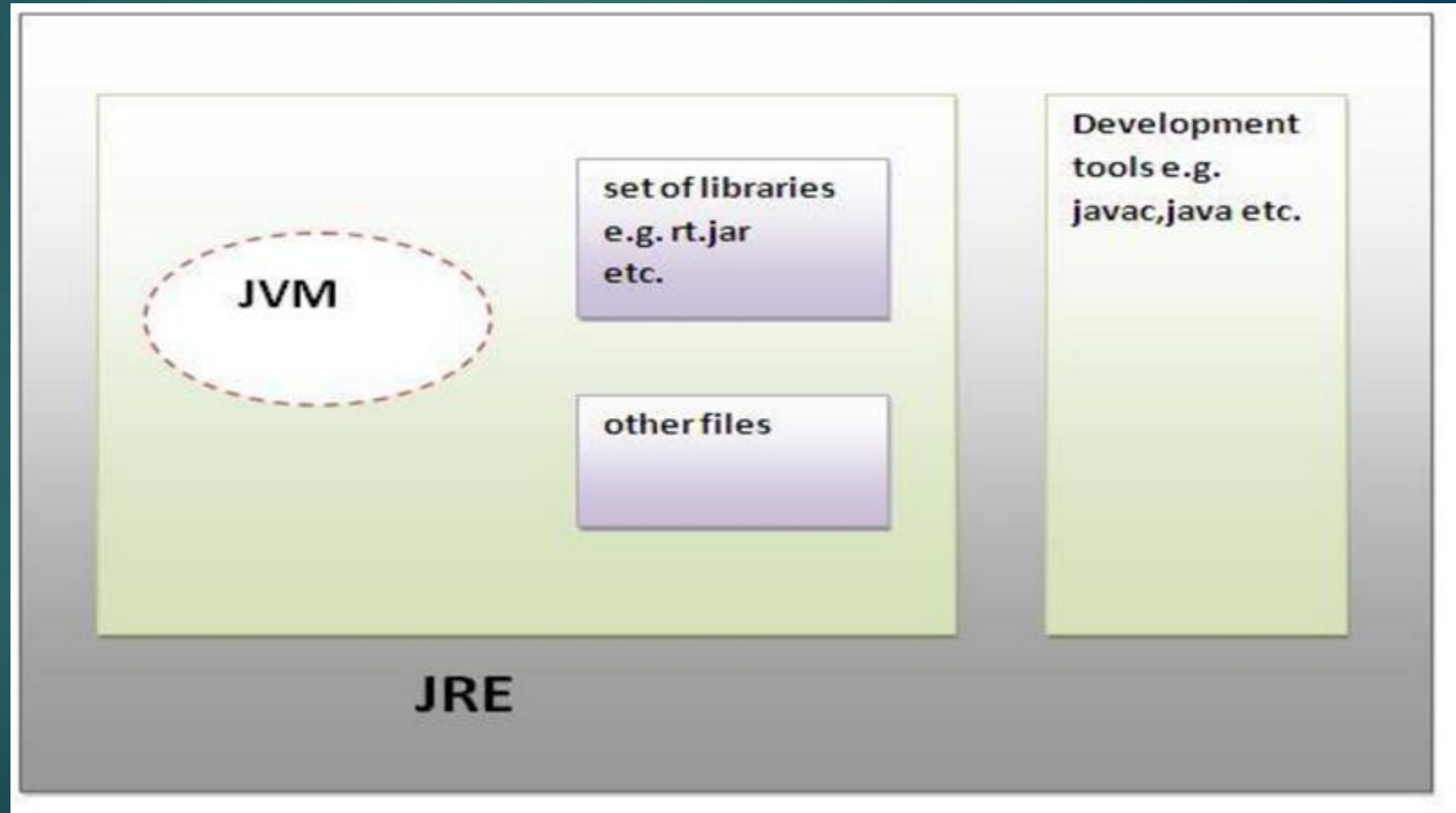
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6. Find factorial of a number
7. Print first 10 Fibonacci numbers (0 1 1 2 3 5 8...)
8. Find GCD and LCM of given 2 numbers
9. Create Employee and utility class as shown in the diagram and create 4 instances of Employee in main method.
10. Print number of employee instances created



JDK, JVM, JRE

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Quiz

TO TAKE THE QUIZ [CLICK HERE](#)

Self learning

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- ▶ Virtual machine – in reference to Java Virtual machine
- ▶ Multi dimensional(2-D, 3-D) arrays in Java
- ▶ For course related information, study material and updates visit this [link](#)
- ▶ To download this presentation in pdf [click here](#)



Thank you!

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