CHANDIGARH UNIVERSITY

Discover. Learn. Empower.

INSTITUTE : UIE
DEPARTMENT : CSE

Bachelor of Engineering (Computer Science & Engineering)

PROJECT BASED LEARNING IN JAVA
(20CST-319/20ITT-319)

TOPIC OF PRESENTATION:

Introduction to Java. Difference between C++ and Java.

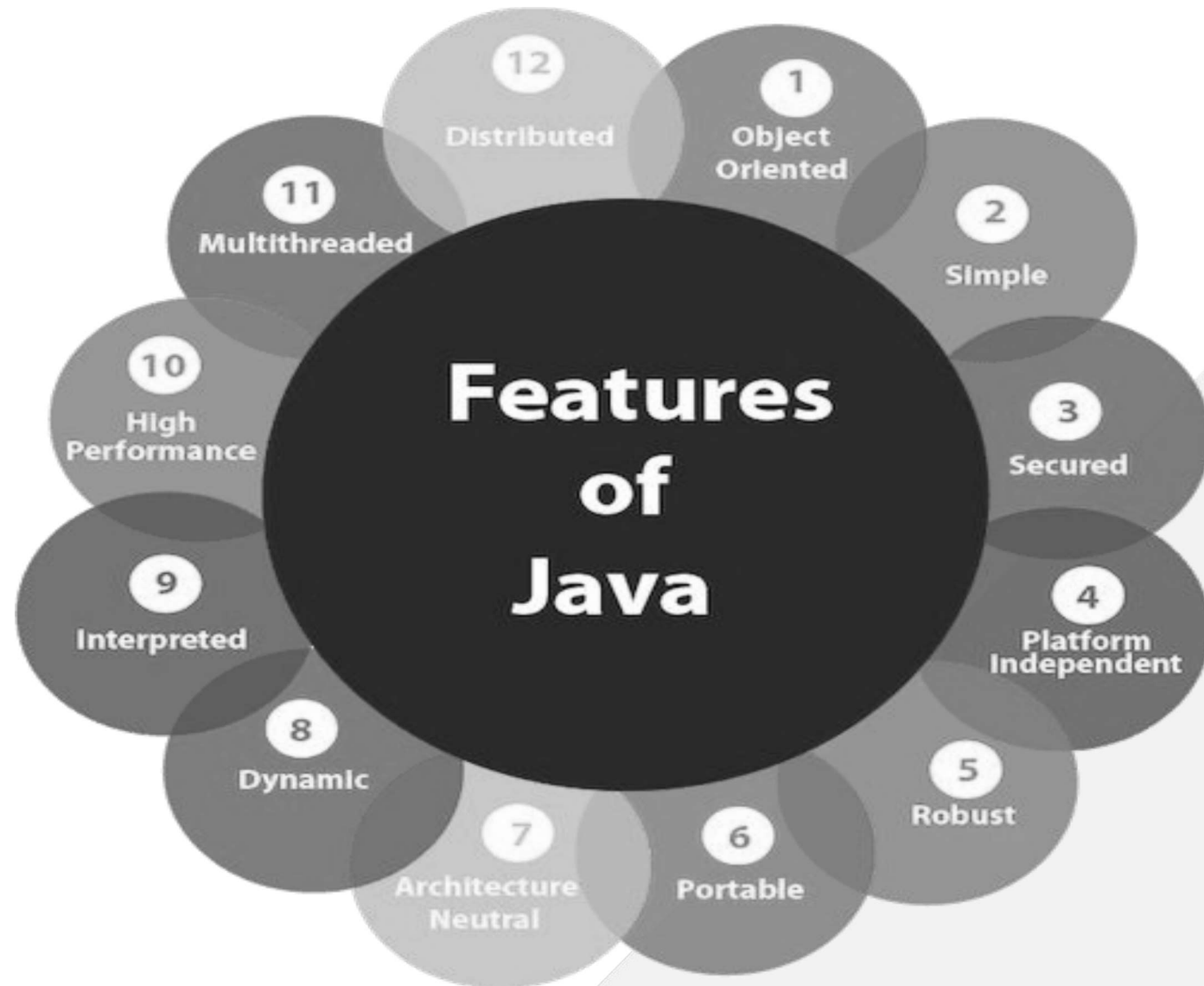DISCOVER . LEARN . EMPOWER

Lecture Objectives

In this lecture, we will discuss:
- Introduction to Java. Difference between C++ and Java.

Java is a **programming language** and a **platform**. Java is a high level, robust, object-oriented and secure programming language.

Platform: Any hardware or software environment in which a program runs, is known as a platform. Since Java has a runtime environment (JRE) and API, it is called a platform.

Comparison Index	C++	Java
Platform-independent	C++ is platform-dependent.	Java is platform-independent.
Mainly used for	C++ is mainly used for system programming.	Java is mainly used for application programming. It is widely used in window, web-based, enterprise and mobile applications.
Design Goal	C++ was designed for systems and applications programming. It was an extension of C programming language.	Java was designed and created as an interpreter for printing systems but later extended as a support network computing. It was designed with a goal of being easy to use and accessible to a broader audience.
Goto	C++ supports the goto statement.	Java doesn't support the goto statement.
Multiple inheritance	C++ supports multiple inheritance.	Java doesn't support multiple inheritance through class. It can be achieved by interfaces in java.
Operator Overloading	C++ supports operator overloading.	Java doesn't support operator overloading.
Pointers	C++ supports pointers. You can write pointer program in C++.	Java supports pointer internally. However, you can't write the pointer program in java. It means java has restricted pointer support in java.

Compiler and Interpreter	C++ uses compiler only. C++ is compiled and run using the compiler which converts source code into machine code so, C++ is platform dependent.	Java uses compiler and interpreter both. Java source code is convert bytecode at compilation time. The interpreter executes this bytecode runtime and produces output. Java is interpreted that is why it is pla independent.
Call by Value and Call by reference	C++ supports both call by value and call by reference.	Java supports call by value only. There is no call by reference in java
Structure and Union	C++ supports structures and unions.	Java doesn't support structures and unions.
Thread Support	C++ doesn't have built-in support for threads. It relies on third-party libraries for thread support.	Java has built-in thread support.
Documentation comment	C++ doesn't support documentation comment.	Java supports documentation comment (/** ... */) to create documentation for java source code.

Virtual Keyword	C++ supports virtual keyword so that we can decide whether or not override a function.	Java has no virtual keyword. We can override all non-static methods by default. In other words, non-static methods are virtual by default.
unsigned right shift >>>	C++ doesn't support >>> operator.	Java supports unsigned right shift >>> operator that fills zero at the top for the negative numbers. For positive numbers, it works same like >> operator.
Inheritance Tree	C++ creates a new inheritance tree always.	Java uses a single inheritance tree always because all classes are the child of Object class in java. The object class is the root of the inheritance tree in java.
Hardware	C++ is nearer to hardware.	Java is not so interactive with hardware.
Object-oriented	C++ is an object-oriented language. However, in C language, single root hierarchy is not possible.	Java is also an object-oriented language. However, everything (except fundamental types) is an object in Java. It is a single root hierarchy as everything gets derived from java.lang.Object.

Note

- Java doesn't support default arguments like C++.
- Java does not support header files like C++. Java uses the import keyword to include different classes and methods.

QUIZ:

1. Which of the following is a valid declaration of a char?
a. char ch = '\utea';
b. char ca = 'tea';
c. char cr = \u0223;
d. char cc = '\itea';

2. Which of the following tool is used to generate API documentation in HTML format from doc comments in source code?
a. javap tool
b. javaw command
c. Javadoc tool
d. javah command

Summary:

In this session, you were able to :
- Learn about Fundamentals of JAVA

References:

Books:

1. Balaguruswamy, *Java.*
2. A Primer, E.Balaguruswamy, *Programming with Java,* Tata McGraw Hill Companies
3. John P. Flynt Thomson, *Java Programming.*

Video Lectures :

https://youtu.be/O5hShUO6wxs

Reference Links:

1.   https://www.tutorialspoint.com/java/java_polymorphism.htm
2.   http://www.careerride.com/Object-oriented-programming-Interview-Quest ions.aspx
3.   http://www.javatpoint.com/
4.   http://www.java-examples.com/

THANK YOU