Rukmini Devi Institute of Advanced Studies

Madhuban Chowk, Rohini, Delhi-110085

(Approved By AICTE &Affiliated With GGSIP University)

DOSSIER

On

Guest Lecture

On

"Java Technology"

on

15th January, 2013

Ms. Bhajneet Kaur Ahuja
(Member, Literary Club)

Ms. Upasana Diwan
(Chairperson, Literary Club)

Prof. Col. (Retd.) Mahander Singh
Director General, RDIAS

FORM A

Proposal:

- **Name of the event to be organized**: Guest Lecture on Java Technology
- Date: 15th Jan , 2013
- Time: 12:30 PM-1:30 PM
- Venue: Lecture Theatre, RDIAS
- **Motivation for the activity**: This lecture was conducted with the motive to make the students of MCA aware of concepts of core Java as well as advance java.
- **Organized by**: MCA Department

FORM B

Part 1

Aim of the event: Java is a high-level programming language originally developed by Sun Microsystems and released in 1995. Java runs on a variety of platforms, such as Windows, Mac OS, and the various versions of UNIX.

Java is:

- **Object Oriented** : In java everything is an Object. Java can be easily extended since it is based on the Object model.
- **Platform independent**: Unlike many other programming languages including C and C++ when Java is compiled, it is not compiled into platform specific machine, rather into platform independent byte code. This byte code is distributed over the web and interpreted by virtual Machine (JVM) on whichever platform it is being run.
- **Simple** :Java is designed to be easy to learn. If you understand the basic concept of OOP java would be easy to master.
- **Secure** : With Java's secure feature it enables to develop virus-free, tamper-free systems. Authentication techniques are based on public-key encryption.
- **Architectural**- neutral :Java compiler generates an architecture-neutral object file format which makes the compiled code to be executable on many processors, with the presence Java runtime system.
- **Portable** :being architectural neutral and having no implementation dependent aspects of the specification makes Java portable. Compiler and Java is written in ANSI C with a clean portability boundary which is a POSIX subset.
- **Robust :**Java makes an effort to eliminate error prone situations by emphasizing mainly on compile time error checking and runtime checking.
- **Multi-threaded:** With Java's multi-threaded feature it is possible to write programs that can do many tasks simultaneously. This design feature allows developers to construct smoothly running interactive applications.

- **Interpreted: Java** byte code is translated on the fly to native machine instructions and is not stored anywhere. The development process is more rapid and analytical since the linking is an incremental and light weight process.
- **High Performance:** With the use of Just-In-Time compilers Java enables high performance.
- **Distributed: Java** is designed for the distributed environment of the internet.
- **Dynamic:** Java is considered to be more dynamic than C or C++ since it is designed to adapt to an evolving environment. Java programs can carry extensive amount of run-time information that can be used to verify and resolve accesses to objects on run-time.

Increasingly, IT squads are turning to java technology to minimize the time spent on lower-value natural actions and allow IT to focus on essential activities with greater impact on the software industries.

Hence it is important for the students to be well acquainted with the field and should be aware of the intricacies of implementing this technology. Keeping this in mind a guest lecture was organized for the students of MCA.

Part 2

Abstract:

The session was conducted by Mr. Dipanshu Chopra, Technical Team lead IBM.

His presentation contained the following discussion points:

1. What is java?
2. History of java Technology.
3. Comparison with other languages.
4. Features of Java.
5. Implementation.
6. Applications of java.
7. Why using in industries.
8. Security with java.

Many **real world anecdotes** were shared with the students in the course of this discussion:

Mr. Deepanshu started the discussion by asking everyone present that, what according to them is Java Technology?

Sir explained that Java deals with the objects, It has highly demands in today industries in various types of softwares. Unlike conventional languages which are generally designed either to be compiled to native (machine) code, or to be interpreted from source code at runtime, Java is intended to be compiled to a bytecode, which is then run (generally using JIT compilation) by a Java Virtual Machine.

Sir further added that Java was started as a project called "Oak" by James Gosling in June 1991. Gosling's goals were to implement a virtual machine and a language that had a familiar C-like notation but with greater uniformity and simplicity than C/C++. The first public implementation was Java 1.0 in 1995. It made the promise of "Write Once, Run Anywhere", with free runtimes on popular platforms. It was fairly secure

and its security was configurable, allowing for network and file access to be limited. The major web browsers soon incorporated it into their standard configurations in a secure "applet" configuration. popular quickly. New versions for large and small platforms (J2EE and J2ME) soon were designed with the advent of "Java 2". Sun has not announced any plans for a "Java 3".

Then Mr. Deepanshu discussed about the industry's latest trends which are going on now a days in java and what are the plans for future. After this he started the implementation in java with taking an example.

Mr. Deepanshu added some java applications like in mobile phones and in websites etc. Then he explore the technologies works in java like:

- **JDK Tools**: The JDK tools provide compiling, Interpreter, running, monitoring, debugging, and documenting your applications. The main tools used are the Javac compiler, the java launcher, and the javadoc documentation tool.
- **Application Programming Interface (API)**: The API provides the core functionality of the Java programming language. It gives a wide collection of useful classes, which is further used in your own applications. It provides basic objects and interface to networking and security, to XML generation and database access, and much more.
- **Deployment Technologies**: The JDK software provides two type of deployment technology such as the Java Web Start software and Java Plug-In software for deploying your applications to end users.
- **Graphical User Interface Toolkits**: The Swing and Java 2D toolkits provide us the feature of Graphical User Interfaces (GUIs).
- **Integrated Libraries**: Integrated with various libraries such as the Java IDL API, JDBC API, Java Naming and Directory Interface TM ("J.N.D.I.") API, Java RMI, and Java Remote Method Invocation over Internet Inter-ORB Protocol Technology (Java RMI-IIOP Technology) enable database to access and changes of remote objects.

Part 3

Conclusion

Sir seamlessly swayed from architecture to implementation while referencing the industry scenario. Also discuss the latest research going in this technology. Certain issues related with the implementation of the technology like privacy, security, compliance, availability, performance and sustainability were also discussed.

Students of MCA showed great enthusiasm by attending the session and actively participating in question answer sessions. Some curious questions were raised by the students like, what is a security key in java?, How the garbage collection is implemented in java and what is the main difference in .NET's garbage collection and java's garbage collection feature . All were answered by the speaker in a very explicable manner.

Lecture Moments

Introductory session

Facilitation to Mr. Deepanshu

Patient Audience enjoying the session.