ISSN (Online): 2455-7838
SJIF Impact Factor : 6.093

EPRA International Journal of

Research & Development

(IJRD)

Monthly Peer Reviewed & Indexed International Online Journal

Volume: 3, Issue:12, December 2018

Published By
EPRA Journals

SJIF Impact Factor: 6.093 Volume: 3 | Issue: 12 | December | 2018 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)

JAVA AT A GLANCE FROM 1996 TO 2018

Vishnu Krishnan
B-Tech Graduate in Computer Science and Engineering, Mahatma Gandhi University
Kerala, India

ABSTRACT

Java is one of the successful programming languages from 1996 to 2018 which has been developed by the green team. Java has been used by top IT companies and it was the base for the development of several products and applications. This paper mainly focuses on the innovation of java and the role of java as a programming language from 1996 to 2018. This paper mainly discusses the features and versions of java. It also explains the use of oops concepts in development of java as a programming language. It also provides information about java recruitment in terms of job seeking and job postings.

KEYWORDS: *Java, programming language*

1. INTRODUCTION

James Gosling, Mike Sheridan, and Patrick Naughton where the nexus behind the Java language project in June 1991. It was originally developed for interactive television but for that time period, it was too advanced technology. The team members of java were known as the green team. The language was first named as 'oak' after an oak tree that stood outside Gosling's office, and the second name was 'green' and later it was renamed as 'java'. Java is an island of Indonesia where first coffee was produced. The principal goals that they follow mainly were "Simple, Robust, Portable, Platform-independent, Secured, High Performance, Multithreaded, Architecture Neutral, Object-Oriented, Interpreted and Dynamic". James Gosling designed the syntax of java similar to that of C and C++, because of that kind of approach it was not a new thing for the application programmers. Initially, Java was developed by James Gosling at Sun Microsystems. In 1996 Sun Microsystems released the first public implementation which was JAVA 1.0. The version of java promises the feature of "written once runs anywhere". Arthur van Hoff was the man who rewritten the Java 1.0 compiler in java to make it strictly with the Java 1.0 language specification. The advanced version JDK 1.1 was released in 1997 and the desktop version was announced to be J2SE, the mobile version was J2ME and the server version was J2EE. The new versions of java were also known as the J2 version

2. DISCUSSION

JAVA FROM 1996 TO 2018 AT A GLANCE

The JDK 1 was the initial release and was originally called oak. This very first version had very unstable APIs and there was only one java web browser named as web runner. The first stable version was JDK 1.0.2 was called Java 1 and on February 19, 1997, JDK 1.1 was released with a huge feature in it. The features include

- AWT event model
- Inner classes
- JavaBeans
- JDBC
- RMI
- The reflection which supported Introspection only, no modification at runtime was possible.
- JIT (Just in Time) compiler for Windows

In JDK 1.1 the java.awt. Component event handling methods are added. Any class can implement one or more event listener interfaces or use the adapter classes, and this clearly represents that event handling is not limited to component objects. The main methods are given below

- handleEvent())
- action()
- gotFocus()
- lostFocus()
- keyDown()
- keyUp()

- mouseEnter()
- mouseExit()
- mouseMove()
- mouseDrag()
- mouseDown()
- mouseUp()
- lostFocus()

The java also provides JDBC which is the Java database connectivity and it is generally an application programming interface (API). It is a java based access technology to get database connectivity and provides methods and queries to update data in the database.

In J2SE 1.2 which is the next version was released on December 8, 1998. The codename was Playground and the major contents which are added in this release were

- a strictfp keyword which restricts the floating point calculations to ensure portability.
- All the classes were integrated with swing API.
- A java applet plugin was added which compiles to Java bytecode and delivers to users in the form of bytecode.
- Java collection frameworks were added they are usually a set of interfaces which enhances the reusability of a program.

The next update which is the J2SE 1.3 was released on May 8, 2000, the codename was Kestrel and the most majority changes were added in this version.

- The java hotspot Performance engine was added in this version which is a virtual machine created by Oracle.
- The java remote method invocation was added.
- The Java naming and directory interfaces were added.
- The Java platform debugger architecture as added.

The J2SE 1.4 was released on February 2, 2002, and the codename was Merlin. This was the first release under JCP and the new features which are added were.

- XML Processing
- Java print service
- Logging API
- Java Web Start
- JDBC 3.0 API
- Assertions
- IPv6 Support
- Regular Expressions

The J2SE 5.0 was released on September 30, 2004, which was originally named as 1.5 and changed to 5.0 to reflect maturity and stability and this version was developed under JSR 176. Java five was first available on Apple Mac OS. This version includes a number of significant changes which are listed below.

- Java Generics were added which will provide compile-time safety to java collections.
- Metadata which allows classes and methods to be tagged with additional data.
- Wrapper classes auto boxing and unboxing.
- Enumerations to make type-safe using enum keyword.
- Static imports.
- Good semantics for the execution of multithreaded programs.

The Java SE6 which was released on December 11, 2006, from this version Sun replaced the "J2SE" with "Java SE" and also removed the ".0" notations. The codename was Mustang and the version was developed under JSR 270 and the major changes were.

- Scripting language support.
- More support on web service through JAZ-WS
- The support of JDBC 4.0
- More GUI improvements.

The very next version of java was the Java SE7 this major update was launched on July 7, 2011, and the codename was Dolphin. There were lots of major changes were added in this update.

- Strings in switch Statement.
- Type Inference for Generic Instance Creation.
- Multiple Exception Handling.
- Support for Dynamic Languages.
- Try with Resources.
- Java NIO Package.
- Binary Literals underscore in literals.
- Diamond Syntax.
- Automatic null Handling.

The very next and the latest version of java was the Java SE8 the codename was Spider.

The additional features were added in this version also and are listed below.

- Lambda Expressions
- Pipelines and Streams
- Date and Time API
- Default Methods
- Type Annotations
- Concurrent Accumulators
- Parallel operations
- TLS SNI

There were 3 more version releases from java which are the Java SE9 which was released on August 9, 2017 and the Java SE10 which was released on 20 March 2018 and also the Java SE 11 which was released on September 25, 2018 the details about the

updates of new features are still under confirmation which has to be done officially.

OBJECT-ORIENTED CONCEPTS IN JAVA WITH SIMPLE DEFINITIONS

- Object
- Class
- Inheritance
- Polymorphism
- Abstraction
- Encapsulation

Object

An object is a simple logical or physical entity which has a state or behavior. For example, we can say a car, chair, table, man anything can be said as an object. An object has an address and takes some space from heap memory.

Class

A class can be said as a template where we can create objects. All the objects are created inside an object. A class does not consume any memory space.

Inheritance

When one class acquires the property and behaviour of its parent class it is inheritance on the other hand if one object acquires the property and behaviour of its parent object it is also known as inheritance. In java we use the keyword 'extends' to achieve inheritance

Polymorphism

If one task can be performed in different ways, it is known as polymorphism. In Java, we achieve polymorphism by Method Overloading and Method Overriding. Method overloading is done at compile time and overriding is done at runtime. A simple example is that Animals can speak while at the same time we can say that a cat speaks meow and a dog barks etc. So one task that is animal speak can be achieved in many ways.

Abstraction

Hiding the internal details and showing the functionality is known as abstraction. In Java, we use abstract class and interface to achieve abstraction. For example, if we want to drive a car we just need to learn the driving there is not necessary to know the full working of that car engine to drive it.

Encapsulation

The binding or wrapping of data is known as encapsulation. For the safety purpose and to ensure the confidentiality of data we use encapsulation. A Java class is an example for encapsulation and a java bean class is an example for the fully encapsulated class in which all the data members are private

3. RESULT AND ANALYSIS

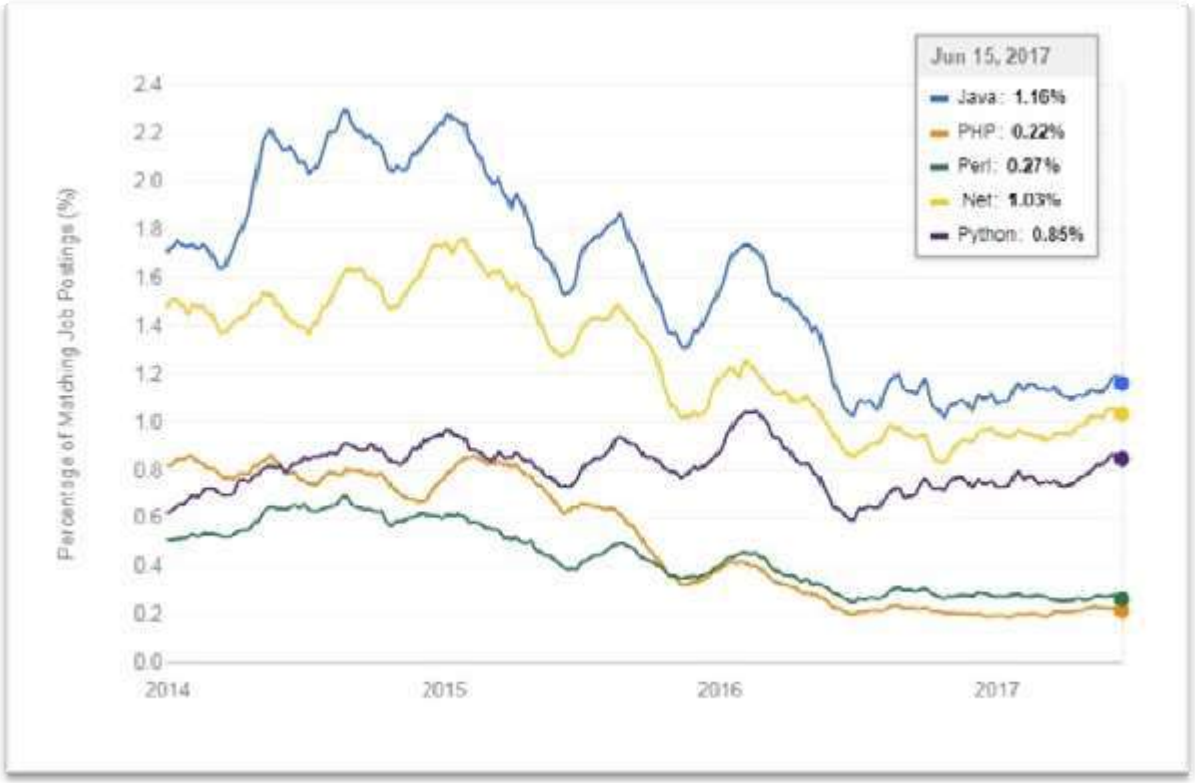

Fig 3.1: Graph Representation of Java job postings

The above figure displays the demand of java as a programming language based on job postings We can see that when comparing with php, perl etc. Java have a good increase in terms of job postings during the period of 2014 to 2016.Hence we can conclude that there is average demand of java as a

programming language for job postings. Also all of the main MNC are using java as their core programming language for development.

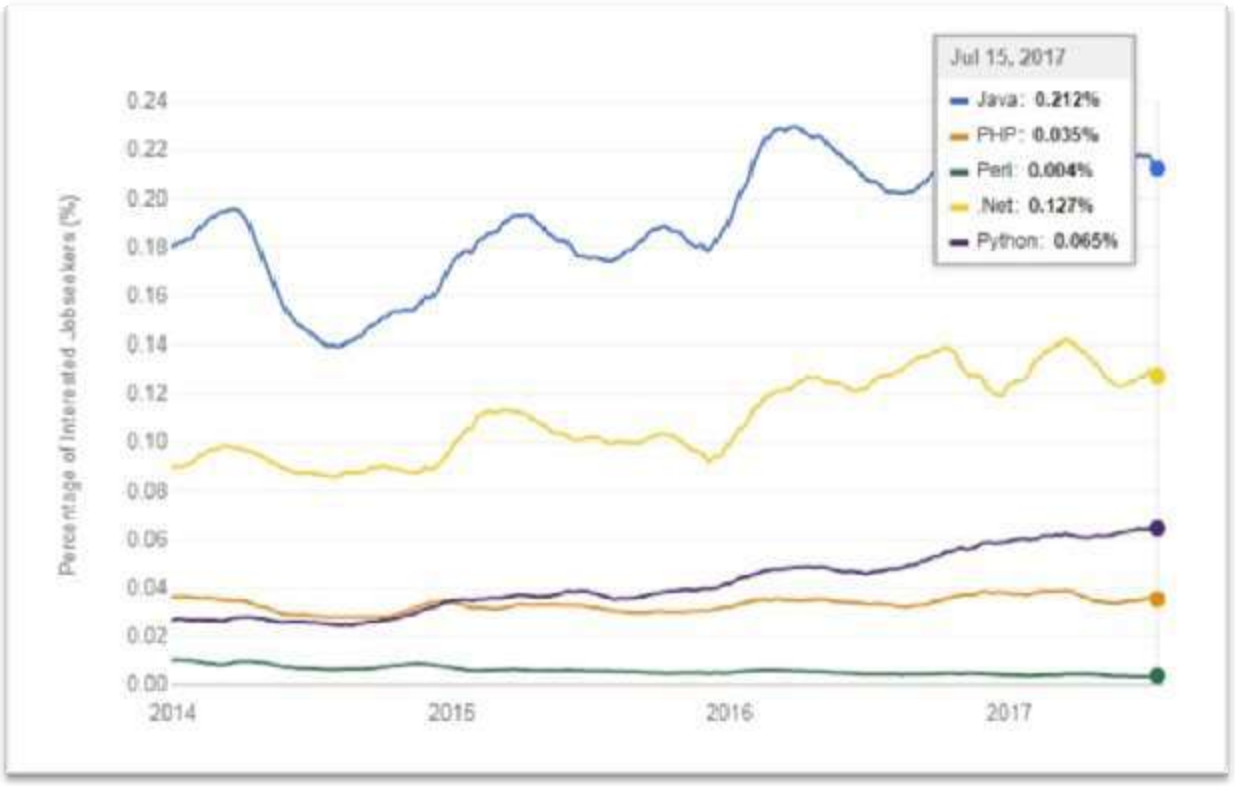

Fig 3.2: Graph Representation of java job seeking interests

The above figure displays the demand of java as a programming language based on job seeking. We can see that when comparing with php, perl etc. Java have a good increase in terms of job seeking during the period of 2014 to 2016.Hence we can conclude that there is average demand of java as a programming language for job seekers

4. CONCLUSION

This journal mainly aims at the idea of making a glance of how the journey of programming language java from 1996 to 2018 and also what are the changes that happen in this language during these years. The paper also aims at how the oops concepts are implemented in java with real-life examples and scenarios. The object-oriented programming concepts are given with simple definitions so that the people have to get a clear view about the concepts other than simply spoon feeding the definitions which are given in textbooks.

REFERENCES

1. *Bert Bate, Kathy Sierra: Head First Java*
2. Herbert Schildt*: Java A Beginner's Guide (Sixth Edition)*
3. Herbert Schildt: *Java The Complete Reference (Ninth Edition)*
4. *Cay S. Horstmann: Core Java Volume I--Fundamentals (9th Edition) (Core Series)*
5. *Javatpoint Services. [Online] Available from: https://www.javatpoint.com/java-oops-concepts*
6. *Paul Deitel, Harvey Deitel: Java How to Program (late objects)*
7. *Sedgewick: Introduction to Java*
8. *Traps, Pitfalls, And Corner Cases: Java Puzzlers*