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James Gosling

James Gosling is the software engineer primarily credited with creating the Java programming language in 1991.

History

James Arthur Gosling was born in Canada on the 19th May, 1955.
He received a Bachelor of Science from the University of Calgary, and also a M.A and Ph.D from Carnegie Mellon University. His doctoral thesis was entitled: “The Algebraic Manipulation of Constraints.”

While working at Sun Microsystems, he invented the Java language alongside Mike Sheridan and Patrick Naughton. The project began as a Sun project in embedded control called *7 (Star Seven) . Gosling designed the original version of Java and implemented the first Java compiler and Java Virtual Machine (JVM). The original purpose of the language was for interactive television, but was unfortunately too advanced for the digital cable industry at the time.

After Oracle, the database giant, acquired Sun Microsystems Gosling left the company. He cited a lack of respect, changes in pay, a decline in employee independence and ethics as reasons for leaving the organisation at which he had worked for twenty six years.

Since his role at Sun Microsystems, James Gosling has worked for Google, a startup called Liquid Robotics (Boeing Defense), and most recently was hired for Amazon Web Services.

Other Contributions

Apart from creating the Java language, James Gosling is also credited with being the author of Gosling Emacs, the inventor of the windowing system NeWS and the creator of a p-code virtual machine to run UCSD Pascal programs.

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Java

Java, originally called Oak, is a concurrent, class-based, object-oriented programming language designed to have as few implementation dependencies as possible. This means that compiled Java bytecode can run on all platforms supporting the JVM (Java Virtual Machine) without the need for recompilation. Oracle claims that “Java technology allows you to work and play in a secure computing environment.”

The primary goals in the creation of the language were for it to be:

1. “simple, object-oriented, and familiar.”
2. “robust and secure.”
3. “architecture-neutral and portable.”
4. “high performance.”
5. “interpreted, threaded, and dynamic.”

The Java Runtime Environment (JRE) is required for users to run Java programs, while the Java Development Kit (JDK) is needed in order to develop applications. Originally, popularity for the language grew when major web browsers incorporated the ability to run Java applets on web pages. Nowadays, the language is one of the most popular languages in the world.

The latest version of the language is Java SE 9, released in September of 2017, and is supported for free by Oracle. Revenue is generated from Java by selling licenses for Oracle’s specialised products such as the Java Enterprise System.

Performance

The performance of Java initially was considered slower than languages such as C and C++, the languages from which its syntax is derived. This slowdown was due to the bytecode being run on the JVM, as opposed to machine code being run directly on the CPU.

Performance has greatly improved since the late 1990s since just-in-time (JIT) compilation was introduced, along with better code analysis and optimisations in the JVM. Java is still slower than its native code alternatives, but no longer by a factor of ten or twenty.

Garbage Collection

One advantage of Java over older-generation languages such as C was the introduction of garbage collection. This process automatically frees unused memory objects during program execution, without the programmer needing to specify when memory was to be freed.

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Oracle vs. Google

The Android mobile operating system, the most popular operating system in the world, is developed by Google and is based on the Linux kernel. Since its introduction in 2007, the OS is updated on a yearly basis with new features and follows an alphabetical naming scheme, where each letter has a coinciding code name, the current version being 8.1 Oreo. Applications for the operating system, downloadable from the Play Store, are written using the Android SDK and Java.

In 2007, Google released a beta version of Android that used some Java technologies in compliance with Sun Microsystems. When Oracle purchased Sun in 2010, Oracle discussed a possible licensing deal with Google in regards to Android, but no agreement was reached. Thereafter, in August 2010, Oracle sued Google for copyright and patent infringement.

Oracle claimed infringement on the structure and organisation of the Java API and documentation. In development of the Android system, Google's implementation of Java used the same names, organisation and functionality as Oracle's. Originally, it was ruled that APIs were not copyrightable, but in 2014, that decision was overturned. Jury ruled that APIs can be copyrighted, and that the Java API was infringed, but was counteracted by Google's fair use defense of the claim. The patent phase of the case began in 2012 with the same jury. Google were found not guilty of infringement on the two patents involved. Both parties agreed to zero dollars in statutory damages for a small portion of copied code.

Still, in 2017, the case continues. The latest installment of the saga saw Oracle appealing Google's fair use appeal of the API. They claimed that the district court "repeatedly undermind Oracle's case." An example they use is of where the court sided with Google's claim that Android was limited to smartphones while Java was for PCs. Oracle argues that Java and Android compete as platforms for cars, smart TVs and smartwatches.

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