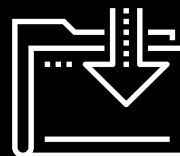


Java

Web Development
Lesson 20.3

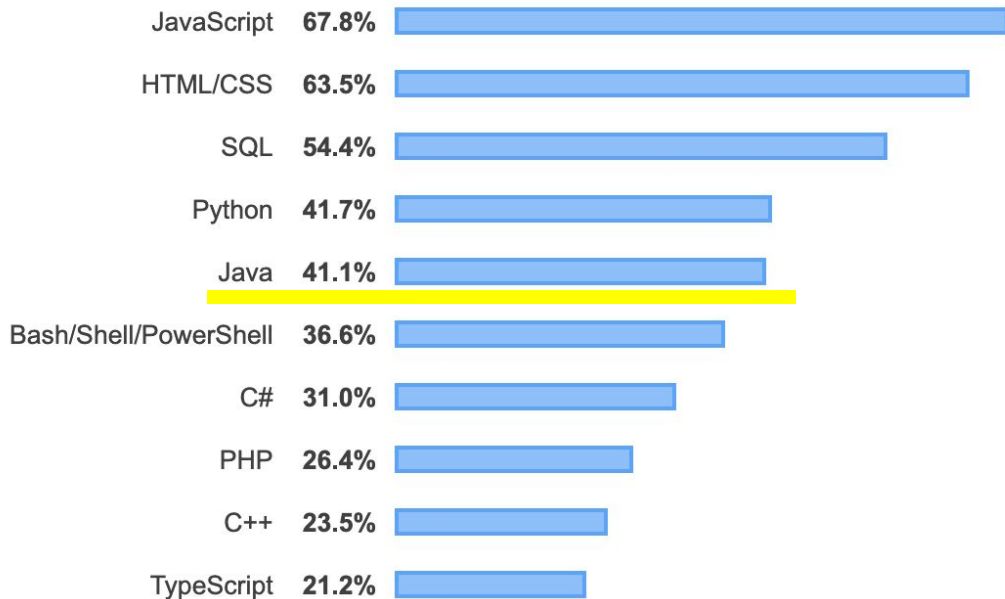


Why Java?

Programming, Scripting, and Markup Languages

All Respondents

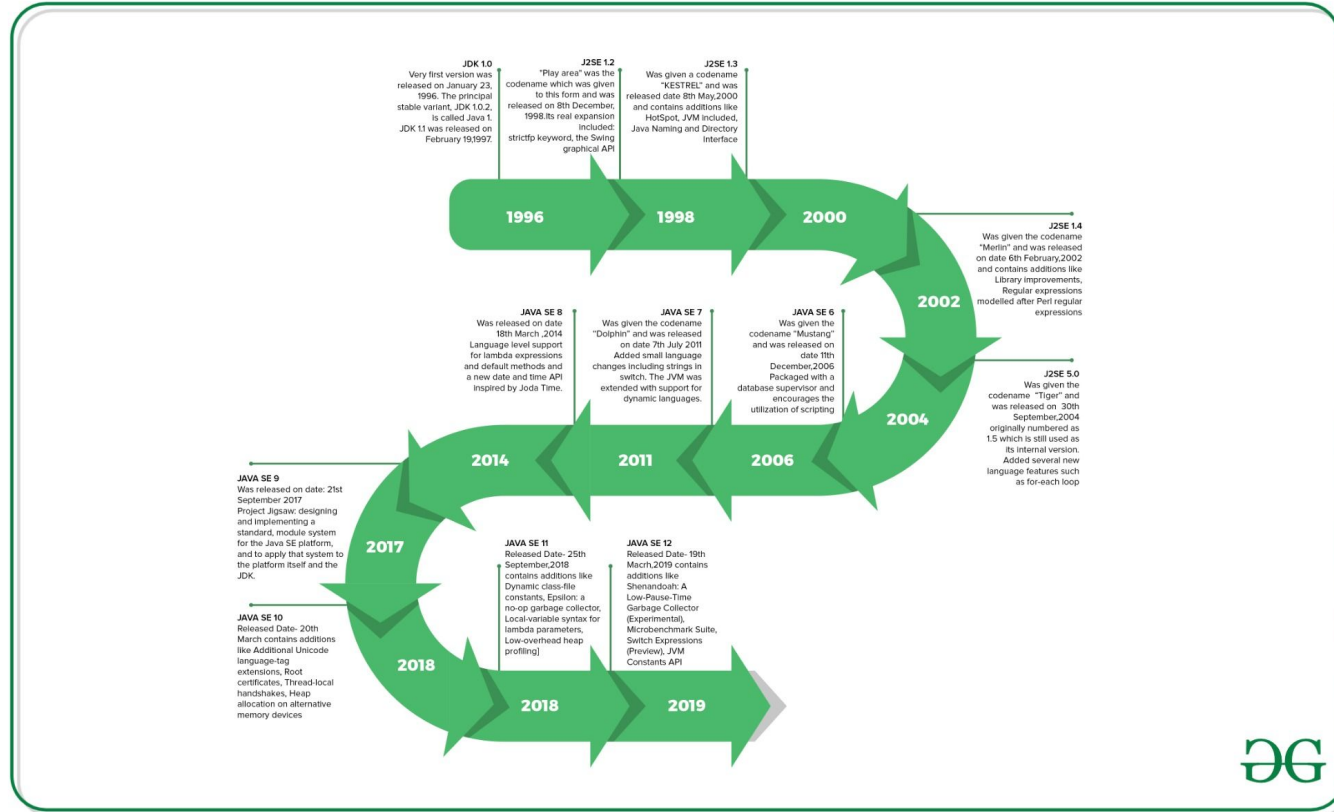
Professional Developers



What can you do with Java?

- Desktop applications
- Video games
- Mobile apps
- Server-side code
- General purpose scripting
- Much more...!

History of Java



Comparison of Languages

Javascript/Node.js	Modern, flexible, niche
PHP	Popular among start-ups and freelancers as well as legacy websites
Python	A small number of websites are written in Python, more common in the scripting/data analytics world
C#	Popular with the Microsoft Stack (.NET, C#, SQL Server)
Java	Popular in the enterprise world

Java Characteristics

- General purpose
- Class-based
- Object-oriented
- Java Virtual Machine(JVM)
 - Write once, deploy anywhere
- Compiled (to bytecode)
- Strictly-typed
- Garbage-collected
- Somewhere between a low-level language and a high-level language

Java Virtual Machine

- “A Java virtual machine (JVM) is a virtual machine that enables a computer to run Java programs as well as programs written in other languages that are also compiled to Java bytecode.”
- Think about HTML/CSS/Javascript
 - Do you have to write a specific website for Mac/Windows/Linux??

Java Virtual Machine

- Oversimplified example:
 - Browser for HTML/CSS/Javascript == JVM for Java

Java - Strictly Typed

- Javascript/PHP are “loosely” typed
 - That is to say you can declare variables of any time the same way
 - `var/let/const/$`
- Java is “strictly” typed
 - You **MUST** declare the type of the variable along with the value
- “**Java** is **strict** about which variable **types** you use”

Java - Strictly Typed

- **String**

- `String name = "eric";`

- **char**

- `char middleInitial = 'd';`

- **int**

- `int age = 31;`

- **double/float/long**

- `double weight = 205.5`

- **boolean**

- `boolean vegan = false;`

Java - Primitives vs. Objects

- Arrays

- `Strings[] names = [];`
- `ArrayList<String> names = new ArrayList<>();`

- Objects

- Class-based
- Usually their own separate files
- Names.java
 - `Names name = new Name("Eric");`

Java - Garbage Collection

- Actually what it's called
- In some languages you have to specifically free up memory
- Java does this for you by attempting to determine when memory is freed up or you can set something to null and it will free up explicitly
 - Usually at the end of a method
 - `myName = null;`

Java - Application Server

- Different than a web server
 - A web server takes requests and sends responses
 - GET www.google.com
 - Response: HTML/CSS/JS so browser can render www.google.com
- Application server
 - Contains a bunch of libraries and frameworks to make development easier
 - We will be using Wildfly

Java - Goal for Today

- Learn the basics of Java
- Write some simple console applications
- Write a servlet REST service

Java - Good News

- There are some similarities between conditionals/loops/switch cases in Javascript/Java
- Eclipse is your best friend and your worst enemy!
 - It will help you along the way by offering suggestions, and will let you know about every error and warning



Questions?