JAVA DEVELOPER ROLES & RESPONSIBILITIES



What does a Java developer do?

A Java Developer is responsible for the design, development, and management of Java-based applications. Because Java is used so widely, particularly by large organizations, the daily roles vary widely, but can include owning a particular application or working on several at one time.

Let's look at the role of a Java developer.

Developer vs engineer?

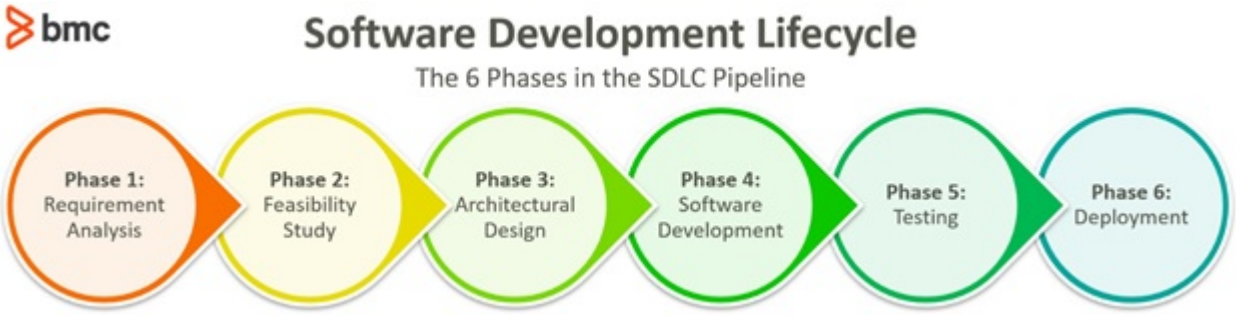
Firstly, are we talking about Java developers or Java engineers? Engineers vs devs is a common debate in the IT world. As a swiftly changing field, many IT experts say titles don't matter – the job description and responsibilities do.

While a Java developer/engineer may be focused solely on app development that uses the Java language, a title like software developer or software engineer could mean working with multiple languages or on specific customer-centric software that may not be Java-based.

In many cases, a Java developer's job description goes well beyond mere computer programming. Many roles require that Java developers:

- Embrace taking part in full software development lifecycles (SDLCs)

- Strive to improve the overall product by researching alternative ways and technologies to achieve the overall goal



(Explore the related role of application developer.)

What is Java?

Before we dive into the specifics of a Java developer role, let's start with the basics. Java is a programming language, widely considered to be one of the most popular in the world. Nine million developers use Java regularly. Not to be confused with JavaScript, Java itself is also a platform for application development, which many programming languages are not.

(Learn why Java & Python are the most popular programming languages.)

In the world of computer programming, Java is one of the older languages. Sun Microsystems developed the language in 1995 based on the syntax of C and C++. Today, Java is part of Oracle.

Java is a concurrent, class-based, and object-oriented programming language. It was initially designed to have as few implementation dependencies as possible, which led to the term "write once, run anywhere" (WORA). This means that compiled Java code can run on all platforms with no need for recompiling the code.

Because of its inherent linguistic design, Java has many benefits that behoove companies:

- **Java-based applications are known for their speed & scalability**. Java's efficient processing speeds are used in software, computer games, and mobile apps. (Indeed, Java is the programming language of choice for Android.)
- **Java is a statically typed language**, so that it brings a much greater degree of safety and stability to its programs compared to other popular languages. This safety and stability is a necessity for companies that require major bandwidth in their software and apps.
- **No talent shortage.** New programmers often start learning Java early because it's easy to break into, though it does take time to master. Due to its ease of use, there are many Java developers for companies to hire.

Based on recent data, Java is used in 2.6% of all websites whose server-side programming is known. While the language doesn't seem to be used by many sites, it is used by sites with high traffic almost exclusively. Well-known websites that rely on Java include LinkedIn, Chase, Salesforce.com, and Indeed.com. Both UPS.com and IRS.gov recently began using Java as well.

Java is an influential language, as many languages have descended from it, including:

- PHP
- Python

- Scala
- JavaScript

Interestingly, PHP, a Java descendant, is used in over 82% of websites whose server-side programming is known.

While many smaller companies may opt to start building programs using a different language, as they grow and require more speed and stability, they often switch to Java programming. Twitter is a perfect example.

Peers & reporting

As a Java developer, you'll likely be part of the IT team within an organization. Depending how your enterprise is structured, there could be a single IT team, or many smaller IT teams that works on individual projects. This second method is often used in Agile environments.

The Java developer may report to a senior project manager or overall IT manager, who then reports up the chain to the CIO or an otherwise senior leader in IT.

When looking for talent, employers often hire Java Developers based on their experience. Job postings list designations, typically:

- Entry-level Java developers
- Mid-level developers
- Senior Java developers

Each of these designations comes with different responsibilities. One Java dev, early in her career, may be assigned to work on program architecture, while a senior-level Java Developer may be responsible for the overall functioning of the project, which includes ensuring seamless architecture and managing teams.

A typical team that a Java Developer works on likely includes some of the following titles:

- Project Managers
- Design Leads
- Software Engineers

Depending on the requirements, some of these roles might overlap or be consolidated into one.

If the Java Developer is senior-level, they may be responsible for team oversight as well as liaising with project stakeholders and beta testers. While not usually part of the core development team, project stakeholders and beta testers have a profound influence on the project, so having a Senior Java Developer as a go-between can be critical to overall success.

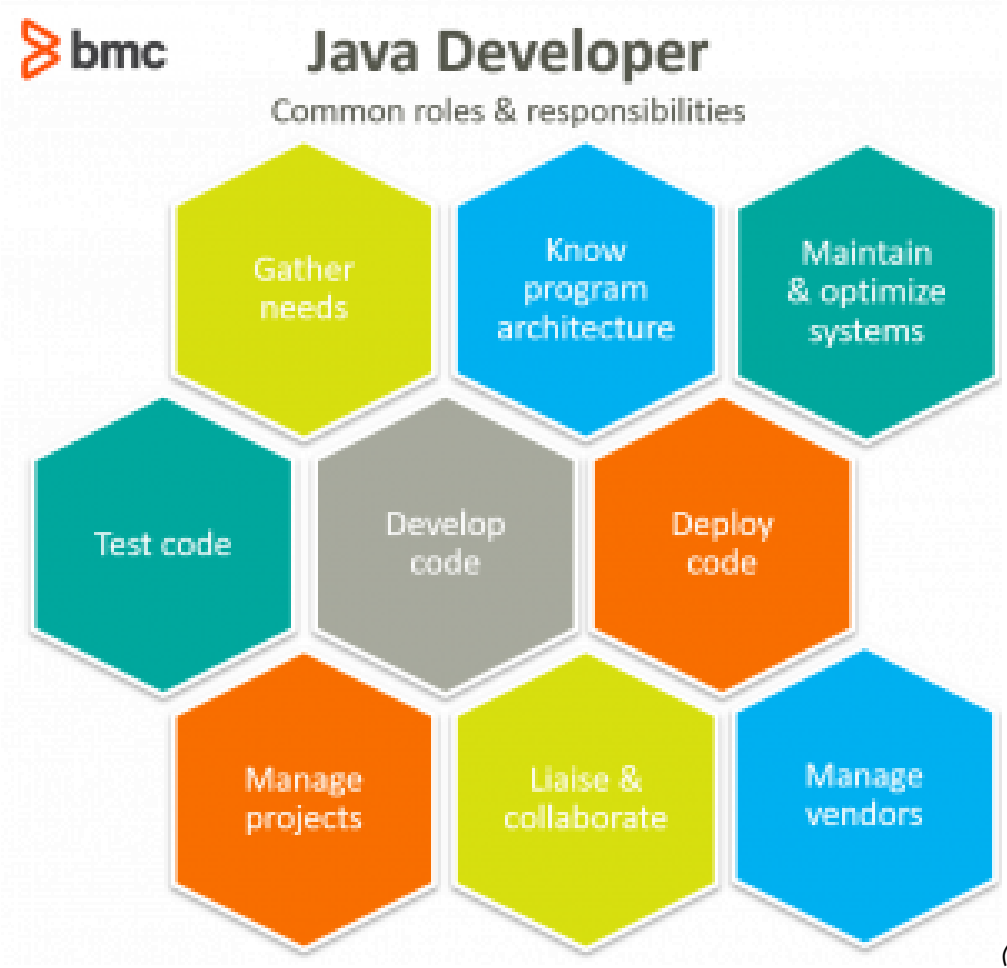
Roles & responsibilities

The roles and responsibilities of a Java developer/engineer will vary greatly depending on the company and specific position. Here are some typical responsibilities:

- Designing, implementing, and maintaining Java applications that are often high-volume and low-latency, required for mission-critical systems
- Delivering high availability and performance

- Contributing in all phases of the development lifecycle
- Writing well-designed, efficient, and testable code
- Conducting software analysis, programming, testing, and debugging
- Managing Java and Java EE application development
- Ensuring designs comply with specifications
- Preparing and producing releases of software components
- Transforming requirements into stipulations
- Support continuous improvement
    - Investigating alternatives and technologies
    - Presenting for architectural review

Now let's look at a more detailed breakdown of job expectations and responsibilities:



(Prepare with these software development best practices.)

Program architecture

Project stakeholders understand the overall vision of what needs to be accomplished and need the skills of a Java Developer to complete their project. Program architecture is a key function that Java Developers provide during this process.

Gather requirements

Before a Java Developer can begin working on a project, they must gather requirements from all involved in the planning process.

This might include working closely with a stakeholder, Project Manager, or Senior Java Developer, and many times includes all three. Discussions likely revolve around prioritizing important tasks first, determining overall scope of work and course of action.

Development

In the development phase, a Java Developer begins the process of writing the code, ultimately resulting in a completed program. The steps to get to this result are typically completed in sections of code called a feature, allowing for testing and amending as needed.

Testing

As each feature is completed, the Java Developer will test it and debug. The goal here is to ensure each feature works the way it is intended.

Deployment

During deployment, code is transferred to a live environment. It should be fully functional for deployment. Any changes have to be made in the testing environment, which requires reverting and redeployment.

To complete the above phases of program architecture development, a Java Developer should be well versed in one or many of the following standard or enterprise skills:

- Enterprise Java Bean (EJB)
- J2EE framework
- XML, Xquery, XSL
- Linux/Unix Windows Platform and Solaris
- Oracle database SQL and JDBC
- Java XML Parsing, Coding
- Service Oriented Architecture (SOA)
- Perl and Python
- I Text for RTF Generation
- Java-based Web services
- Java Servlet Technology

Maintain & optimize systems

The Java Developer's work doesn't end just because the program is complete. Java Developers are expected to maintain active systems and identify opportunities for efficacy within the current software platform. The list of software maintenance includes:

- Providing software updates
- Ensuring all hardware specs are met
- Adding or removing users
- Adding new features
- Preparing End User Documentation and Training
- Maintaining an active testing environment
- Looking for code smells and optimizing code

- Identifying other programs that could enhance current systems

These are some of the ways that a Java Developer will be expected to maintain and optimize a client's current program or enterprise system.

Each of these responsibilities requires the developer to have a unique skill set. For instance:

- Identifying enhancements and bringing them to project stakeholders may require the Java Developer to function more like a salesperson, pitching new ideas to the client.
- Preparing end user documentation and training can require hours of dedicated time using presentation and video editing software. This function of a Java Developer is almost a stand-alone job by itself and may require the developer to work with a team of people to deploy training modules.

A new Java Developer should expect to put just as much time into maintenance and optimization as they do into program architecture, perhaps more.

Project management

While a Java Developer might work with or report to a Project Manager, it's important that they themselves have project management skills. Some of the skills Java Developers should possess include:

- Pre-planning and discovery
- Implementing a working timeline
- Ensuring deadline delivery
- Reporting
- Release planning

These are some very basic project management skills required for the job. There may be more depending on the project and the developer's role on the team.

During Pre-planning and Discovery, a Java Developer should be an instrumental part of the conception of the project, offering insight as to what can be accomplished and when. This will lead to a working timeline and agreed upon deadlines that should be adhered to.

Java Developers can use project management tools to offer reports that show stakeholders a high-level view of how close the project is to completion. Tools like burn-down reporting can provide insight here.

In the Release Planning phase, the project has been tested and debugged. The Java Developer has moved on to thinking about things like the timing of the release and market conditions.

Leading & liaising

A Senior Java Developer will be tasked with several roles and responsibilities that offer ownership of the project and results.

One such responsibility is being a key member of the team who liaises with stakeholders and beta team testers to ensure a seamless end-user experience. By securing feedback from testers and visionaries, the Senior Java Developer can add, remove, and debug features necessary to the project's overall success. They are also viewed as a team leader who may delegate these tasks to

other developers who focus solely on program architecture.

The Senior Java Developer who leads the team must understand the vision, the overall scope, and how to achieve the end result. Then, they must get the right people in place to see the project through to completion and deliver according to scope and deadlines.

Vendor management

Senior Java Developers come up with new ideas and get approval from clients or stakeholders to act on them. This may lead them to become the key contact person for vendors who have services that enhance the current project or offer specific expertise.

Skilled Vendor Management professionals do the following tasks that would also apply to Java Developers in a lead role:

- Conceptualize Vendor Management strategy
- Develop selection criteria and processes
- Prepare an RFQ questionnaire and other bid documents
- Evaluate offers and negotiate with vendors
- Select vendors and maintain relationships
- Employ a strategy for vendor accountability

Java Developers must learn to wear many hats if they plan to forge a career path in the field.

Education requirements

An ideal Java developer can have a range of background requirements. The most common is a B.S. or M.S. in Computer Science, Computer Engineering, or a related field. Hands-on software development experience, particularly in Java, would augment a candidacy; *significant experience could replace the need for formal education*.

Many companies also seek specific experience in:

- Java-based web services
- Relational databases
- SQL and ORM
- Test-driven development (TDD)

Career pathing

There are many certifications that a Java Developer can acquire. These certify both Java language proficiency and roles and responsibilities. For those individuals career pathing in Java development, certifications are important.

Oracle offers a number of ways for a Java Developer to advance their career through certification and training programs. Training is centered around application development and fundamentals of program architecture. Certification has three levels:

- Associate
- Professional
- Master

Certification pathways include Oracle Certified Associate, Java SE 5/SE 6 for entry-level programmers or programming students. Certification courses end with a 115-minute exam that tests skills learned.

The next level of certification is for Oracle Certified Professional Java Programmers, a designation earned when mid-level programmers go through training and complete a 180-minute assessment.

An Oracle Certified Master, Java SE 6 Developer certification requires 12 months of being an Oracle Certified Professional Java Programmer. Applicants must also satisfactorily complete a programming assignment over a 12-month period where they write code for a small business system according to technical requirements. Also, they must submit to a two-hour exam through Oracle.

The future of Java programming

According to our survey results, more organizations are turning to Java as the language of choice to help modernize their applications. Not surprisingly, demand for Java Developers is expected to grow between now and 2024 by up to 19%. The median salary for US-based Java Developers is over $70,000 and goes up depending on career level, experience, and location.

Apart from hiring Java Developers who can support application modernization across industries, organizations must understand that Java is different from other mainframe applications. It runs in Java virtual machines (JVMs), which manages its own resources and can be deployed anywhere. If JVMs consume too many resources, it can impact the performance and availability of other workloads.

With over 20 years as one of the mainstays in programming languages, Java's past is significant, which leads the industry to question its longevity. The latest version, Java 9, is scheduled for a long-awaited release in fall 2017. Java has consistently ranked as the most popular language worldwide for over a decade. If you're getting started, it's a great place to be. If you're an expert, you won't hurt for work. Diversifying your programming language skills could lead to even more lucrative roles, as you're able to program across languages.

Related reading

- BMC DevOps Blog
- Java vs Golang: What's The Difference?
- 10 Must-Read Books for Java Developers
- Top Java Interview Questions—Answered
- What Is a Database Reliability Engineer (DBRE)?
- API/Developer Portals: How To Create Great API Portals