

Spring Framework Most Asked Interview Questions and Answers

What is Spring?

Spring is a Java framework that helps in building enterprise applications. It provides support for dependency injection, aspect-oriented programming, and various other features.

What are the advantages of the Spring framework?

Spring simplifies development, promotes good coding practices, enables modular development, provides easy testing, and offers integration with other frameworks.

What are the modules of the Spring framework?

Spring Framework is divided into Core Container, Data Access/Integration, Web, AOP, Instrumentation, Messaging, and Test modules.

Difference between Spring and Spring Boot?

Spring is a framework for building Java applications, while Spring Boot is a tool that simplifies the setup and configuration of Spring-based applications.

What is IOC and DI?

IOC (Inversion of Control) means objects do not create other objects; instead, they are provided with their dependencies. DI (Dependency Injection) is a way of implementing IOC.

What is the role of IOC container in Spring?

The IOC container manages the instantiation and wiring of application objects, thus promoting loose coupling and allowing for easier testing and maintenance.

What are the types of IOC container in Spring?

There are two types: BeanFactory (basic container with lazy initialization) and ApplicationContext (more advanced container with additional features).

Difference between Constructor Injection and Setter Injection?

Constructor Injection injects dependencies through a constructor, while Setter Injection uses setter methods to inject dependencies after the object is instantiated.

What are the different bean scopes in Spring?

Singleton (one instance per container), Prototype (a new instance each time requested), Request (one instance per HTTP request), Session (one instance per HTTP session), and Custom (user-defined scope).

In which scenario will you use Singleton and Prototype scope?

Singleton scope is suitable for stateless services or shared resources, while Prototype scope is useful for stateful objects or when a new instance is needed each time.

Maven Most Asked Interview Questions and Answers

What is Maven and what problem does it solve?

Maven is a build automation tool used primarily for Java projects. It simplifies and standardizes the build process, manages dependencies, and provides project structure conventions.

What is a POM file in Maven?

POM (Project Object Model) is an XML file that contains project information and configuration details required by Maven for building the project. It includes dependencies, plugins, and other settings.

What is the difference between compile and runtime dependencies in Maven?

Compile dependencies are required for compiling the code, while runtime dependencies are only needed during execution. Maven manages these dependencies differently based on their scope.

Explain the Maven Lifecycle Phases.

Maven has three built-in lifecycle phases: clean, default (or build), and site. Each phase is made up of a sequence of stages (or goals), which are executed in a specific order.

What is a Maven Repository?

A Maven repository is a directory where all project jars, library jar, plugins, or any other project-specific artifacts are stored and can be easily used by Maven.

What is a Maven Plugin?

Maven plugins are pieces of code that provide custom goals to extend Maven's capabilities. Plugins can be used to perform specific tasks during the build process.

What is the purpose of Maven Profiles?

Maven Profiles allow developers to customize builds for different environments or purposes. They can be used to activate or deactivate certain settings, dependencies, or plugins based on specific conditions.

What is Maven Archetype?

Maven Archetype is a template or a blueprint used to generate new projects. It helps in creating projects with predefined configurations, folder structures, and dependencies.

What is transitive dependency in Maven?

Transitive dependencies are dependencies of dependencies. When you include a dependency in your project, Maven automatically includes its transitive dependencies as well.

How do you exclude dependencies in Maven?

You can exclude dependencies using the <exclusions> element within the <dependency> tag in the POM file. This allows you to exclude specific transitive dependencies that you don't need.

Git Most Asked Interview Questions and Answers

What is Git and how does it differ from other version control systems?

Git is a distributed version control system that allows multiple developers to collaborate on a project. Unlike centralized VCS, Git stores the entire history of the project locally.

Explain the difference between Git clone, pull, and fetch.

git clone creates a local copy of a remote repository. git pull fetches changes from the remote repository and merges them into the current branch. git fetch fetches changes from the remote repository but does not merge them.

What is a Git repository?

A Git repository is a data structure that stores metadata for a project, including files, directories, commit history, branches, and tags. It allows developers to track changes, collaborate, and manage versions of their code.

What is a Git commit?

A Git commit is a snapshot of changes made to the repository at a specific point in time. It includes a unique identifier, author, timestamp, and a message describing the changes.

What is a Git branch?

A Git branch is a lightweight movable pointer to a commit. It allows developers to work on new features or bug fixes without affecting the main codebase. Branches can be merged or deleted once their purpose is served.

What is a Git merge?

Git merge combines changes from one branch into another. It creates a new commit that incorporates the changes from the specified branch into the current branch.

What is a Git conflict?

A Git conflict occurs when two or more branches have made changes to the same part of a file, and Git is unable to automatically merge the changes. Resolving conflicts involves manually editing the affected files to reconcile the differences.

What is a Git remote?

A Git remote is a reference to a repository hosted on a server. It allows developers to interact with the repository, fetch changes, and push commits.

Explain Git branching strategies like Gitflow and GitHub Flow.

Gitflow is a branching model that defines a strict branching strategy with long-lived branches for development, release, and hotfixes. GitHub Flow is a simpler approach with short-lived branches focused on continuous delivery.

How do you revert a commit in Git?

You can revert a commit in Git using the `git revert` command followed by the commit hash you want to revert. This creates a new commit that undoes the changes introduced by the specified commit.