What is Jenkins?

How to use Jenkins?

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What is Jenkins?

Jenkins is an open-source automation server widely used for continuous integration (CI) and continuous delivery (CD) processes in software development.

What is CI?

It is a software development practice that emphasizes frequently integrating code changes from multiple developers into a shared repository.

What is the need of CI?

The primary goal of CI is to automate the process of merging code changes and ensuring that these changes are regularly integrated into the main codebase.

What is CD?

Continuous Delivery - deploying code changes to staging or pre-production environments after passing through the CI process.

Note - Usually production deployment process is not automated, but the code should be ready to be deployed. Hence Automated Tests are used to ensure stability of the application. However Manual Tests can also be incorporated in this practice.

What are key advantages of using CD?

Automation: Automating the entire software delivery pipeline, including build, test, deployment, and release processes. This automation helps in reducing manual interventions

Version Control and Configuration Management: Utilizing version control systems (e.g., Git) and robust configuration management practices to track changes, manage configurations, and facilitate rollback if needed

Collaboration and Feedback: Promoting collaboration among development, testing, and operations teams to ensure smooth and reliable software delivery

Now as we know what is Jenkins, CI & CD But what is the purpose of Jenkins in this process?

1) Jenkins facilitates to schedule jobs based on different events like code commits or merges. For this Jenkins should be setup with your version control system.
2) Now on the basis of these tests, different tests can be executed. But all configurations for how, when tests will be executed are created inside Jenkins jobs. We can also call them Batch Jobs
3) Using different environments, different tests and builds can be executed using Jenkins
4) We can use Jenkins jobs to email reports and debug code if in case jobs fail

What different types of jobs can be used in Jenkins?

1) *Poll SCM*: Jenkins can monitor source code repositories (like Git, SVN) for changes at regular intervals. When new commits are detected, it triggers the build jobs associated with those repositories.
2) *Build Periodically*: Jobs can be scheduled to run periodically based on predefined time intervals. For example, a job can be set to run every hour, every day, or at specific times.
3) *Parameterized Builds*: Jenkins supports parameterized builds, where jobs can be triggered with parameters (such as branch names, build numbers, user inputs).
4) *Dependency-Based Triggers*: Jenkins supports triggering jobs based on dependencies, allowing downstream jobs to be triggered automatically when upstream jobs complete successfully.

What are plugins in Jenkins?

Plugins in Jenkins are add-ons or extensions that enhance the functionalities and capabilities of the Jenkins automation server.

Different types of plugins that can be used with Jenkins:-

Git Plugin: Enables integration with Git repositories.

Pipeline Plugin: Provides support for defining continuous delivery pipelines as code (Jenkinsfile).

Docker Plugin: Integrates Jenkins with Docker for container-based builds and deployments.

Slack Notification Plugin: Sends build notifications to Slack channels.

How to setup Jenkins in your local system?

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Interview questions for Jenkins —>

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Interview questions for Jenkins —>

1) What is Jenkins, and how does it facilitate Continuous Integration (CI)?

   Ans: provided in previous slides

2) How do you trigger a Jenkins job? Explain different triggering options.

   Ans: provided in previous slides

3) What are the benefits of using Jenkins for CI/CD processes?

   Ans: provided in previous slides

4) Explain the difference between parametrized and non-parametrized builds in Jenkins.

   Ans: provided in previous slides

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