Jenkins Interview Questions & Answers

1. **What is Jenkins?**
   - Jenkins is an open source automation tool written in Java with plugins. It is mainly use for Continuous Integration purpose.
   - Jenkins is used to build and test your software projects continuously making it easier for developers to integrate changes to the project and making it easier for users to obtain a fresh build.
   - It also allows you to continuously deliver your software by integrating with a large number of testing and deployment technologies.

2. **What is Continuous Integration?**

   Since every Commit to the source code an auto build is triggered and then it is automatically build, test and deployed on the test server.

   If there is a bug in the code then the developers only have to check the last commit made to the source code.

3. **Explain Jenkins Life cycle?**
   - First, a developer commits the code to the source code repository. Meanwhile, the Jenkins server checks the repository at regular intervals for changes.
   - Soon after a commit occurs, the Jenkins server detects the changes that have occurred in the source code repository. Jenkins will pull those changes and will start preparing a new build.
   - If the build fails, then the concerned team will be notified.
   - If built is successful, then Jenkins deploys the built in the test server.
   - After testing, Jenkins generates a feedback and then notifies the developers about the build and test results.
   - It will continue to check the source code repository for changes made in the source code and the whole process keeps on repeating.
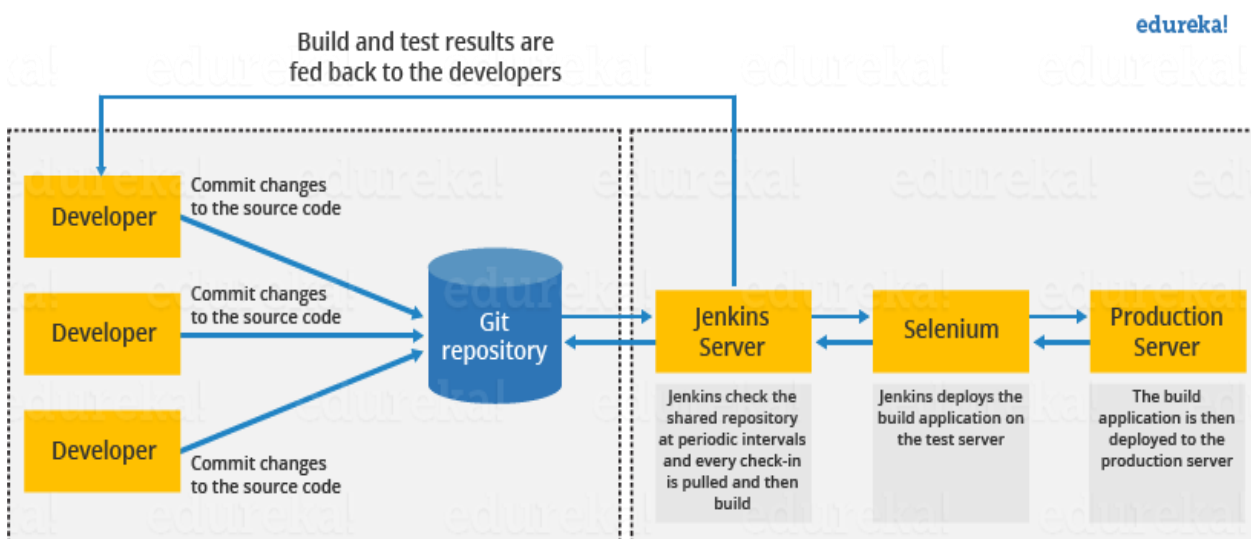
4. **What are the advantages/benefits of using Jenkins?**
   - At integration stage, build failures are cached.
   - For each change in the source code an automatic build report notification is generated.
   - To notify developers about build report success or failure, it is integrated with LDAP mail server.
   - Achieves continuous integration agile development and test-driven development.
   - With simple steps, maven release project is automated.
   - Easy tracking of bugs at early stage in development environment than production.
   - If build fails no need to search entire code, we know which commit has an error.

5. **Mention some of the useful plugins in Jenkins?**
   - Maven 2 project
   - Git
   - Role-based strategy
   - Rebuild
   - Backup
   - Next build number
   - Green Balls
   - SonarQube
   - Build pipeline
   - Delivery pipeline

6. **Mention what are the commands you can use to start Jenkins manually?**
   # service   jenkins   start
   # service   jenkins   stop
   # service   jenkins   restart
   (or)
   # systemctl start jenkins
   # systemctl stop jenkins
   # systemctl restart jenkins

7. **How do you restart jenkins without disturbing the running jobs?**
   Using safeRestart. In jenkins URL add '/safeRestart' to safely restart the jenkins.
   'safeRestart' will wait to finish all the running jobs and then restarts jenkins.
   '/restart' will terminate all the running jobs and restarts jenkins.

8. **What are the steps in while creating Jenkins job?**
   General, Source code Management, Build trigger, Build, Post-Build

9. **How can you decide the no. executors?**
   No. Executors is number of parallel jobs, based on your requirement If you want to jenkins should run at max 5 parallel jobs we can give the number at No. executors.
   - Manage Jenkins → Configure system → Number of parallel jobs: 5

10. **Where did your plugins come from Jenkins?**
   Plugins downloads from plugins.jenkins.io site

11. Plugins website down what will you do and how can you download plugins?

In general companies maintain one repository, so we can download from that repository. If it is not their then we can download from any other website and upload in to company's repository then add the plugin.

12. What is difference between Build periodically and Poll SCM?

Build periodically - Builds Periodically will trigger builds as per the schedule, even if you haven't changed anything.

Poll SCM – Poll SCM will check for changes before triggering any build, if there are changes to the previous version than only build will be triggered. Otherwise it won't the build.

13. Explain how do create a backup and copy files in Jenkins?

Jenkins saves all the settings, build artefacts and logs in its home directory so when we want to create backup of your jenkins setup, just copy the jenkins home directory and rename the directory.

Otherwise install the **Backup plugin** by using that plugin backup the jenkins.

If we can automate the backup using the **thin_backup plugin**. Using this plugin, we can schedule the backup.

14. How will you secure Jenkins?

- Ensure global security is on.
- Ensure that matrix based is enabled to fine tune access.
- Automate the process of setting rights/privileges in Jenkins with custom version-controlled script.
- Limit physical access to Jenkins data/folders.
- Periodically run security audits on same.

15. Explain how you can deploy a custom build of a core plugin?

Below are the steps to deploy a custom build of a core plugin:

- Stop Jenkins.
- Copy the custom HPI to **$Jenkins_Home/plugins**.
- Delete the previously expanded plugin directory.
- Make an empty file called **<plugin>.hpi.pinned**.
- Start Jenkins.

16. How will you give the customized/custom build numbers in jenkins?

By using Next_Build_Number plugin, we can change the build number of a jenkins.

- We can only change the build numbers for failed builds (Not for success builds).

17. Why we use Nodes in jenkins?

- Single jenkins server can't handle the entire workload of large and heavier build projects.
- Sometimes you might need several different environments to test your builds. This can't be done by a single server.

18. How do you send the notifications whether build fails or success?

First Configure Email Notification in Configure system under Mange Jenkins.

Email notifications are configured in job configuration under post-build section.

19. How do you manage Users? How do you create particular project-based authentication in jenkins?

We can do in two ways. 'Role-based strategy' and 'Project based' authentication.
- Can manage user's permissions. (like view, create, modify, delete a job) (restricting user to access 'Manage Jenkins' and etc.)
- Creating global roles, such as admin, job creator, anonymous, etc. (like Overall, Slave, Job, Run, View and SCM permissions on a global basis)
- Creating project roles. And assigning the roles to users.
- Can restrict user to access particular project/job.

20. How to migrate a jenkins job to new jenkins server?
- Copy a job from one jenkins server to another jenkins server corresponding job directory.
- Then you have to 'reload config' in 'Manage Jenkins'

21. How many environments are there in your current project?

Dev, Test, Pre-production and Production.

22. Is it possible to exchange jobs between two different jenkins?

Yes, possible. By using 'Job Import' plugin we can exchange the job between two jenkins. Just we need to provide the source instance (Jenkins) URL. We can import a particular job and all the jobs and also views.

23. Explain role-based strategy plugin?

By using role-based strategy we can create 'Global roles', 'Project roles' and 'Slave roles' and assigning roles to users.
- Global roles: Such as admin, Job creator, anonymous, etc. allowing to set Overall, slave, job, Rn, View and SCM permissions on a global basis.
- Project roles: Allowing to set only Job and Run permissions on a project basis.
- Slave roles: Allowing to set node-related permissions.

24. What is the default session timeout value in Jenkins? How can you increase it?

25. What are the two components Jenkins is mainly integrated with?

According to me Jenkins is mainly integrated with the following:
- Version Control system like GIT, SVN.
- Build tools like Apache Maven

26. Suppose I have two projects in my jenkins both are of different Java versions. How can I build the projects when both projects are of different versions and only one version of java is configured in Global tool configuration?

You can configure multiple java versions in Global Tool configuration to support different versions of projects.

27. How your jenkins come to know which version to choose when two versions of Java are configured?

When you start build jenkins will ask you to choose on which version of Java the build/job has to run.

28. Can we access jenkins in command mode?

Yes, under 'Manage Jenkins' we have 'Jenkins CLI' to access jenkins in command mode.

29. How do you change the Jenkins Home Directory?

First copy entire Jenkins home directory to which directory you want to make a new home directory, next Update that directory in /etc/sysconfig/jenkins file.

30. Which plugin is required to deploy a .war file into application server?

'Deploy to Container Plugin'

31. What is a CI CD Pipeline?

- Jenkins Pipeline is a suite of plugins which supports implementing and integrating continuous delivery pipeline into jenkins.
- A continuous delivery pipeline is an automated expression of your process for getting software from version control.

32. What is the difference between Free-style, pipeline project?

- The difference is that in pipeline we have the ability to break our jobs out into different stages and we have whatever stage we'd like to represent the process we use to deploy software and of course, if anything goes wrong, we can see which stage had the problem.
- The main difference between any job and a Pipeline Job is that the Pipeline Scripted job runs on the Jenkins master, in the Freestyle job everything is executed in the agent, but for the Scripted Pipeline Job, the pipeline code is translated in the master to atomic commands that are sent to the agents.

33. What is the difference between Maven, Ant and Jenkins?

Maven and ANT are built tools but main difference is that Maven also provides dependency management, standard project layout and project management. On difference between Maven, ANT and Jenkins, later is a continuous integration tool which is much more than build tool.

34. What is a Jenkins File?

A Jenkins File is a text file that contains number of stages of what we are doing and tasks. That stages are like git checkout, build, test, code analysis and deploy.

35. Explain about 'build pipeline' in jenkins?

This plugin provides a Build Pipeline View of upstream and downstream connected jobs that typically form a build pipeline.

36. What is upstream and downstream projects in jenkins?

Nothing but dependency of jobs.

- Upstream: if we set job1 is upstream for job2. Then job1 must be built to build job2.
- Downstream: if we set job2 is downstream in job1. Then if we build job1 then automatically job2 will also build.
- > In 'Build triggers' section we set the upstream projects.
- > In 'Post-build' section we set downstream projects.

37. How to re-execute a parameterized build without entering the parameter value when the job fails?

'Rebuild plug-in' is allows the user to rebuild a parametrized build without entering the parameters again.

38. How can you pass parameters from one job to another job?

When creating new/existing job go to --> General tab --> enable 'This project is parameterized' --> select 'Run parameter' from drop down --> in project tab select the project name (from which project it should take the parameters).

39. How master system will communicate to slave system?

using 'slave.jar' file in slave system. This file must be present in slave to communicate.

40. How do you make a job to run only on slave node?

Go to job configuration tab --> under 'General' section enable 'Restrict where this project can be run' then we provide the lable name of the node.

41. How do you make all the jobs to be run only on slave node?

Go to -->'Manage jenkins' --> 'configure system' --> at 'Labels' mention the node system label.

42. What is Quite period in Jenkins?

Time gap between the builds. In seconds.

43. What is SCM Checkout retry count?

It will check the code in SCM tool twice in between the builds, if the value is 2.

44. How do you delete old builds?

While creating new/existing job go to --> General tab --> enable 'Discard old Builds' checkbox. Here we can set 'Days to keep builds' and 'Max # of builds to keep'

45. Which plugins you are using?

Role-based strategy - creating global roles, project roles and slave roles.

Backup -

Thin Backup   -

Green Ball - Green ball plugin indicates when job will successfully have completed it will show green color instead of blue.

Build Pipeline -

Delivery Pipeline -

Next Build Number -

Rebuild -

SonarQube -

Parameter trigger -

Disk Usage -