Jenkins Interview Preparation – 1

Jenkins Basics & Fundamentals

1. What is Jenkins, and why is it used in DevOps?

    - Jenkins is an open source Devops tool that is used for continuous integration and continuous delivery (CI/CD) and to create pipeline for projects such as creating automated pipeline projects for easy creating Devops.
    - Where we can use plugins system to work with the integration of different tools and integrate process

2. What are the key features of Jenkins?

    - They are open source and free to use
    - They are used for continuous integration and continuous delivery of project
    - We can use plugin system to integrate certain tools into the Jenkins tool
    - Used to create automated pipeline for easy process in project

3. How does Jenkins help in CI/CD?

    - By creating Automated pipelines using groovy programming , to create an pipeline to automate the process of the project and automate the process from pulling to pushing the code from any repo and hosting them , when the version of the code changes they are again pulled and the application is hosted

4. What are the different ways to install Jenkins?

    - Using EC2 instance and ubuntu OS
    - Direct download of Jenkins
    - Container installation

5. What is a Jenkins job? How do you create one?

    - Jenkins's job is used to create a process, where we use to create a building code, running test for application and can be used to create CI/CD pipeline
    - Type of jobs present in Jenkin:
        - Freestyle project
        - Pipeline project
        - Multi branch project
        - Maven project

Jenkins Pipeline & Automation

6. What is a Jenkins pipeline? How is it different from a freestyle job?

   - Free style jobs are used for simple task purpose where they are limited with customization and they are not reusable and they are stored in Jenkins itself
   - Pipeline jobs are used to create automated pipelines and they are having a lot of configurations to deal with and they are reusable and are stored in an repo

7. What are the types of Jenkins pipelines? Explain **Declarative** vs **Scripted** pipelines.

   - Types of pipelines are Declarative Scripted
   - Declarative pipelines are easy to read and have an structured way of putting up code
   - Scripted is an advance way of coding where we use groovy programming language and they are mostly used for dynamic way of coding

8. Can you explain how to write a simple **Declarative Jenkinsfile**?

   - For example, u need to pull an repo from the GitHub repo

```
pipeline{

    agent any

    stages {

        stage (“Checkout code”) {

            git branch “main”, url: ‘<url>’

    }

}

}
```

   - The above code is used to pull the repo from GitHub into Jenkins workspace

9. What are stages and steps in a Jenkins pipeline?

   - Stages are used to give out the process that is going to happen in the context like:
   - 1. Checkout code – used to pull the repo from GitHub
   - 2. Building , deploying images and container – for docker

- Steps are like an solo task that are happening inside the stages like :
- 1. Sh commands – sh ‘ docker build <imagename>’
- 2. Echo commands - echo ‘building image’
- 3. Git commands – git branch “main” , url: ‘<url>’

10. How do you trigger a Jenkins pipeline automatically?

- Build triggers
- Creating Webhooks GitHub
- We can use schedule builds to pipelines build for periodic task

Jenkins Integration with DevOps Tools

11. How do you integrate Jenkins with Git/GitHub/GitLab?

- Using plugins we can install git into Jenkins, there git related plugins are downloaded automatically when you install suggested plugins in Jenkins

12. What is a Webhook in Jenkins? How does it work with GitHub?

- Webhook is an mechanism that automatically triggers pipeline when there is an change in the version of the application this is done to eliminate to purpose of manual builds present in the process

13. How can Jenkins be used with Docker for containerized deployments?

- Jenkins can be used to build docker images and docker containers using pipeline script where the process is
    - First, we have to pull the code from the git hub using the URL
    - Second, we have to create a docker image so we have to install docker in the same instance as the Jenkins and allow all permissions to it
    - Third we have to push the repo from the Jenkins workspace into the docker image
    - Fourth we have to deploy the container at any port number you want by using port mapping

Jenkins Configuration & Best Practices

16. How do you manage credentials securely in Jenkins?

- Adding credentials are present in the manage Jenkins tab and in security category

- Where the types of Jenkins creds are:
- 1. Username and password
- 2. Secret text
- 3. Secret file
- 4. Certificate

17. What is an **Agent** in Jenkins, and why is it important?

- Agents are also known as the nodes are used to run builds,stages,deployment task in Jenkins , there node are directly maintained by the Jenkins console
- There agents are mostly used for the purpose of parallel execution where they help in the process of CI CD pipelines
- There are types of agents such as static agents and dynamic agents
- Static are like predefined agents for the process of builds in Jenkins
- Dynamic agents are like creating on demand such as docker , K8'S etc

18. How do you scale Jenkins for large projects in an enterprise environment?

- Scale up the build process by building multiple build stage for distributed building of scripts
- Integrating other tools to scale up the build and maintain them
- Parallel execution in the same build for example running build and testing stage in the same stage for parallel execution

19. How do you set up Jenkins to send notifications (Email, Slack, etc.)?

- Slack is used to create an real time notification of the build number and build status in Jenkins
- Where we have install the slack plugin in the manage plugin tab and then install them from the plugins tab
- Now we have to go the system in the same manage plugins tab and go to slack option and we have to make configuration
- Before that we have to create an slack app where we get the authentication to integrate them to Jenkins
- And now create an pipeline code to initialise the process
- And now check for the real time build notification