7 Days DevOps Deloitte Day 3 Test 2

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1. **What is the purpose of creating a custom Docker image rather than using a pre-built one from Docker Hub?**
   a) To improve the performance of the container.
   b) To ensure that only required programs and libraries are included.
   c) To automatically scale containers during runtime.
   d) To enable the use of interactive commands in the image.
   Answer: b) To ensure that only required programs and libraries are included.
   Explanation: A custom image allows you to include only the necessary dependencies, reducing size and security risks.

2. **Which of the following commands allows you to download the code from a GitHub repository to your local system?**
   a) git branch
   b) git clone
   c) git push
   d) git commit
   Answer: b) git clone
   Explanation: The `git clone` command downloads the entire repository to your local machine.

3. **What is the purpose of the FROM instruction in a Dockerfile?**
   a) To define the base image for the container.
   b) To specify the working directory inside the container.
   c) To expose the application port.
   d) To copy files from the host to the container.
   Answer: a) To define the base image for the container.
   Explanation: The `FROM` instruction specifies the base image to build the custom image upon.

4. **Which GitHub operation is used to upload local changes to a remote repository?**
   a) git fetch
   b) git push
   c) git commit
   d) git merge

Answer: b) git push

Explanation: The `git push` command uploads your local changes to the remote repository.

5. **In Jenkins, you have configured a pipeline to clone code, build a Docker image, and push it to Docker Hub. The pipeline fails when running the Docker commands. What could be the issue?**
   a) Jenkins is unable to access the GitHub repository.
   b) The Jenkins user does not have sufficient privileges to execute Docker commands.
   c) The Dockerfile is missing required dependencies.
   d) Docker is not installed on the Jenkins host.
   Answer: b) The Jenkins user does not have sufficient privileges to execute Docker commands.
   Explanation: Jenkins requires permissions to execute Docker commands, often achieved by adding the Jenkins user to the Docker group.

6. **Which Jenkins feature allows you to automate the process of triggering a pipeline when changes are detected in a GitHub repository?**
   a) Build Periodically
   b) Poll SCM
   c) Pipeline Stage View
   d) Git Webhooks
   Answer: b) Poll SCM
   Explanation: Poll SCM periodically checks for changes in the repository and triggers builds if changes are detected.

7. **In a Jenkins pipeline, what is the primary purpose of the "Test Stage"?**
   a) To build the application.
   b) To validate the application functionality and identify issues.
   c) To deploy the application to the production environment.
   d) To store the application artifacts in a repository.
   Answer: b) To validate the application functionality and identify issues.
   Explanation: The Test Stage ensures the code behaves as expected by running tests.

8. **What does Jenkins store the code it downloads from an SCM in?**
   a) Docker container
   b) Workspace
   c) Build logs

d) Cache directory

Answer: b) Workspace

Explanation: The workspace is a directory where Jenkins stores project files and performs builds.

9. **In a Jenkins CI/CD pipeline, which tool can be used to analyze code for bugs and security vulnerabilities during the QA stage?**
   a) Maven
   b) Docker
   c) SonarQube
   d) Kubernetes

   Answer: c) SonarQube

   Explanation: SonarQube is a popular tool for static code analysis and identifying vulnerabilities.

10. **How can Jenkins ensure a pipeline job runs automatically every 5 minutes?**
    a) Use the "Build Now" option.
    b) Configure the Poll SCM option with the syntax `H/5 * * * *`.
    c) Add a webhook from GitHub.
    d) Schedule the job using the "Build Periodically" option with `H/5`.

    Answer: b) Configure the Poll SCM option with the syntax `H/5 * * * *`.

    Explanation: The cron-like syntax `H/5 * * * *` in Poll SCM ensures the pipeline checks for changes every 5 minutes.

11. **What is the difference between Continuous Delivery and Continuous Deployment in Jenkins pipelines?**
    a) Continuous Delivery requires manual approval for production deployment, while Continuous Deployment automates it.
    b) Continuous Delivery automates testing, while Continuous Deployment automates building.
    c) Continuous Delivery is used only for testing environments, while Continuous Deployment is used for production.
    d) Continuous Delivery integrates with Docker, while Continuous Deployment integrates with Kubernetes.

    Answer: a) Continuous Delivery requires manual approval for production deployment, while Continuous Deployment automates it.

    Explanation: Continuous Delivery allows manual intervention for production, while Continuous Deployment fully automates deployment.

12. **If a Jenkins pipeline stage fails due to test errors, what is the best course of action?**
    a) Ignore the failure and proceed to deployment.
    b) Review the test logs and notify the developers to fix the issues.
    c) Automatically rollback to the previous stable build.
    d) Restart the pipeline without fixing the tests.
    Answer: b) Review the test logs and notify the developers to fix the issues.
    Explanation: Test failures should be analyzed and fixed to ensure the application quality and stability.

13. **Which Jenkins feature can you use to trigger a pipeline job automatically when new code is pushed to a GitHub repository?**
    a) Build Periodically
    b) Git Webhooks
    c) Pipeline Polling
    d) Cron Jobs
    Answer: b) Git Webhooks
    Explanation: Git webhooks send a notification to Jenkins immediately after new code is pushed, triggering the pipeline.

14. **In Jenkins, how can you run a specific command as part of a pipeline job when Jenkins does not have the required permissions?**
    a) Add the command to the Dockerfile.
    b) Add the Jenkins user to the sudoers file.
    c) Use a different SCM for the pipeline.
    d) Create a separate Jenkins project with admin privileges.
    Answer: b) Add the Jenkins user to the sudoers file.
    Explanation: Adding the Jenkins user to the sudoers file grants it the necessary permissions to execute restricted commands.

15. **If a Jenkins job fails while pushing a Docker image to Docker Hub, what could be a likely reason?**
    a) The Docker image build process was incomplete.
    b) Jenkins was not authenticated with Docker Hub.
    c) The Dockerfile used is incompatible with Docker Hub.
    d) Docker Hub does not support automated pushes.
    Answer: b) Jenkins was not authenticated with Docker Hub.
    Explanation: Jenkins must authenticate with valid credentials to push Docker images to Docker Hub.

16. **What is the primary purpose of the Poll SCM feature in Jenkins?**

    a) To manually trigger a build when changes are detected in the code repository.

    b) To schedule regular builds at fixed intervals.

    c) To automatically trigger builds when changes are detected in the SCM.

    d) To fetch only specific branches from the repository.

    Answer: c) To automatically trigger builds when changes are detected in the SCM.

    Explanation: Poll SCM detects changes in the source code repository and triggers builds accordingly.

17. **During a CI/CD pipeline, how can Jenkins dynamically retrieve and use the IP address of a running container?**

    a) By using `docker exec` to log into the container.

    b) By parsing the output of the `docker inspect` command using a script.

    c) By storing the container logs in Jenkins workspace.

    d) By enabling automatic IP assignment in Docker settings.

    Answer: b) By parsing the output of the `docker inspect` command using a script.

    Explanation: `docker inspect` retrieves container metadata, including its IP address, which can be parsed dynamically.

18. **Which of the following best describes a "Stage" in a Jenkins pipeline?**

    a) A point where manual approval is required.

    b) A specific step in the pipeline process, such as build, test, or deploy.

    c) A script for automating the deployment process.

    d) An isolated environment where containers run.

    Answer: b) A specific step in the pipeline process, such as build, test, or deploy.

    Explanation: Stages represent distinct steps or phases of the CI/CD pipeline.

19. **Why is it important to have a "QA Stage" in a CI/CD pipeline?**

    a) To manually test the application functionality.

    b) To analyze the quality of code and identify potential security vulnerabilities.

    c) To notify developers about build failures.

    d) To deploy the application to the staging environment.

Answer: b) To analyze the quality of code and identify potential security vulnerabilities.

Explanation: The QA stage ensures the application is free of bugs and security risks before deployment.

20. **What is the primary purpose of using a private container registry like Artifactory or AWS ECR in a Jenkins pipeline?**
    a) To automatically scale containers in production.
    b) To store Docker images or artifacts securely with restricted access.
    c) To speed up the build process by caching dependencies.
    d) To manage Kubernetes pods.
    Answer: b) To store Docker images or artifacts securely with restricted access.
    Explanation: Private registries like Artifactory or AWS ECR securely store images with access controls.