7 Days DevOps Deloitte Day 3 Test 1

Date 05-01-2025

1. **Which command is used to build a custom Docker image from a Dockerfile?**
   a) docker create
   b) docker run
   c) docker build ✅
   d) docker compile
   Answer: `docker build` is used to create a custom Docker image from a Dockerfile.
2. **What is the purpose of the FROM instruction in a Dockerfile?**
   a) To specify the base image for the container. ✅
   b) To expose the application port.
   c) To copy files to the container.
   d) To define the default command to run.
   Answer: The `FROM` instruction defines the base image for the new Docker image.
3. **Which Python library is commonly used to create routes in a web application?**
   a) NumPy
   b) Flask ✅
   c) TensorFlow
   d) PyTorch
   Answer: Flask is widely used for creating routes in Python web applications.
4. **If you want to expose a port in a Dockerfile, which instruction should you use?**
   a) RUN
   b) COPY
   c) EXPOSE ✅
   d) PORT
   Answer: The `EXPOSE` instruction is used to specify the ports on which the container listens.

5. **Which of the following commands allows you to log in to Docker Hub?**
   a) docker push
   b) docker login ✅
   c) docker pull
   d) docker auth
   Answer: The `docker login` command is used to authenticate with Docker Hub.
6. **What is the purpose of the ENTRYPOINT instruction in a Dockerfile?**
   a) To specify the runtime environment for the container.
   b) To specify the command that runs when the container starts. ✅
   c) To copy files from the host to the container.
   d) To define the base image for the container.
   Answer: `ENTRYPOINT` specifies the default command to execute when the container starts.
7. **Which command is used to upload an image to Docker Hub?**
   a) docker push ✅
   b) docker upload
   c) docker deploy
   d) docker send
   Answer: The `docker push` command uploads an image to Docker Hub.
8. **Which shortcut can be used to detach from a container without stopping it?**
   a) Ctrl + Z
   b) Ctrl + D
   c) Ctrl + P + Q ✅
   d) Ctrl + C
   Answer: `Ctrl + P + Q` allows detaching from a container without stopping it.
9. **What does the RUN instruction in a Dockerfile do?**
   a) Defines the command that runs at runtime.
   b) Executes commands during the image build process. ✅
   c) Copies files from the host to the container.
   d) Exposes the application port.

Answer: RUN executes commands during the build process to configure the image.

10. **If you need to copy files from the host machine to a running container, which Docker command would you use?**
    a) docker exec
    b) docker cp ✅
    c) docker run
    d) docker pull
    Answer: The `docker cp` command copies files from the host to a running container.
11. **What is the purpose of tagging (-t) while building a Docker image?**
    a) To reduce the image size.
    b) To add a version and repository name to the image. ✅
    c) To optimize the build process.
    d) To create multiple containers from the same image.
    Answer: Tagging allows associating a name and version with the Docker image.
12. **Which of the following is true regarding the EXPOSE instruction in a Dockerfile?**
    a) It makes the container accessible to the external network.
    b) It documents the port the container listens on but doesn't publish it automatically. ✅
    c) It sets up a secure connection between containers.
    d) It forces the container to open a port on the host machine.
    Answer: EXPOSE only documents the port; publishing it requires additional steps.
13. **What will happen if you use an interactive command (e.g., apt-get install) in a Dockerfile without providing a non-interactive flag?**
    a) The build process will fail. ✅
    b) The command will execute but prompt for user input during runtime.
    c) The command will execute successfully without any issues.
    d) The container will crash during runtime.
    Answer: Interactive commands require non-interactive flags to avoid build failures.
14. **You need to share a Docker image with your team for use in Kubernetes. What is the best practice for doing this?**
    a) Upload the image to GitHub.

b) Push the image to Docker Hub or a private container registry. ✅
c) Share the image via email.
d) Save the image as a file and use scp to transfer it.
Answer: Sharing images via a container registry ensures security, accessibility, and scalability.

15. **Which command would you use to execute a single command inside a running container?**
a) docker attach
b) docker exec ✅
c) docker run
d) docker inspect
Answer: The `docker exec` command allows running a single command inside a running container.
16. **When using the COPY instruction in a Dockerfile, what happens if the source file does not exist?**
a) The Dockerfile will skip the COPY instruction.
b) The build process will fail with an error. ✅
c) A warning will be displayed, and the build will continue.
d) The build process will succeed, but the file will be empty.
Answer: Missing files result in a build failure to prevent incomplete images.
17. **What is the primary reason for using ENTRYPOINT instead of CMD when creating Docker images?**
a) To provide default arguments that can be overridden during runtime.
b) To prevent the container from stopping if overridden during runtime.
c) To ensure the container runs as a specific non-root user.
d) To define a fixed command that always executes during container startup. ✅
Answer: `ENTRYPOINT` ensures that the specified command is always executed.
18. **Which AWS service uses the Nitro hypervisor for virtual machines?**
a) S3
b) EC2 ✅
c) EKS
d) ECS
Answer: EC2 uses the Nitro hypervisor to optimize performance and reduce overhead.

19. **In Kubernetes, which command is used to check the status of running pods?**
    a) kubectl check pods
    b) kubectl pod status
    c) kubectl get pods ✅
    d) kubectl describe pods
    Answer: `kubectl get pods` lists the status of pods in the current namespace.
20. **What is the command to create a Kubernetes cluster using AWS EKS?**
    a) kubectl create cluster
    b) aws eksctl create cluster
    c) eksctl create cluster ✅
    d) docker cluster create
    Answer: The `eksctl create cluster` command simplifies creating clusters in AWS EKS.
21. **Which Docker command is used to launch a container in detached mode?**
    a) docker launch -d
    b) docker run -d ✅
    c) docker start -d
    d) docker detach -d
    Answer: The `docker run -d` command starts a container in detached mode.
22. **Which of the following accurately describes the concept of "bare metal" in the context of system deployment?**
    a) A system where virtualization software runs directly on physical hardware.
    b) A system where the operating system is installed directly on physical hardware without any virtualization. ✅
    c) A system where containers are used to replace physical hardware.
    d) A system that uses a hypervisor to manage multiple virtual machines.
    Answer: Bare metal refers to direct OS installation on physical hardware without virtualization.

23. **What is the major drawback of Docker containers running in the foreground by default?**
    a) They consume excessive resources on the Docker host.
    b) They prevent the base OS from executing additional commands. ✅
    c) They fail to provide fault tolerance.
    d) They cannot access private networks.
    Answer: Foreground containers block the host terminal, limiting further operations.
24. **In the context of Kubernetes, what happens if the `kubectl delete pod` command is used on a pod managed by a deployment?**
    a) The pod is permanently deleted.
    b) Kubernetes will relaunch a new pod automatically. ✅
    c) The deployment itself will be deleted.
    d) Kubernetes will delete all pods in the same namespace.
    Answer: Deployments ensure the desired state by relaunching deleted pods.
25. **Why is the Nitro hypervisor preferred over the XEN hypervisor in AWS?**
    a) Nitro provides higher performance and lower overhead. ✅
    b) Nitro allows running multiple containers simultaneously.
    c) Nitro eliminates the need for an underlying operating system.
    d) Nitro offers better integration with private cloud environments.
    Answer: The Nitro hypervisor enhances performance by minimizing virtualization overhead.
26. **What is the primary difference between ClusterIP and LoadBalancer in Kubernetes services?**
    a) ClusterIP is for internal communication, while LoadBalancer provides external access. ✅
    b) ClusterIP supports load balancing, while LoadBalancer does not.
    c) ClusterIP requires manual scaling, while LoadBalancer scales automatically.
    d) ClusterIP is used in public clouds, while LoadBalancer is for private clouds.
    Answer: ClusterIP is used for internal cluster communication, whereas LoadBalancer exposes services to the internet.
27. **When using the `eksctl` command, what is the role of the AWS credentials configured with `aws configure`?**

a) To authenticate Kubernetes pods within the cluster.
b) To allow `eksctl` to communicate with AWS services to create resources. ✅
c) To set up fault tolerance between Kubernetes nodes.
d) To define the default namespace for Kubernetes clusters.
Answer: AWS credentials let `eksctl` interact with AWS APIs to provision infrastructure.

28. **In Kubernetes, what is the significance of the `kubectl create deployment` command?**
a) It launches a pod that scales automatically based on load.
b) It creates a deployment controller to manage pods. ✅
c) It directly launches a container within the cluster.
d) It assigns a public IP address to the pod.
Answer: The command creates a deployment object, which ensures pod replication and management.
29. **Why is a private container registry like AWS ECR preferred over Docker Hub for sensitive images?**
a) It supports faster image builds.
b) It provides access to public images for free.
c) It offers enhanced security and control over access. ✅
d) It integrates directly with Kubernetes pods.
Answer: Private registries provide better security and restricted access to sensitive images.
30. **In Kubernetes, what is the role of the `kubectl scale` command?**
a) To increase or decrease the number of replicas in a deployment. ✅
b) To scale the Kubernetes cluster by adding new nodes.
c) To adjust the CPU and memory resources of a pod.
d) To change the configuration of the load balancer.
Answer: The `kubectl scale` command modifies the replica count in deployments or ReplicaSets.
31. **Which Kubernetes command provides detailed information about a specific pod?**
a) kubectl get pods
b) kubectl describe pod ✅
c) kubectl logs
d) kubectl inspect pod

Answer: `kubectl describe pod` gives detailed information, including events, configuration, and status.

32. **Why is it recommended to avoid hardcoding AWS credentials in scripts?**
a) Hardcoded credentials can be accidentally leaked in logs or shared files. ✅
b) AWS does not allow hardcoded credentials in its services.
c) It prevents the use of multiple accounts simultaneously.
d) It increases the complexity of cloud automation.
Answer: Hardcoding credentials increases the risk of unintentional exposure and security vulnerabilities.
33. **In Kubernetes, what happens if you create a deployment with `kubectl create deployment` but fail to specify a ReplicaSet or replicas?**
a) The deployment will fail to create pods.
b) Kubernetes will default to creating a single replica of the pod. ✅
c) The deployment will automatically scale to match the available nodes.
d) The deployment will remain inactive until replicas are defined.
Answer: Kubernetes creates a single replica by default for deployments with no specified replica count.
34. **When creating a Kubernetes service of type LoadBalancer in a cloud environment, why might the service not work immediately after creation?**
a) The cloud provider might take time to provision the external load balancer. ✅
b) Kubernetes does not automatically expose services created with LoadBalancer.
c) The service must be linked to a deployment manually.
d) External traffic is blocked by default and requires additional firewall rules.
Answer: Provisioning external load balancers often involves some delay from the cloud provider.
35. **In Kubernetes, if you scale a deployment to 5 replicas but only 3 pods are running successfully, what is the most likely cause?**
a) The deployment configuration file is missing a resource limit specification.
b) The cluster does not have enough resources to schedule the remaining pods. ✅

c) Kubernetes does not support scaling beyond 3 replicas per deployment.
d) The kubectl scale command was used incorrectly.
Answer: Insufficient cluster resources prevent Kubernetes from scheduling all requested pods.