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Dockerfile for nginx 1.19

Write a Dockerfile to run nginx version 1.19 in a container. Choose a base image, considering security best practices, and aim for the image to pass a container image security test  
Your answer

FROM nginx:1.19-alpine

RUN apt install nginx

COPY ./html /use/share/nginx/

COPY ./nginx.conf /etc/nginx/

EXPOSE 80

ENTRYPOINT [“nginx”, “-g”, “daemon off;”]

Docker build -t abc\_nginx:1.19-alpine .

Docker push #push image to docker hub

Kubernetes StatefulSet

Write a Kubernetes StatefulSet to deploy the nginx container from the previous question. Utilize persistent volume claims and define resource limits for optimal performance.  
Your answer

—

apiVersion: v1

kind: StatefulSet

metadata:

name: app\_name

app: abc

spec:

replicas: 3

selector:

matchLabels:

app: abc

templates:

metadata:

name: app\_name

spec:

containers:

image: abc\_nginx:1.19-alpine

ports:

container ports: 80

resources:

requests:

cpu: “500m”

mem: “500Mi”

limits:

cpu: “500m”

mem: “500Mi”

volumeMount:

name: app\_data

mountPath: /data

volumeClaimTemplates:

* name: app\_data

requests:

access method: [ReadWriteOnce]

storage: “1Gi”

—

apiVersion: v1

kind: Service

metadata:

name: app\_service

spec:

selector:

app: abc

service:

name: abc\_service

ports:

port:80

targetPort:80

NodePort: 32000

type: NodePort

Build a Deployment Pipeline

Set up a streamlined build and deployment pipeline for the nginx application using GitHub Actions or an equivalent CI/CD tool. Ensure the pipeline covers building the Docker image, running security checks, and deploying to a Kubernetes cluster.

Your answer

Pipeline{

Stages{

Stage(“git clone”){

Steps{

Sh “Git scm code to ”

}

}

Stage(“code security scan”){

Steps{

Sh “sonarqube check”

}

}

Stage(“Build”){

Steps{

Sh “install all dependencies”

Sh “grqdlew build .”

}

}

Stage(“Docker Image Build”){

Steps{

Sh “docker build .”

Sh “test case docker”

}

}

Stage(“Docker Image Push”){

Steps{

Sh “docker push repo:image ”

}

}

Stage(“Docker scan”){

Steps{

Sh “docker scan repo:image”

}

}

Stage(“Kubernetes clone code”){

Steps{

Sh “git clone code from git repo ”

}

}

Stage(“code security san kubernetes”){

Steps{

Sh “sonarqube check”

}

}

Stage(“Kubernetes deploy code”){

Steps{

withCredential(abccredentialid) # stored in credential

Sh “kubelet apply -f app.yml ”

}

}

Post{

Success{

Echo ”success”

}

Failure{

Echo “failed”

}

Post(ws)

}

Text Manipulation Problem

Choose or create a text manipulation problem that involves using awk, sed, tr, and/or grep. Solve the problem, considering efficiency and readability.

Your answer

Awk ‘{print $1 $2}’ abc.csv

Tr ‘a-z’ ‘A-Z’ abc.csv

Sed -I ‘s|ab|xy|g’ abc.csv

Grep ‘error’ abc.csv

Text Manipulation with an Object Orientated Programming Language

Solve the text manipulation problem from the previous question using any Object Orientated Programming language of your choice. Provide a clear and well-documented solution.

Your answer

Class text\_manipulation(text)

Def self\_text(self, text):

self\_text(self, text)

Def self\_test\_upper(text):

self\_test.upper(text)

text=”Hello this is text manipulation”

text\_manipulation.self\_test\_upper(text)

Sum of Even Fibonacci Numbers

Write a program in a Object Orientated Programming language of your choice to calculate the sum of the first 100 even-valued Fibonacci numbers. Consider efficiency and demonstrate good coding practices.

Your answer

#!/use/local/bin/python

Class sum\_fib(limit)

a,b=0,1

sum=0

while b<limit:

if b%2 ==0:

then

sum=sum+b

else:

print(“the no. is odd”)

a,b=b,a+b

limit=100

sum\_fib(limit)

print(sum)

Intersection of Sorted Arrays

Write a function in a Object Orientated Programming language of your choice that takes two sorted arrays of integers as input and returns an array containing numbers common to both arrays without duplicates.

Your answer

Decimal Digit Transformation

Write a function in an Object Orientated Programming language of your choice that, when passed a decimal digit X, calculates and returns the value of X + XX + XXX + XXXX. For example, if X is 3, the function should return 3702 (3 + 33 + 333 + 3333). Ensure the function handles valid inputs and provides meaningful error messages for invalid inputs.

Your answer