Ques 4 : Create a docker image from multiple methods likes Dockerfile, running containers

SOLN

Using a `Dockerfile`

/myapp
```
├── Dockerfile
├── app.js
└── package.json
```

Docker file :

 # Base image
FROM node:18-alpine

 # Set working directory
WORKDIR /app

 # Copy files
COPY . .

 # Install dependencies
RUN npm install

 # Start the app
CMD ["npm", "start"]

docker build -t myapp-image .

```
PS D:\OneDrive\Desktop\my protfolio> cd frontend
PS D:\OneDrive\Desktop\my protfolio\frontend> docker build -t myprotfolio-image .
[+] Building 6.0s (14/14) FINISHED
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 310B
 => [internal] load metadata for docker.io/library/nginx:alpine
 => [internal] load metadata for docker.io/library/node:18-alpine
 => [auth] library/node:pull token for registry-1.docker.io
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [stage-1 1/2] FROM docker.io/library/nginx:alpine
 => [internal] load build context
 => => transferring context: 3.61MB
 => [builder 1/5] FROM docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca09d9e
 => CACHED [builder 2/5] WORKDIR /app
 => CACHED [builder 3/5] COPY . .
 => CACHED [builder 4/5] RUN npm install
 => CACHED [builder 5/5] RUN npm run build
 => CACHED [stage-1 2/2] COPY --from=builder /app/build /usr/share/nginx/html
 => exporting to image
 => => exporting layers
 => => writing image sha256:e1434b72b301bd7f189b5bf043a06a5f2b8d82ed98fa5bf428d5920dfaa1235f
 => => naming to docker.io/library/myprotfolio-image
PS D:\OneDrive\Desktop\my protfolio\frontend>
PS D:\OneDrive\Desktop\my protfolio\frontend>
PS D:\OneDrive\Desktop\my protfolio\frontend>
PS D:\OneDrive\Desktop\my protfolio\frontend>
PS D:\OneDrive\Desktop\my protfolio\frontend> docker image ls
REPOSITORY              TAG        IMAGE ID       CREATED         SIZE
myprotfolio-image       latest     e1434b72b301   18 minutes ago  59.4MB
```

2 > From a Running Container (Manual to Image)

Run or exec into the container and make changes

docker run -it node:18-alpine sh
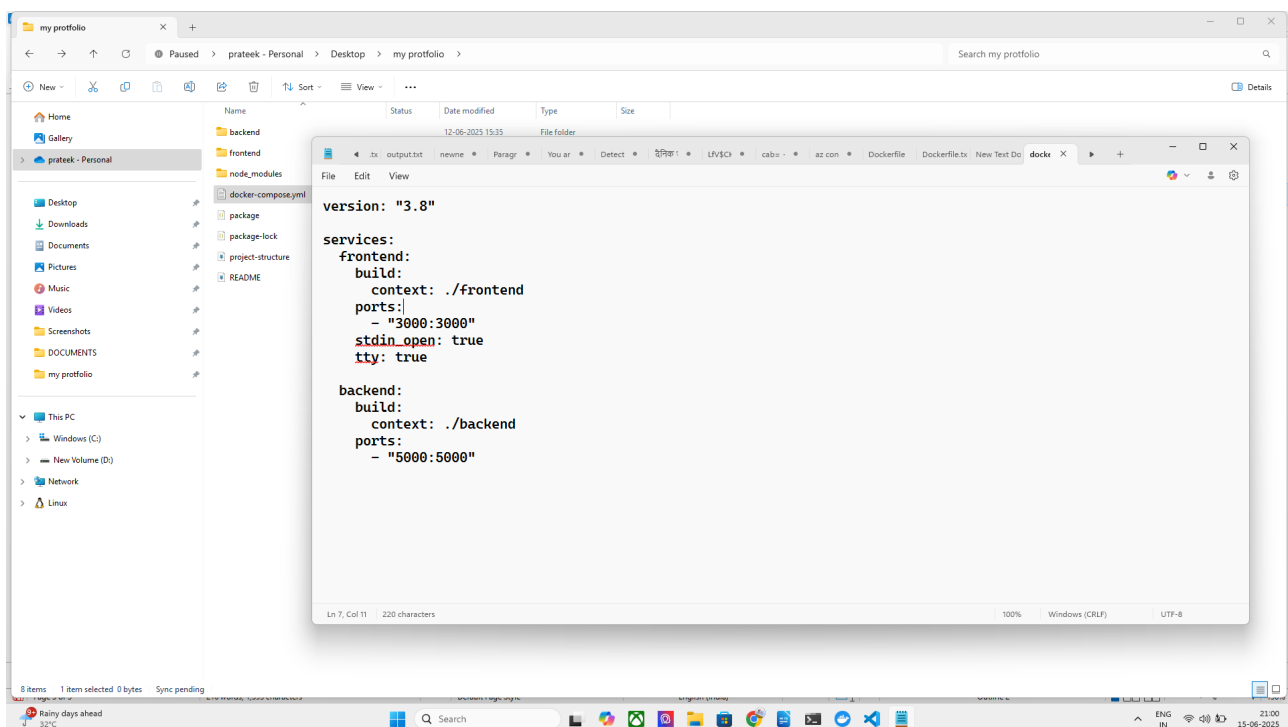
Create Image from That Container:

```
docker commit <container_id_or_name> my-custom-image
```

```
C:\Users\prate>docker ps
CONTAINER ID   IMAGE       COMMAND      CREATED      STATUS      PORTS       NAMES

C:\Users\prate>docker ps -a
CONTAINER ID   IMAGE              COMMAND                CREATED           STATUS                    PORTS   NAMES
63e3f936ad0a   node:18-alpine     "docker-entrypoint.s…"  About a minute ago  Exited (0) About a minute ago     wonderful_ishizaka
35cc901ad308   myprotfolio-frontend  "/docker-entrypoint…."  22 minutes ago    Exited (0) 19 minutes ago         myprotfolio-frontend-1
aaaac8855e7a   myprotfolio-backend  "docker-entrypoint.s…"  22 minutes ago    Exited (137) 19 minutes ago       myprotfolio-backend-1
3d7dc131f7f8   my-python-app      "python app.py"        About an hour ago   Exited (0) About an hour ago      eager_ishizaka
a4f2e4e2aa17   my-python-app      "python app.py"        2 hours ago       Exited (0) 2 hours ago            distracted_feynman
cfd6a394427a3  ubuntu             "/bin/bash"            2 hours ago       Exited (130) 2 hours ago          youthful_clarke
859f02866489   dafaec1c9b14       "/docker-entrypoint…."  3 hours ago       Exited (0) 3 hours ago            quizzical_wright
1a2f1dfc5008   dafaec1c9b14       "/docker-entrypoint…."  3 hours ago       Exited (0) 3 hours ago            musing_fermi

C:\Users\prate>docker commit 63e3f936ad0a new_image
sha256:e4b8d466ac3cf8ca414c03ba56e5467810ab917c29c3e9ff9b3d5e945d5005e4

C:\Users\prate>docker image ls
REPOSITORY               TAG        IMAGE ID       CREATED         SIZE
new_image                latest     e4b8d466ac3c   8 seconds ago   127MB
myprotfolio-frontend     latest     cb66c6ca0e59   22 minutes ago  59.4MB
myprotfolio-image        latest     e1434b72b301   22 minutes ago  59.4MB
myprotfolio-backend      latest     f3c8e4a635f3   23 minutes ago  131MB
<none>                   <none>     da30a22769d8   34 minutes ago  551MB
my-python-app            latest     44c082b8ea65   2 hours ago     127MB
ubuntu                   latest     bf16bdcff9c9   2 weeks ago     78.1MB
nginx                    alpine     6769dc3a703c   2 months ago    48.2MB
nginx                    latest     1e5f3c5b981a   2 months ago    192MB
prateek2004/nginx-custom latest     1e5f3c5b981a   2 months ago    192MB
node                     18-alpine  ee77c6cd7c18   2 months ago    127MB
```

3. Using `docker-compose` + `Dockerfile`

NOW THE COMMAND CHANGES TO

`docker-compose up --build`

4. Using `docker export` and `import` (Advanced)

 # Export container filesystem
docker export <container_id> > container.tar

 # Import it as an image

for linux
cat container.tar | docker import – my-exported-image

for windows
docker import container.tar my-exported-image

```
C:\Users\prate>docker images
REPOSITORY              TAG        IMAGE ID       CREATED        SIZE
my-exported-image       latest     4e8f7fbcc187   6 seconds ago  127MB
```

5. Manually via `docker buildx` or `buildctl`