

Program2

Develop a multistage Dockerfile

Step 1 - Create the following file structure

```
prgm2
|----- Dockerfile
|----- package.json
|----- package-lock.json
|----- node_modules/
|----- src/
|----- server.js
```

Step 2 - Initialize Node.js project

```
npm init -y
```

Step 3 - Install express

```
npm install express
```

Step 4 - Write the Dockerfile and server.js

Step 5 - Build the Docker image

```
docker build -t prgm2
```

Step 6 - Build and Run the container

```
docker run -p 3000:3000 prgm2
```

```
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/Labprogram/prgm2$ docker build -t prgm2 .
[+] Building 8.7s (15/15) FINISHED
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 441B
=> [internal] load metadata for docker.io/library/node:20-alpine
=> [internal] load .dockerignore
=> transferring context: 2B
=> [builder 1/6] FROM docker.io/library/node:20-alpine@sha256:6178e78b972f79c335df281f4b7674a2d85071aee2af020ffa39f0a770265435
=> [internal] load build context
=> transferring context: 43.57kB
=> CACHED [builder 2/6] WORKDIR /prgm2
=> CACHED [builder 3/6] COPY package.json package-lock.json ./
=> CACHED [builder 4/6] RUN npm install
=> CACHED [builder 5/6] COPY . .
=> CACHED [builder 6/6] RUN npm run build
=> CACHED [stage-1 3/6] COPY --from=builder /prgm2/package.json ./
=> CACHED [stage-1 4/6] COPY --from=builder /prgm2/package-lock.json ./
=> CACHED [stage-1 5/6] COPY --from=builder /prgm2/dist ./dist
=> CACHED [stage-1 6/6] COPY --from=builder /prgm2/node_modules ./node_modules
=> exporting layers
=> writing image sha256:264c32e3085fdd08d4e462d3e633f37dccc1f3c4a1a55d8db4c898b388c7925
=> naming to docker.io/library/prgm2
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/Labprogram/prgm2$ docker run -p 3000:3000 prgm2
^X^C1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/Labprogram/prgm2$ docker run -p 3000:3000 prgm2
docker: Error response from daemon: failed to set up container networking: driver failed programming external connectivity on endpoint determined_helsenberg (441fd68c469ec6cc0314315405359a75
329238f1ef875d4582b4b65e31fdaa5): Bind for :::3000 failed: port is already allocated

Run 'docker run --help' for more information
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/Labprogram/prgm2$ docker container ps
CONTAINER ID   IMAGE     COMMAND                  CREATED       STATUS      PORTS                               NAMES
38d968d6b37   prgm2     "docker-entrypoint.s..." 32 minutes ago Up 32 minutes  0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp  nostalgic_cray
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/Labprogram/prgm2$ docker rm 38d
Error response from daemon: cannot remove container "38d": container is running: stop the container before removing or force remove
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/Labprogram/prgm2$ docker rm -f 38d
38d
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/Labprogram/prgm2$ docker run -p 3000:3000 prgm2
server is running at 3000
```

Step 7 - Verify the output

```
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn1$ cd ..
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram$ cd prgn2
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn2$ docker build -t prgn2 .
[*] Building 8.7s (15/15) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 441B
=> [internal] load metadata for docker.io/library/node:20-alpine
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [builder 1/6] FROM docker.io/library/node:20-alpine@sha256:6178e78b972f79c335df281f4b7674a2d
=> [internal] load build context
=> => transferring context: 43.57kB
=> CACHED [builder 2/6] WORKDIR /prgn2
=> CACHED [builder 3/6] COPY package.json package-lock.json ./
=> CACHED [builder 4/6] RUN npm install
=> CACHED [builder 5/6] COPY . .
=> CACHED [builder 6/6] RUN npm run build
=> CACHED [stage-1 3/6] COPY --from=builder /prgn2/package.json ./
=> CACHED [stage-1 4/6] COPY --from=builder /prgn2/package-lock.json ./
=> CACHED [stage-1 5/6] COPY --from=builder /prgn2/dist ./dist
=> CACHED [stage-1 6/6] COPY --from=builder /prgn2/node_modules ./node_modules
=> exporting to image
=> exporting layers
=> => writing image sha256:264c32e3085fdd08d4e462d3ea633f37dccc1f3c4a1a55d8dab4c898b388c7925
=> => naming to docker.io/library/prgn2
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn2$ docker run -p 3000:3000 prgn2
^XXC1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn2$ docker run -p 3000:3000
docker: Error response from daemon: failed to set up container networking: driver failed program
329238f11ef8754d582b4b65e31fdaa5): Bind for :::3000 failed: port is already allocated

Run 'docker run --help' for more information
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn2$ docker container ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS
38d9686dab37   prgn2     "docker-entrypoint.s..." 32 minutes ago Up 32 minutes   0.0.0.0:3000-
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn2$ docker rm 38d
Error response from daemon: cannot remove container "38d": container is running; stop the conta
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn2$ docker rm -f 38d
38d
1rv24nc082_rajatraj@rajatraj-Vostro-5581:~/devops/labprogram/prgn2$ docker run -p 3000:3000 prgn
server is running at 3000
]
```

localhost:3000
hello from container