

# Exp 5.1

## Dockerize a React Application with Multi-Stage Build.

```
FROM node:18-alpine AS build
```

```
# Set working directory
```

```
WORKDIR /app
```

```
# Install dependencies separately to leverage caching
```

```
COPY package*.json ./
```

```
RUN npm install --legacy-peer-deps
```

```
# Copy rest of the application
```

```
COPY . .
```

```
# Build React app
```

```
RUN npm run build
```

```
# ----- Stage 2: Production -----
```

```
FROM nginx:stable-alpine
```

```
# Copy built React app to Nginx html folder
```

```
COPY --from=build /app/build /usr/share/nginx/html
```

```
# Copy custom Nginx config
```

```
COPY nginx.conf /etc/nginx/conf.d/default.conf
```

```
# Expose port 80
```

```
EXPOSE 80
```

# Start Nginx

CMD ["nginx", "-g", "daemon off;"]

```
server {
```

```
    listen 80;
```

```
    location / {
```

```
        root /usr/share/nginx/html;
```

```
        index index.html index.htm;
```

```
        try_files $uri /index.html;
```

```
    }
```

```
    error_page 500 502 503 504 /index.html;
```

```
}
```

# Build image

docker build -t react-app .

# Run container

docker run -p 3000:80 react-app

# output:

```
$ docker build -t react-app .
```

## Sample Output

```
[+] Building 33.7s (12/12) FINISHED
```

```
=> [internal] load build definition from Dockerfile          0.1s
=> [internal] load .dockerignore                             0.0s
=> [internal] load metadata for docker.io/library/node:18-alpine 1.2s
=> [internal] load metadata for docker.io/library/nginx:stable-alpine 1.1s
=> [build 1/6] FROM docker.io/library/node:18-alpine@sha256:... 0.0s
=> [build 2/6] WORKDIR /app                                  0.0s
=> [build 3/6] COPY package*.json ./                        0.0s
=> [build 4/6] RUN npm install --legacy-peer-deps          10.5s
=> [build 5/6] COPY . .                                      0.2s
=> [build 6/6] RUN npm run build                             17.0s
=> [stage-1 1/3] FROM docker.io/library/nginx:stable-alpine@sha256:... 0.0s
=> [stage-1 2/3] COPY --from=build /app/build /usr/share/nginx/html 0.1s
=> [stage-1 3/3] COPY nginx.conf /etc/nginx/conf.d/default.conf 0.0s
=> exporting to image                                       3.5s
=> => exporting layers                                     3.4s
=> => writing image sha256:abcd1234...                      0.0s
=> => naming to docker.io/library/react-app                 0.0s
```

Successfully built react-app

---

## Run Container

```
$ docker run -p 3000:80 react-app
```

### **Sample Output**

/docker-entrypoint.sh: Configuration complete; ready for start up

2025/09/26 12:10:10 [notice] 1#1: using the "epoll" event method

2025/09/26 12:10:10 [notice] 1#1: nginx/1.25.3

2025/09/26 12:10:10 [notice] 1#1: built by gcc 12.2.1

2025/09/26 12:10:10 [notice] 1#1: OS: Linux 5.15.0

2025/09/26 12:10:10 [notice] 1#1: start worker processes