Cloud Deployment — React App with Docker & GitHub Actions

This project demonstrates how to **containerize a React application with Docker** and configure a **CI/ CD pipeline using GitHub Actions** to automatically test, build, and deploy the app to **GitHub Pages**.

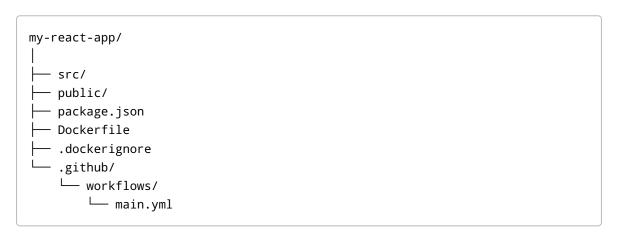
Objective

- Dockerize a production-ready React application using multi-stage builds.
- Automate testing and deployment using **GitHub Actions**.
- Deploy the final build to **GitHub Pages**.

Tech Stack

Component	Technology
Frontend	React
Containerization	Docker (Node + Nginx multi-stage)
CI/CD	GitHub Actions
Deployment	GitHub Pages

Project Structure



.dockerignore

```
node_modules
build
.git
.gitignore
Dockerfile
.dockerignore
```

Dockerfile (Multi-Stage Build)

```
# ---- Build Stage ----
FROM node:18-alpine AS build

WORKDIR /app

COPY package*.json ./
RUN npm install

COPY . .
RUN npm run build

# ---- Production Stage ----
FROM nginx:stable-alpine

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

EXPOSE 80

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



```
name: CI/CD Pipeline with GitHub Pages Deployment

on:
   push:
        branches: ["main"]

jobs:
   deploy:
      runs-on: ubuntu-latest

   steps:
```

```
- name: Checkout Repository
 uses: actions/checkout@v3
- name: Setup Node
 uses: actions/setup-node@v3
 with:
   node-version: "18"
- name: Install Dependencies
  run: npm install
- name: Run Tests
  run: npm test --if-present
- name: Build Project
  run: npm run build
- name: Deploy to GitHub Pages
 uses: peaceiris/actions-gh-pages@v3
 with:
    github_token: ${{ secrets.GITHUB_TOKEN }}
    publish_dir: ./build
```

GitHub Pages Configuration

Add this to your package.json:

```
"homepage": "https://<your-username>.github.io/<your-repo-name>/"
```

Example:

```
"homepage": "https://deepti.github.io/cloud-deployment/"
```

Then go to:

```
GitHub → Repository → Settings → Pages → Source → GitHub Actions
```

PHow to Run Locally

```
npm install
npm start
```

Visit: http://localhost:3000



docker build -t react-app-prod . docker run -p 80:80 react-app-prod

Visit: http://localhost



§ Expected Output

- CI/CD pipeline runs automatically on every push.
- React build output is deployed to **GitHub Pages**.
- Docker image serves the same production build locally.

Author

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