Docker Setup Documentation

Project Structure Example

```
valid8/
|-- backend/
|   |-- app/
|   |   |-- main.py
|   |-- requirements.txt
|   |-- Dockerfile
|
|-- frontend/
|   |-- index.html
|   |-- style.css
|   |-- Dockerfile
|
|-- docker-compose.yml
|-- README.md
```

Dockerfile: Backend (FastAPI)

Location: valid8/backend/Dockerfile

```
FROM python:3.11-slim
WORKDIR /app
COPY requirements.txt .
RUN pip install --no-cache-dir -r requirements.txt
COPY ./app /app
EXPOSE 8000
CMD ["uvicorn", "main:app", "--host", "0.0.0.0", "--port", "8000", "--reload"]
```

Dockerfile: Frontend (Simple Static with Nginx)

Location: valid8/frontend/Dockerfile

```
FROM nginx:alpine
RUN rm -rf /usr/share/nginx/html/*
COPY . /usr/share/nginx/html
EXPOSE 80
```

Docker Compose Configuration

Location: valid8/docker-compose.yml

```yaml
version: '3.9'

services:
  backend:
    build: ./backend
    container_name: valid8_backend
    ports:
      - "8000:8000"
    volumes:
      - ./backend:/app
    depends_on:
      - db

  frontend:
    build: ./frontend
    container_name: valid8_frontend
    ports:
      - "3000:80"
```

```yaml
  db:
    image: postgres:14
    container_name: valid8_db
    environment:
      POSTGRES_USER: valid8_user
      POSTGRES_PASSWORD: valid8_password
      POSTGRES_DB: valid8_db
    ports:
      - "5432:5432"
    volumes:
      - db_data:/var/lib/postgresql/data


volumes:
  db_data:
```

How to Set Up and Run the Project

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1. Clone the Repository

   git clone https://github.com/yourusername/valid8.git

   cd valid8

2. Build and Start All Containers

   docker-compose up --build

3. Access the Services

   - Frontend: http://localhost:3000

   - Backend (API docs): http://localhost:8000/docs

   - PostgreSQL DB: Port 5432

Environment Variables

POSTGRES_USER=valid8_user

POSTGRES_PASSWORD=valid8_password

POSTGRES_DB=valid8_db

(Alternatively, reference a .env file in docker-compose.yml)

Stopping and Cleaning Up

To stop the services:

```
docker-compose down
```

To stop and remove volumes:

```
docker-compose down -v
```