**Project Setup Guide: QR Code Generator**

* **Run&Test**

**Step 1: Unzip the QR\_CODE Folder**

Upon unzipping, you will find two sub-folders:

* QR\_Code\_Generator (Backend)
* QR\_Code\_Frontend (Frontend)

**Backend Setup (FastAPI)**

A virtual environment is used to manage dependencies. Run the following command in the terminal**: *python -m venv venv***

Activate the virtual environment (For Windows)**: venv\Scripts\activate**

**Step 2: Install Dependencies**

Run the following command to install the required dependencies:

***pip install fastapi uvicorn qrcode[pil] pydantic mangum httpx***

**Note:** FastAPI is used as it provides automatic request validation with Pydantic and is easy to deploy serverlessly.

**Step 3: Run FastAPI Server**

Start the FastAPI server with: ***uvicorn main:app --reload***

***The API will be available at:*** [***http://127.0.0.1:8000***](http://127.0.0.1:8000)

**Step 4: Test API (Optional)**

You can test the API using:

* **Postman**
* **Automated test script**: Execute test\_main.py to run test cases.

**Frontend Setup (Vue.js)**

**Step 1: Navigate to the Frontend Directory**

Move to the frontend project folder**: cd QR\_Code\_frontend**

**Step 2: Install Dependencies**

Run the following command to install necessary packages: **npm install**

**Step 3: Start the Vue Application**

Launch the frontend application with: **npm run serve**

**The Vue application will be accessible at:** [**http://localhost:8080**](http://localhost:8080)

* **Summary of Design Choices**

|  |  |
| --- | --- |
| **Aspect** | **Decision** |
| **Backend Framework**  **Frontend Framework**  **Deployment**  **Error Handling**  **Modularity**  **Stateless** | **FastAPI (lightweight, async, pydantic validation)**  **Vue.js (lightweight, reactive, easy validation)**  **AWS Lambda (serverless backend) + S3 (frontend)**  **Client-side (Vue.js) + Server-side (FastAPI exceptions)**  **QR code logic is separate, making it reusable**  **Backend does not store any data, making it serverless-ready** |

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|  |  |  |  |

**This ensures scalability, performance, and maintainability while keeping the project simple and effective.**

* **OUTPUTS:**

**A qr code generator with a blue box and text

AI-generated content may be incorrect.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**A screenshot of a computer

AI-generated content may be incorrect.**