# Project Documentation - URL Shortener API

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## Project Overview

This project is a simple URL Shortener API built using FastAPI and PostgreSQL, following asynchronous programming practices using SQLAlchemy. It allows users to input long URLs and receive a shortened version using a generated short code. When accessed, this short code redirects the user to the original long URL.

## How to Run the Project

1. Clone the Project  
Place the project files in a folder and navigate to it:

cd url-shortener

2. Create Virtual Environment & Install Dependencies

python -m venv venv  
source venv/bin/activate # Windows: venv\Scripts\activate  
pip install -r requirements.txt

3. Configure Database  
Make sure PostgreSQL is running and update the database connection in database.py:

DATABASE\_URL = "postgresql+asyncpg://<username>:<password>@localhost/<dbname>"

4. Run the Application

uvicorn main:app --reload

5. Access the API Documentation  
Open your browser and go to:

http://localhost:8000/docs

## API Endpoints

### POST /shorten

Request Body:

{  
 "original\_url": "https://example.com"  
}

Response:

{  
 "short\_url": "http://localhost:8000/abc123"  
}

### GET /{short\_code}

Redirects to the original long URL.  
Example:  
http://localhost:8000/abc123 → redirects to → https://example.com

## Important Note: Redirection Testing

When testing the redirect endpoint (GET /{short\_code}) in Swagger UI (/docs), you might see an error like:

"Failed to fetch"

This is a known issue caused by CORS policy or Swagger not handling browser redirects properly.

Solution:  
- Open the shortened URL in a browser, or  
- Use Postman/cURL to test the redirect functionality.

## Files Included

- main.py  
- models.py  
- schemas.py  
- database.py  
- utils.py  
- requirements.txt  
- Project\_Documentation\_URL\_Shortener.docx

## Final Submission Instructions

All files are added to a Google Drive folder and shared with view access. The folder contains:  
- Full source code  
- requirements.txt  
- This project document