**🧾 Full-Stack ToDo App: Notes + Code**

**⚙️ Project Overview**

| **Layer** | **Stack** |
| --- | --- |
| Frontend | React + Vite |
| Backend | Flask (Python) |
| Hosting | Netlify (frontend), Render (backend) |

**📁 Folder Structure**

bash

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todo-app/

├── todo-frontend/ # React + Vite frontend

├── todo-backend/ # Flask backend

**🖥️ Backend: Flask (Python)**

**📄 todo-backend/app.py**

python

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from flask import Flask, jsonify

from flask\_cors import CORS

app = Flask(\_\_name\_\_)

CORS(app)

@app.route("/")

def home():

return "Welcome to the Flask API!"

@app.route("/todos", methods=["GET"])

def get\_todos():

todos = [

{"id": 1, "task": "Buy groceries"},

{"id": 2, "task": "Read a book"}

]

return jsonify(todos)

if \_\_name\_\_ == "\_\_main\_\_":

app.run(debug=True)

**📄 requirements.txt**

txt

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flask

flask-cors

gunicorn

**📄 Procfile (for Render deployment)**

makefile

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web: gunicorn app:app

**▶️ Running Flask Locally**

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cd todo-backend

pip install -r requirements.txt

python app.py

Runs at: http://localhost:5000

**🌐 Deploying Flask to Render**

1. Push code to GitHub
2. Create new **Web Service** on <https://render.com>
3. Connect repo, use build command:
   * Start command: gunicorn app:app
4. Note the **backend URL** (e.g., https://todo-backend.onrender.com)

**🎨 Frontend: React + Vite**

**▶️ Creating Vite App**

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npm create vite@latest todo-frontend --template react

cd todo-frontend

npm install

**📄 .env**

env

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VITE\_API\_URL=https://todo-backend.onrender.com

**📄 src/App.jsx**

jsx

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import { useEffect, useState } from 'react';

function App() {

const [todos, setTodos] = useState([]);

useEffect(() => {

fetch(`${import.meta.env.VITE\_API\_URL}/todos`)

.then(res => res.json())

.then(data => setTodos(data))

.catch(err => console.error("Error:", err));

}, []);

return (

<div>

<h1>ToDo List</h1>

<ul>

{todos.map(todo => (

<li key={todo.id}>{todo.task}</li>

))}

</ul>

</div>

);

}

export default App;

**▶️ Running React Locally**

bash

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cd todo-frontend

npm run dev

Runs at: http://localhost:5173

**🌐 Deploying Frontend to Netlify**

1. Push frontend to GitHub
2. Go to https://app.netlify.com
3. Import GitHub repo
4. Settings:
   * **Build Command:** npm run build
   * **Publish Directory:** dist
   * Add VITE\_API\_URL in **Environment Variables**

Netlify will deploy and give a **live URL** (e.g. https://todo-frontend.netlify.app)

**✅ Summary**

| **Task** | **Command / Tool** |
| --- | --- |
| Start Flask locally | python app.py |
| Start React locally | npm run dev |
| Deploy backend | [Render](https://render.com) |
| Deploy frontend | [Netlify](https://netlify.com) |
| Fetch API | fetch(${import.meta.env.VITE\_API\_URL}/todos) |

**💡 Tips**

* Always keep .env separate for local vs production
* Use browser **Network tab** to debug API errors
* Use CORS in Flask to allow frontend access
* Check Render logs if backend is not responding