create flashcard app using mongodb, fastapi, react

**ChatGPT said:**

Creating a flashcard app using MongoDB, FastAPI, and React involves multiple steps. Below is a high-level overview of how you can implement it, including the key components and the code structure.

**Key Components:**

1. **Backend**: FastAPI to handle the API endpoints.
2. **Database**: MongoDB for storing flashcards.
3. **Frontend**: React for the user interface.

**Steps to Create the Flashcard App:**

**Step 1: Setup MongoDB**

Ensure you have MongoDB installed and running. You can install MongoDB locally or use a service like [MongoDB Atlas](https://www.mongodb.com/cloud/atlas) for a cloud-hosted instance.

* **Database Structure**: Each flashcard can have a front side (question) and a back side (answer).
* **Collection**: flashcards
* **Document**: Each document in flashcards will look like this:

json

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{

"\_id": ObjectId(),

"question": "What is 2 + 2?",

"answer": "4"

}

**Step 2: Backend - FastAPI**

**Install FastAPI and MongoDB Dependencies**:

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pip install fastapi uvicorn pymongo

1. **Create the FastAPI backend (main.py)**: This will define the API endpoints to get, create, and delete flashcards.

python

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from fastapi import FastAPI, HTTPException

from pydantic import BaseModel

from pymongo import MongoClient

from bson import ObjectId

from typing import List

# Initialize FastAPI app

app = FastAPI()

# MongoDB connection

client = MongoClient("mongodb://localhost:27017/")

db = client["flashcard\_db"]

flashcards\_collection = db["flashcards"]

# Pydantic model for Flashcard

class Flashcard(BaseModel):

question: str

answer: str

class FlashcardInDB(Flashcard):

id: str

# Endpoint to create a new flashcard

@app.post("/flashcards/", response\_model=FlashcardInDB)

async def create\_flashcard(flashcard: Flashcard):

result = flashcards\_collection.insert\_one(flashcard.dict())

new\_flashcard = flashcard.dict()

new\_flashcard['id'] = str(result.inserted\_id)

return new\_flashcard

# Endpoint to get all flashcards

@app.get("/flashcards/", response\_model=List[FlashcardInDB])

async def get\_flashcards():

flashcards = []

for flashcard in flashcards\_collection.find():

flashcards.append({"id": str(flashcard["\_id"]), "question": flashcard["question"], "answer": flashcard["answer"]})

return flashcards

# Endpoint to get a flashcard by id

@app.get("/flashcards/{flashcard\_id}", response\_model=FlashcardInDB)

async def get\_flashcard(flashcard\_id: str):

flashcard = flashcards\_collection.find\_one({"\_id": ObjectId(flashcard\_id)})

if flashcard is None:

raise HTTPException(status\_code=404, detail="Flashcard not found")

return {"id": str(flashcard["\_id"]), "question": flashcard["question"], "answer": flashcard["answer"]}

# Endpoint to delete a flashcard by id

@app.delete("/flashcards/{flashcard\_id}")

async def delete\_flashcard(flashcard\_id: str):

result = flashcards\_collection.delete\_one({"\_id": ObjectId(flashcard\_id)})

if result.deleted\_count == 0:

raise HTTPException(status\_code=404, detail="Flashcard not found")

return {"message": "Flashcard deleted successfully"}

1. **Run the FastAPI server**:

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uvicorn main:app --reload

* This will start the FastAPI backend on http://localhost:8000.

**Step 3: Frontend - React**

**Create a React app** using create-react-app:

bash

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npx create-react-app flashcard-app

cd flashcard-app

npm start

Install dependencies for HTTP requests (Axios):

bash

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npm install axios

1. **Create a Flashcard Component**: In src/components/Flashcard.js, create a simple component to display the flashcards.

javascript

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import React, { useState, useEffect } from 'react';

import axios from 'axios';

const FlashcardApp = () => {

const [flashcards, setFlashcards] = useState([]);

const [question, setQuestion] = useState("");

const [answer, setAnswer] = useState("");

useEffect(() => {

// Fetch flashcards on load

axios.get('http://localhost:8000/flashcards/')

.then(response => {

setFlashcards(response.data);

})

.catch(error => {

console.error("There was an error fetching the flashcards!", error);

});

}, []);

const addFlashcard = () => {

axios.post('http://localhost:8000/flashcards/', { question, answer })

.then(response => {

setFlashcards([...flashcards, response.data]);

setQuestion('');

setAnswer('');

})

.catch(error => {

console.error("There was an error adding the flashcard!", error);

});

};

const deleteFlashcard = (id) => {

axios.delete(`http://localhost:8000/flashcards/${id}`)

.then(() => {

setFlashcards(flashcards.filter(card => card.id !== id));

})

.catch(error => {

console.error("There was an error deleting the flashcard!", error);

});

};

return (

<div>

<h1>Flashcard App</h1>

<input

type="text"

placeholder="Question"

value={question}

onChange={(e) => setQuestion(e.target.value)}

/>

<input

type="text"

placeholder="Answer"

value={answer}

onChange={(e) => setAnswer(e.target.value)}

/>

<button onClick={addFlashcard}>Add Flashcard</button>

<h2>Flashcards</h2>

<ul>

{flashcards.map(flashcard => (

<li key={flashcard.id}>

<strong>{flashcard.question}</strong> - {flashcard.answer}

<button onClick={() => deleteFlashcard(flashcard.id)}>Delete</button>

</li>

))}

</ul>

</div>

);

};

export default FlashcardApp;

1. **Update App.js** to use FlashcardApp component:

javascript

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import React from 'react';

import './App.css';

import FlashcardApp from './components/Flashcard';

function App() {

return (

<div className="App">

<FlashcardApp />

</div>

);

}

export default App;

1. **Run the React App**: In the flashcard-app directory, run:

bash

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npm start

* This will run the React app on http://localhost:3000.

**Final Structure:**

* **Backend** (FastAPI):
  + Handles API endpoints for CRUD operations.
  + MongoDB for storing flashcards.
* **Frontend** (React):
  + Displays flashcards and allows users to add or delete them.
  + Uses Axios to communicate with the FastAPI backend.

**Running the Application:**

1. Run MongoDB locally (or use MongoDB Atlas).
2. Start the FastAPI backend server using uvicorn main:app --reload.
3. Start the React app using npm start in the React project directory.

Now, you should have a basic flashcard app where you can:

* Add new flashcards.
* View all flashcards.
* Delete flashcards.

Let me know if you need more details on any specific part of the process!