

## QUESTION ANSWER MODEL

This application helps you to upload, download, update, and delete PDF files and find relevant answers from the pdf with the help of a language model.

- Follow these steps to run this application and Start the FastAPI server:

→ To start the FastAPI server, you need to run this command:

```
uvicorn main:app --reload
```

→ To access the application you need to click on this url (Uvicorn running on)

```
http://127.0.0.1:8000.
```

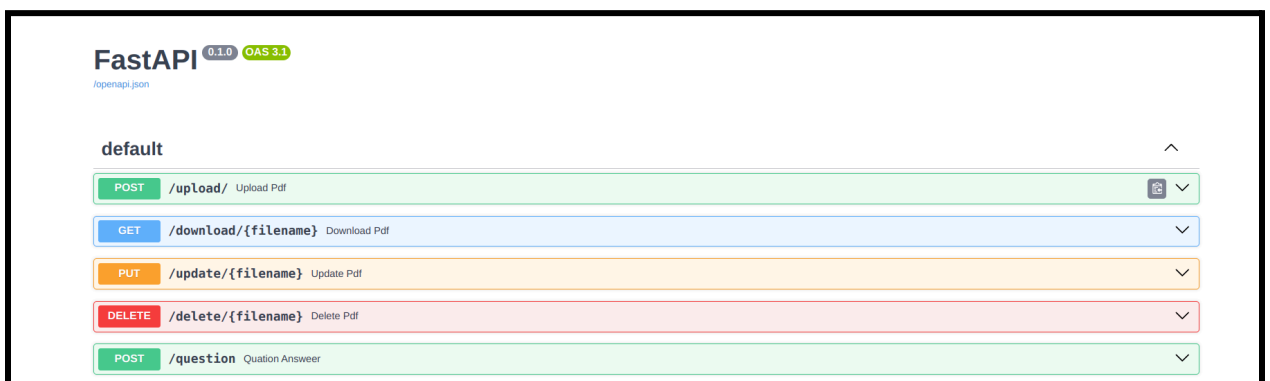
→ API documentation will be available at this url (Swagger url)

```
http://127.0.0.1:8000/docs#/
```

---

- All API Routes

This are the all API routes present in this application.



- **API Routes**

```
@app.post("/upload/")
```

→ This API helps you upload a PDF file to a given directory path and database in embedding form of data.

- **Requested parameter:**

→ You can choose a file from your system to upload to the database.

The screenshot shows a REST client interface with the 'Parameters' tab selected. The 'Request body' is set to 'multipart/form-data'. A file named 'Cat.pdf' is selected for upload. The 'Execute' button is visible.

- **Response :**

→ After successfully executing the API, the file uploaded successfully in the database.

The screenshot shows the 'Responses' tab of a REST client. It displays the 'Curl' command used for the request, the 'Request URL' as 'http://127.0.0.1:8000/upload/', and the 'Server response' which is a 200 status code with a JSON response body: 

```
{  "filename": "Cat.pdf",  "message": "File uploaded successfully"}
```

. The 'Response headers' are also visible, showing 'content-length: 61', 'content-type: application/json', 'date: Wed, 04 Sep 2024 07:49:21 GMT', and 'server: uvicorn'.

```
@app.get("/download/{filename}")
```

→ This API helps you download PDF files from a given directory path and database.

- Requested parameter:

→ Enter the file name that you want to download from the database.

Name	Description
filename <small>★ required</small>	Cat.pdf
string (path)	

Execute

- Response :

→ After successfully executing the API, you get a download link. After clicking in this, your file is successfully downloaded in your system.

Responses

Curl

```
curl -X 'GET' \
  'http://127.0.0.1:8080/download/Cat.pdf' \
  -H 'accept: application/json'
```

Request URL

```
http://127.0.0.1:8080/download/Cat.pdf
```

Server response

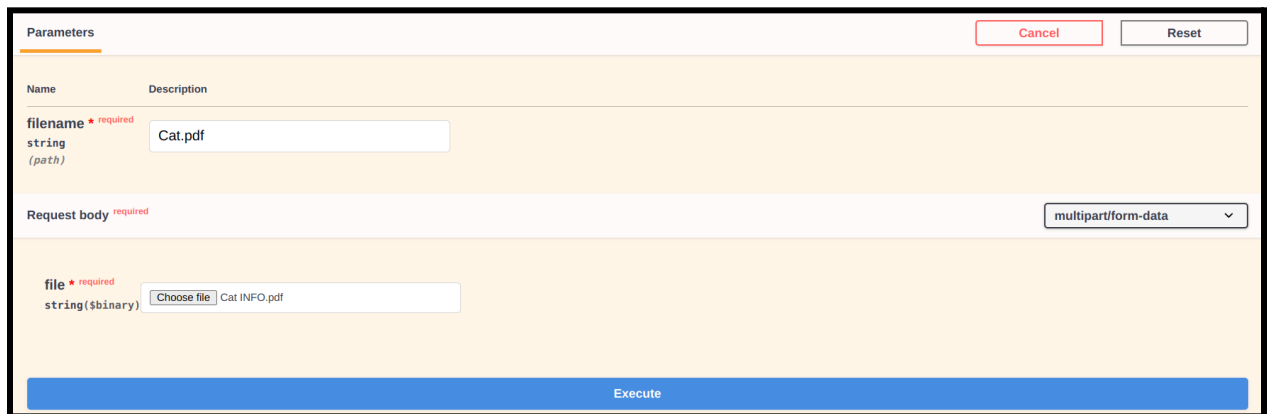
Code	Details
200	<p>Response body</p> <p><a href="#">Download file</a></p> <p>Response headers</p> <pre>content-disposition: attachment; filename="Cat.pdf" content-length: 2098395 content-type: application/pdf date: Wed, 04 Sep 2024 08:01:36 GMT etag: "8300bb7f1caf5ccd5ffe8c9fbfedbee05" last-modified: Wed, 04 Sep 2024 07:49:22 GMT server: uvicorn</pre>

```
@app.put("/update/{filename}")
```

→ This API helps you update a PDF file's uploaded data and in the database in embedding data

- Requested parameter:

→ Enter the file name that you want to update and select the file that you want to replace data with.



The screenshot shows a web interface for defining API parameters. It has a 'Parameters' tab at the top with 'Cancel' and 'Reset' buttons. Below the tab is a table with 'Name' and 'Description' columns. The first row contains 'filename' (marked as required) with a description of 'string (path)' and a text input field containing 'Cat.pdf'. Below this is a 'Request body' section (also marked as required) with a dropdown menu set to 'multipart/form-data'. Underneath is a 'file' field (marked as required) with a description of 'string(\$binary)', a 'Choose file' button, and a text input field containing 'Cat INFO.pdf'. At the bottom is a large blue 'Execute' button.

- Response :

→ After successfully executing the API, your pdf data will be updated.



The screenshot shows the 'Responses' section of the API tool. It includes a 'Curl' section with a pre-filled curl command: `curl -X 'PUT' \ 'http://127.0.0.1:8000/update/Cat.pdf' \ -H 'accept: application/json' \ -H 'Content-Type: multipart/form-data' \ -F 'file=@Cat INFO.pdf;type=application/pdf'`. Below this is the 'Request URL' field containing `http://127.0.0.1:8000/update/Cat.pdf`. The 'Server response' section shows a 'Code' of 200 and a 'Details' tab. The 'Response body' is displayed as a JSON object: `{ "status": "success", "message": "Embeddings for Cat.pdf updated successfully." }`. To the right of the JSON is a 'Download' button. Below the response body is the 'Response headers' section, which lists: `content-length: 77`, `content-type: application/json`, `date: Wed, 04 Sep 2024 08:09:43 GMT`, and `server: uvicorn`.

```
@app.delete("/delete/{filename}")
```

→ This API helps you delete a PDF file's from path and database.

- Requested parameter:

→ Enter file name wich you wana delete from path and database.

The screenshot shows a REST client interface for a DELETE endpoint. The URL is `/delete/{filename}` with the description "Delete Pdf". Under the "Parameters" tab, there is a table with two columns: "Name" and "Description". A parameter named "filename" is listed, marked as "required", with a type of "string" and a note "(path)". The value "Cat.pdf" is entered in the input field next to it. At the bottom right, there is a red "Cancel" button, and at the bottom center, there is a large blue "Execute" button.

- Response :

→ After successfully executing the API, your pdf file will be deleted successfully.

The screenshot shows the "Responses" tab of the REST client. It displays the following information:

- Curl:** `curl -X 'DELETE' \ 'http://127.0.0.1:8000/delete/Cat.pdf' \ -H 'accept: application/json'`
- Request URL:** `http://127.0.0.1:8000/delete/Cat.pdf`
- Server response:**
  - Code:** 200
  - Details:**
    - Response body:** `{ "message": "File deleted successfully" }`
    - Response headers:**

```
content-length: 39
content-type: application/json
date: Wed, 04 Sep 2024 08:23:28 GMT
server: uvicorn
```

At the bottom right of the response body, there are icons for copying and a "Download" button.

```
@app.post("/question", response_model=QuestionResponse)
```

→ This API helps you get answers to questions using the stored embeddings, and those answers are relevant content of the uploaded PDFs. And you can also search for answers within a specific PDF or across all stored PDFs.

- Requested parameter:

→ Here you can ask the question whichever user wants. And also select the LLM model according to your choice.

Parameters Cancel Reset

No parameters

Request body required application/json

```
{
  "question": "tell me about cat?",
  "filename": "",
  "llm": "bart"
}
```

Execute Clear

- Response :

→ After successfully executing the API, if the question is related to the uploaded pdf content and generated answer related to the uploaded pdf, you get an answer successfully; if not, throw an error message.

Responses

Curl

```
curl -X 'POST' \
  'http://127.0.0.1:8000/question' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
    "question": "tell me about cat?",
    "filename": "",
    "llm": "bart"
  }'
```

Request URL

http://127.0.0.1:8000/question

Server response

Code

Details

200

Response body

```
{
  "filename": "Cat INFO.pdf",
  "score": 0.6439477205276489,
  "content": "CAT\nThe cat (Felis catus), also referred to as domestic cat or house cat, is a small domesticated\ncarnivorous mammal. It is the only domesticated species of the family Felidae. Advances in\narchaeology and genetics have shown that the domestication of the cat occurred in the Near\nEast around 7500 BC. It is commonly kept as a house pet and farm cat, but also ranges freely\nas a feral cat avoiding human contact. Valued by humans for companionship and its ability to kill\nvermin, the cat's retractable claws are adapted to killing small prey like mice and rats. It has a\nstrong, flexible body, quick reflexes, and sharp teeth, and its night vision and sense of smell are\nwell developed. It is a social species, but a solitary hunter and a crepuscular predator. Cat\ncommunication includes vocalizations like meowing, purring, trilling, hissing, growling, and\ngrunting as well as cat body language. It can hear sounds too faint or too high in frequency for\nhuman ears, such as those made by small mammals. It secretes and perceives pheromones.\nFemale domestic cats can have kittens from spring to late autumn in temperate zones and\nthroughout the year in equatorial regions, with litter sizes often ranging from two to five kittens.\nDomestic cats are bred and shown at events as registered pedigree cats, a hobby known as\ncat fancy. Animal population control of cats may be achieved by spaying and neutering, but their\nproliferation and the abandonment of pets has resulted in large numbers of feral cats worldwide,\ncontributing to the extinction of bird, mammal, and reptile species.\nAs of 2017, the domestic cat was the second most popular pet in the United States, with 95.6\nmillion cats owned and around 42 million households owning at least one cat. In the United\nKingdom, 26% of adults have a cat, with an estimated population of 10.9 million pet cats as of\n2020. As of 2021, there were an estimated 220 million owned and 480 million stray cats in the\nworld.\n\n\"llm answer\": \"tell me about cat? CAT\nThe cat (Felis catus), also referred to as domestic cat or house cat, is a small domesticated\ncarnivorous mammal. It is the only domesticated species of the family Felidae. Valued by humans for companionship and its ability to kill vermin, the cat's retractable claws are adapted to killing small prey like mice and rats. It has a strong, flexible body, quick reflexes, and"
```

- Requested parameter:

→ Now if the user wants to search for an answer from a specific pdf, add the pdf name on filename.

The screenshot shows a REST client interface with a 'Parameters' tab. The 'Request body' is set to 'application/json' and contains a JSON object: 

```
{  "question": "tell me about cat?",  "filename": "Cat.pdf",  "llm": "bart"}
```

. The interface includes 'Cancel' and 'Reset' buttons at the top right, and 'Execute' and 'Clear' buttons at the bottom.

- Response :

→ After successfully executing the API, if the question is related to the specific mention uploaded pdf, you get an answer successfully; if not, throw an error message.

The screenshot shows the 'Responses' tab of the REST client. It displays the 'Curl' command used for the request, the 'Request URL' as 'http://127.0.0.1:8080/question', and the 'Server response' with a status code of 200. The 'Response body' is a JSON object: 

```
{  "filename": "Cat.pdf",  "score": 0.643947205276489,  "content": "The cat (Felis catus), also referred to as domestic cat or house cat, is a small domesticated carnivorous mammal. It is the only domesticated species of the family Felidae. Advances in archaeology and genetics have shown that the domestication of the cat occurred in the Near East around 7500 BC. It is commonly kept as a house pet and farm cat, but also ranges freely as a feral cat avoiding human contact. Valued by humans for companionship and its ability to kill vermin, the cat's retractable claws are adapted to killing small prey like mice and rats. It has a strong, flexible body, quick reflexes, and sharp teeth, and its night vision and sense of smell are well developed. It is a social species, but a solitary hunter and a crepuscular predator. Cat communication includes vocalizations like meowing, purring, trilling, hissing, growling, and grunting as well as cat body language. It can hear sounds too faint or too high in frequency for human ears, such as those made by small mammals. It secretes and perceives pheromones. Female domestic cats can have kittens from spring to late autumn in temperate zones and throughout the year in equatorial regions, with litter sizes often ranging from two to five kittens. Domestic cats are bred and shown at events as registered pedigreed cats, a hobby known as cat fancy. Animal population control of cats may be achieved by spaying and neutering, but their proliferation and the abandonment of pets has resulted in large numbers of feral cats worldwide, contributing to the extinction of bird, mammal, and reptile species. As of 2017, the domestic cat was the second most popular pet in the United States, with 95.6 million cats owned and around 42 million households owning at least one cat. In the United Kingdom, 26% of adults have a cat, with an estimated population of 10.9 million pet cats as of 2020. As of 2021, there were an estimated 220 million owned and 480 million stray cats in the world.",  "llm_answer": "tell me about cat? CATFINESSThe cat (Felis catus), also referred to as domestic cat or house cat, is a small domesticated carnivorous mammal. It is the only domesticated species of the family Felidae. Valued by humans for companionship and its ability to kill vermin, the cat's retractable claws are adapted to killing small prey like mice and rats. It has a strong, flexible body, quick reflexes, and"
```

. A 'Download' button is visible at the bottom right of the response body.