IEEE HACKATHON | PRAJNA AI

16TH-17TH OCTOBER 2024

PRESENTED BY:

Team name: Bots with Dots

Content

OBJECTIVES

1. PDF Document Ingestion
2. Embedding Generation and Data Persistence
3. Question Suggestion Engine
4. User Querying Interface
5. Interactive Frontend
6. Citation and Validation
7. Deployment

SOLUTION

T5 (Text-to-Text Transfer Transformer) is a series of large language models developed by Google AI introduced in 2019. Like the original Transformer model, T5 models are encoder-decoder Transformers, where the encoder processes the input text, and the decoder generates the output text.

T5 models are usually pretrained on a massive dataset of text and code, after which they can perform the text-based tasks that are similar to their pretrained tasks. They can also be finetuned to perform other tasks.

The T5 series encompasses several models with varying sizes and capabilities, all encoder-decoder Transformers, where the encoder processes the input text, and the decoder generates the output text.

These models are often distinguished by their parameter count, which indicates the complexity and potential capacity of the model.

REQUIREMENTS

TRANSFORMER

The Transformer Python module refers to a tool or library designed for language translation, commonly associated with the Google Translate API.

FLASK

Flask is a lightweight, open-source web framework for Python. It is known for being simple and minimal, allowing developers to build web applications quickly without much overhead.

T5 LARGE

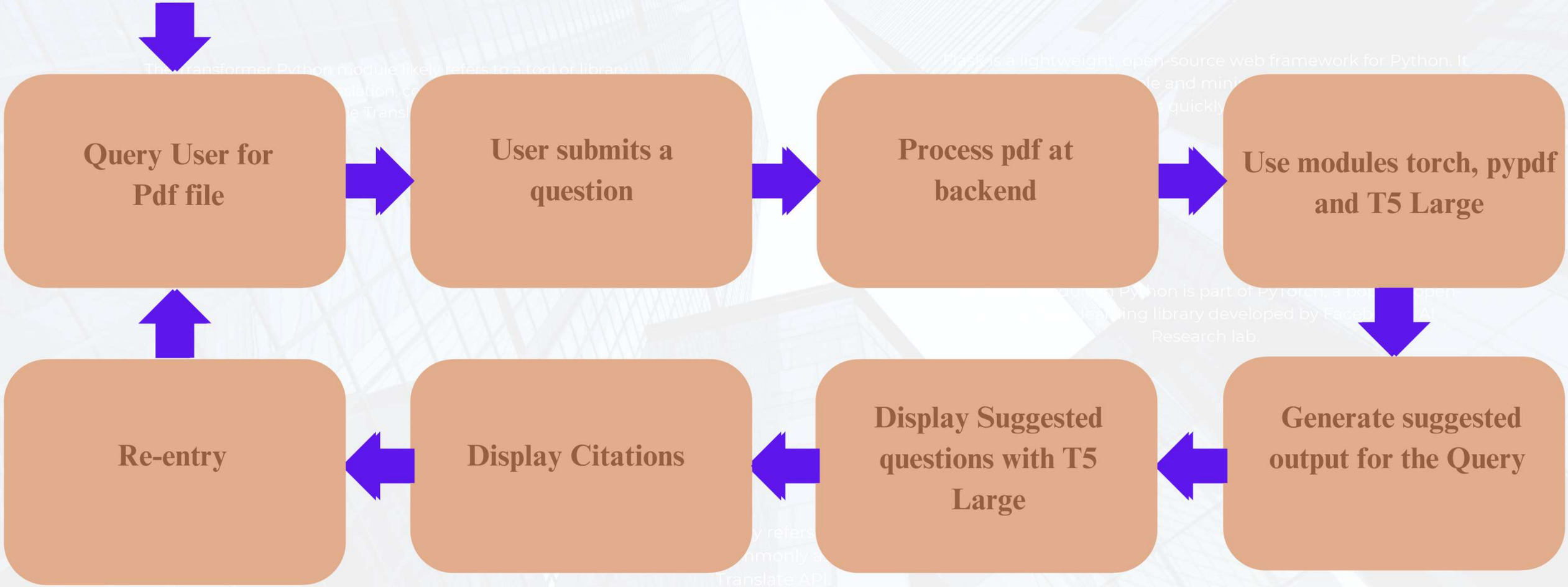
T5 Large is a large language model developed by Google AI. It is part of the T5 family of models, which are encoder-decoder Transformers that can be used for a variety of natural language processing (NLP) tasks.

TORCH

The torch module in Python is part of PyTorch, a popular open-source deep learning library developed by Meta's AI Research lab.

The Transformer Python module likely refers to a tool or library designed for language translation, commonly associated with the Google Translate API.

WORK FLOW


Query User for Pdf file
User submits a question
Process pdf at backend
Use modules torch, pypdf and T5 Large
Generate suggested output for the Query
Display Suggested questions with T5 Large
Display Citations
Re-entry

Additional Features

T5 Large API USE

Can also parse non-pdf file types

Conclusion

PDFQueryNet presents a comprehensive and unified solution for managing and querying vast amounts of PDF documents. By leveraging advanced machine learning techniques to automatically generate document embeddings, it simplifies the process of extracting insights from unstructured data. The system also suggests relevant questions and enables users to perform accurate queries, framed with precise citations for validation. The integration of an intuitive, interactive frontend enhances usability, while the deployability in a cloud environment ensures scalability. Extensive testing demonstrates PDFQueryNet's effectiveness and reliability, making it an essential tool for businesses and researchers handling large collections of PDF documents.

TEAM DETAILS

Anmol Bansal
22103036

Ibadat Singh
22103046

Ayush Kashyap
22103056

Mohin Mahajan
22103016

Tarandeep
22103026

THANK YOU