# **LLM MCQ Generator**

This is a Flask-based web application that leverages a pre-trained Large Language Model (LLM) and spaCy to generate multiple-choice questions (MCQs) from user-provided text or documents. Users can upload PDF or plain text files, or paste text directly, and the application will generate a specified number of MCQs.

## **Features**

* **Text Input:** Paste text directly into a text area.
* **File Upload:** Upload .pdf or .txt files.
* **MCQ Generation:** Automatically creates multiple-choice questions with a question stem, choices, and the correct answer.
* **User-friendly Interface:** Simple and intuitive web interface.

## **Setup**

To run this project locally, follow these steps:

1. **Clone the repository (if applicable) or download the project files.**
2. **Create a virtual environment** (recommended):  
   python -m venv venv
3. **Activate the virtual environment:**
   * **On Windows:**  
     .\venv\Scripts\activate
   * **On macOS/Linux:**  
     source venv/bin/activate
4. **Install the required Python packages:**  
   pip install Flask Flask-Bootstrap spacy PyPDF2 transformers
5. **Download the spaCy English model:**  
   python -m spacy download en\_core\_web\_sm
6. **Ensure your project structure is correct:**  
   your-project-folder/  
   ├── app.py  
   ├── static/  
   │ └── style.css  
   ├── templates/  
   │ ├── index.html  
   │ └── mcqs.html  
   └── venv/  
     
   Make sure style.css is inside a static folder and index.html and mcqs.html are inside a templates folder.
7. **Run the Flask application:**  
   python app.py
8. **Access the application:** Open your web browser and go to http://127.0.0.1:5000/.

## **Usage**

1. **Input Text:**
   * **Upload File(s):** Click on "Choose Files" and select one or more .pdf or .txt files from your computer.
   * **Paste Text:** Alternatively, paste your desired text directly into the provided text area.
2. **Select Number of Questions:** Choose the desired number of MCQs to generate from the dropdown menu (e.g., 5, 10, 15).
3. **Generate MCQs:** Click the "Generate MCQs" button.
4. **View Generated MCQs:** The application will display the generated multiple-choice questions on a new page, showing the question stem, options, and the correct answer.
5. **Generate More:** Click "Generate More" to return to the input page and generate new MCQs.

## **Sample Output**

Here's an example of what the generated MCQs might look like (actual output will vary based on input text):

1. The Amazon rainforest is the largest rainforest in the world, covering an immense area across nine South American countries, primarily Brazil, Peru, and \_\_\_\_\_\_.  
 A. Argentina  
 B. Colombia  
 C. Ecuador  
 D. Venezuela  
 Correct Answer: B  
  
2. Deforestation, mainly due to cattle ranching and \_\_\_\_\_\_, poses a significant threat to this invaluable natural resource and its inhabitants.  
 A. mining  
 B. fishing  
 C. agriculture  
 D. logging  
 Correct Answer: C  
  
3. The Amazon River, which flows through the rainforest, is the second-longest river globally and plays a vital role in the region's \_\_\_\_\_\_.  
 A. economy  
 B. climate  
 C. ecosystem  
 D. culture  
 Correct Answer: C