**Questify**

**Executive Summary:**

This project aims to create an interactive platform that simplifies the process of extracting insights from uploaded documents using AI-driven text analysis and summarization. By integrating generative AI with Flask, Questify enables users to upload various document formats, including PDFs, DOCX, and TXT files, and obtain concise summaries, keyword highlights, actionable insights, and auto-generated question papers. The platform enhances productivity by reducing manual effort in processing large volumes of textual data, making it an invaluable tool for researchers, professionals, and students.

**Problem Statement:**

* + **Background:** The manual process of creating educational resources such as quizzes, summaries, study guides, and question papers from lengthy documents is time-consuming and inefficient. Teachers and students often face challenges in quickly extracting actionable insights and learning materials from large volumes of text.
  + **Objective:** Develop a user-friendly web application that automates the extraction of educational resources from uploaded documents, helping educators and students save time and focus on teaching and learning.
  + **Scope:** Initial focus on generating multiple-choice questions, answers, summaries, and question papers from PDF and text files. The platform will cater to teachers designing assessments and students seeking quick revision aids.

**Data Sources:**

* + User-uploaded educational materials in PDF, DOCX, and TXT formats.
  + AI models and APIs (e.g., Google Generative AI) for question generation, summarization, and question paper creation.

**Methodology:**

* + **File Handling:** Implement secure file upload functionality and validate allowed formats.
  + **Text Extraction:** Utilize libraries like pdfplumber and docx to parse text from uploaded files.
  + **Generative AI Integration:** Use Google Generative AI to summarize and analyze extracted text, generate questions, and compile question papers.
  + **Language Detection:** Implement the langdetect library to identify and process content in diverse languages effectively.
  + **Optical Character Recognition (OCR):** Integrate EasyOCR to process image-based PDFs and extract text for analysis.
  + **Frontend Design:** Build an intuitive interface using Flask templates for file uploads, result visualization, and interaction with generated content.
  + **Interactivity:** Enable users to view summaries, generate custom question papers, and interact with extracted content for deeper insights.

**Expected Outcomes:**

* + An AI-powered platform that provides educators with ready-to-use questions, question papers, and students with learning resources.
  + Enhanced productivity in creating educational materials.
  + A streamlined process for extracting and utilizing key information from educational documents.

**Tools and Technologies:**

* + **Backend:** Flask for web application development.
  + **AI Models:** Google Generative AI for question generation, summarization, and question paper compilation.
  + **Libraries:**
    - pdfplumber and docx for text extraction from uploaded files.
    - langdetect for language detection.
    - EasyOCR for OCR capabilities in image-based documents.
  + **Frontend:** HTML and CSS for user-friendly design.
  + **Additional Modules:** os for file management, werkzeug for secure file handling.

**Risks and Challenges:**

* + Ensuring accuracy and relevance in the generated MCQs, summaries, and question papers.
  + Addressing diverse educational content and maintaining the platform's flexibility across subjects.
  + Efficient handling of large or complex files without compromising performance.
  + Ensuring compatibility with a wide range of document types and user preferences.

**Conclusion:**

Questify is poised to revolutionize the educational process by automating resource creation for teachers and students. By generating MCQs, answers, summaries, and question papers from uploaded documents, it saves time and enhances learning. The integration of new features like question paper generation ensures the platform’s versatility and relevance. Its focus on simplifying educational workflows guarantees it becomes an indispensable tool in modern classrooms.