

# Studymate - AI powered pdf tool

## 1. Overview

This version of StudyMate AI is built using Streamlit, Hugging Face Transformers, PyPDF2, and ReportLab. It allows students to upload PDFs, ask questions, summarise content, attempt quizzes, and chat with the AI assistant. Additionally, it provides note-taking functionality with the ability to download notes in TXT and PDF formats.

## 2. Key Features

- PDF Upload and Text Extraction (PyPDF2)
- Four Modes of Study:
  - Ask Mode: Answer questions from the PDF using a QA model
  - Summarise Mode: Summarise PDF content using a summarization model
  - Quiz Mode: Auto-generate fill-in-the-blank quizzes from the text
  - Chat Mode: Interactive conversation with the content
- Notes Section: Sidebar note-taking with TXT/PDF export
- Downloadable Notes: Export notes as .txt or .pdf

## 3. Technology Stack

- Streamlit: Web-based interactive UI
- PyPDF2: PDF text extraction
- Hugging Face Transformers: Pre-trained NLP pipelines for Q&A; and summarization
- ReportLab: Export user notes into PDF
- Python Standard Libraries: random, io

## 4. Workflow

1. User uploads a PDF file.
2. Text is extracted from the uploaded PDF.
3. User selects a mode (Ask, Summarise, Quiz, Chat).
4. Based on the mode:
  - Ask: Uses a QA pipeline with the uploaded text as context.
  - Summarise: Splits text into chunks and generates summaries.
  - Quiz: Randomly hides words from sentences to create questions.
  - Chat: User asks questions, AI responds using QA pipeline.
5. Users can also take notes and download them in TXT or PDF format.

## 5. Improvements Over Previous Version

- Integrated multiple learning modes within one app.
- Added note-taking and export functionality.
- Provided user control over answer/summary length.
- Implemented interactive quizzes.
- Added live chat capability with the document context.

## **6. Conclusion**

This modified StudyMate AI provides a more interactive and versatile study companion. It combines document Q&A, summarisation, quizzes, and chat with personal note-taking, making it a practical tool for students to engage with their academic materials effectively.