DOUBTMATE

DoubtMate is Going to be an AI based desktop application, which would appear to be a complete study package for the students.  
The DoubtMate is going to provide students a Trusted AI platform for the following tasks:

* Learning Concepts in detail – example is like Class 10th syllabus.
* Organized well & structured data as per the NCERT syllabus, (not the fake generated content)
* Hyper Personalized guidance for studying and Improving the Performance
* Doubt Solving with the AI through Voice and Chat Interface.
* Individual Performance Track , Proper scores and performance tracking .
* Recommendations on Topics on which a user performance is bad.
* Mind Maps and Cards for quick recap.
* Assured and tested responses related to Study only, No Hallucination of the answers.
* Assessments and Tests based on the Board Regulations & Patterns like
* Chapter wise tests,
* Chapter wise MCQs for practicing
* Topic wise assessments like Full Tests, Quiz, Assertion & Reasons, Ques/Ans.
* Full board style proctored exams , Mock tests, PYQ tests.
* Solutions for PYQs based on toppers answers



* Most of the students in their board class seems to get distracted, overwhelmed by the “The BOARD” class and just goes on to join the Local Tuition centers so that they can clear this important year with good marks.   
  But There are few problem with that , although there are many good teachers out there that guarantee that they are going to help you clear the exams if the student attend their tuition classes.  
  These places are usually more crowded with students that teaches most often do not have much to time to focus on each individual, due to which only those students are given more focus which are known to the teacher earlier like from their school or any relation, or the students which are smart enough to capture the concepts with less attention.  
  The real problem arises for those who do not have enough catching power and need real attention while they are studying or learning. Mostly the concepts in the subject are very new to the students and they take time to capture them (obviously). They are unable to keep up to pace of the teaching in the school or at the tuition.  
  DoubtMate is intended to help out these kinds of students mostly.

## UI

* Interactive Cool Design
* Easy to Navigate
* Make Sense to the Student
* Indulging , focus gaining,

## Frontend

* Language: JavaScript
* Framework: ElectronJs, React js(tsx)

## Backend

#### Tech Stack:

* Language: Python
* Api: Fast API,
* FAST MCP

### Features & Pipelines

* Data Extraction from Pdfs to Text -> Database Pipeline
* LLM- Textual data

#### Sources:

NCERT Pdfs ,Online questions/answers-> PYQs, Sample Papers, Toppers Answers/answers.

* Text data to Vector DB pipeline (Automated)
* Data Storage for Topper’s solution to the questions.
* Interactive Doubt Solving Session (AI based)

#### Assessments Section:

* Quiz
* Assertion Reason
* Short Q/A
* Long Q/A
* PYQs

#### Tests:

* Chapter based
* Topic based
* Full length
* Short tests
* Custom tests

#### Performance & Hyper Personalized Tutoring:

* Scorecard
* Results
* Nudges
* Performance
* Weakness

## Database:

* SQL
* NoSQL
* VectorDB
* KG

### Dataset:

* + Chapter wise and Topic wise data extraction from the NCERT textbook
  + Previous Year questions Data Topic wise from the PYQs available
  + Image database with proper tagging so that it can be used as the reference while generating final answers.

## Find outs:

* How to include the Image data into our results , for example images of the diagrams related to the question to whom our agent is answering
* How to connect the frontend to backend for seamless session management so that the context is not lost in the mid conversation.
* Creating the ETL pipelines

## ARCHITECTURE

## Tasks:

1. Databases:
2. Data Extraction -> Collection

Uses: LLM-> Takes textual data as I/P.

* Restructure the data (Without changing the content)
* Assign relationships to the data.
* Relationships.json -> realtionships related to chapter, topics.