MindSpark

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Problem Statement

Mental health diagnosis is challenging due to subjective patient inputs and time constraints, often leading to inconsistent documentation and delayed diagnoses. A smart AI-powered solution is needed to streamline the diagnostic process and enhance accuracy.

Objectives

- Enhance diagnostic accuracy using DSM-5 guidelines and AI-driven analysis.
- Automate symptom documentation to reduce psychiatrists' workload.
- Enable real-time AI-powered support for better decision-making.
- Deploy a web-based assistant for accessible mental health evaluation.

Technology Stack
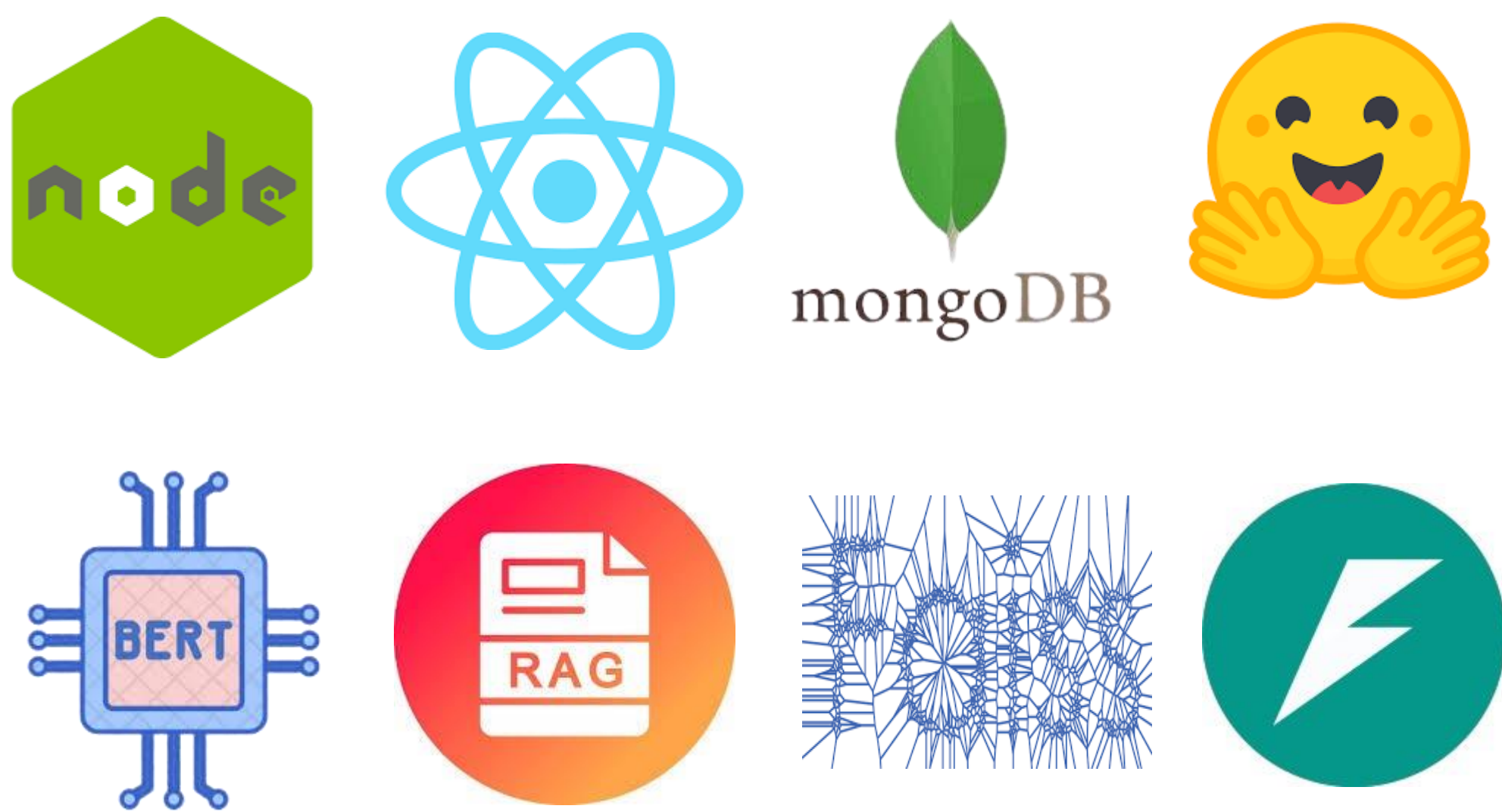
Existing Tools & Research Gap

Existing Work: Woebot and Wysa provide CBT-based emotional support but lack adaptive psychiatric diagnosis and DSM-5-driven disorder classification.

Research Gap: Current AI tools do not generate dynamic diagnostic questions, lack real-time psychiatrist support, and fail to provide personalized DSM-5-based disorder matching

System Architecture
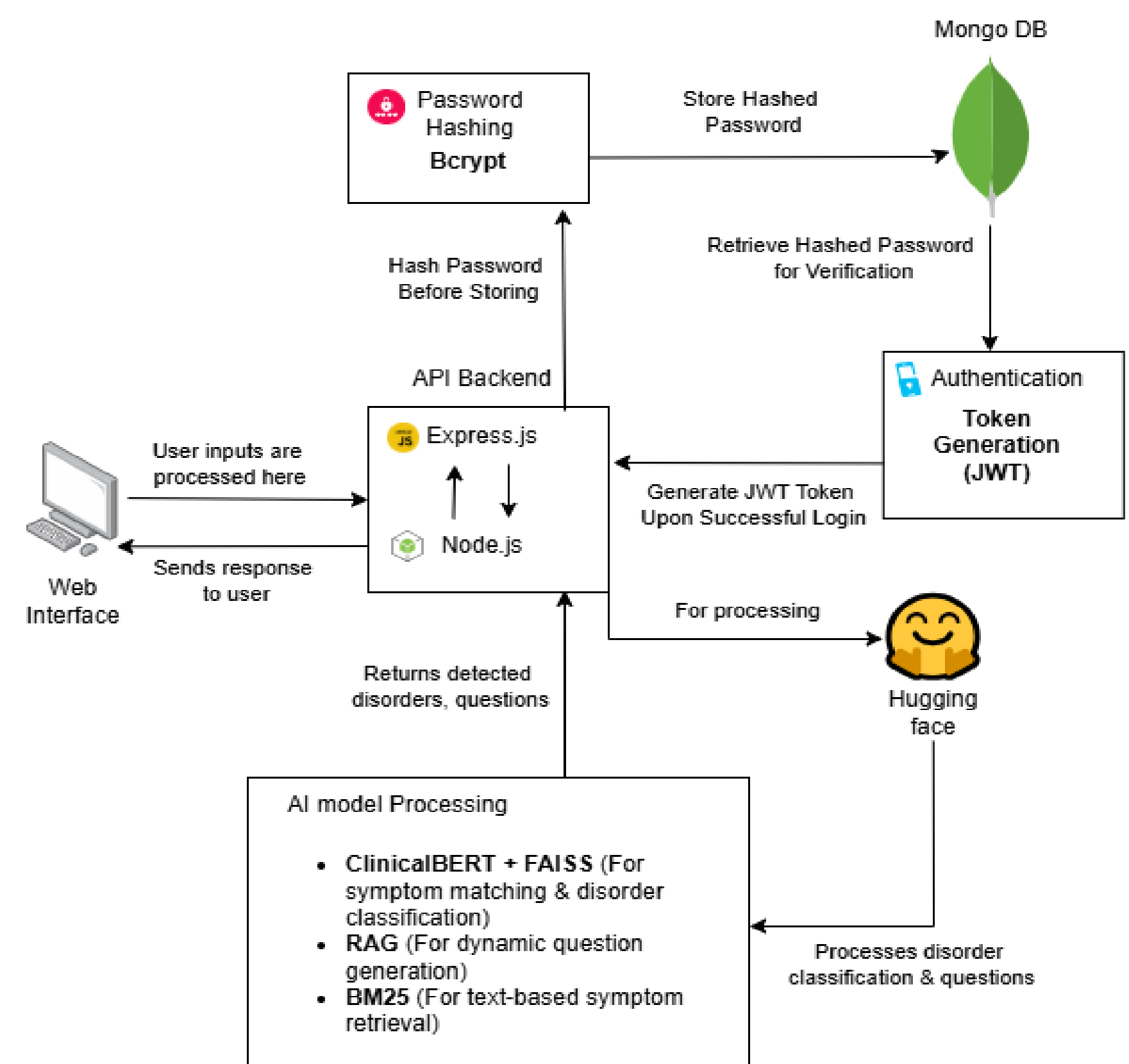
Results

- Implemented AI-driven disorder detection using Sentence-BERT, FAISS, and DSM-5 data for similarity-based psychiatric diagnosis.
- Developed an intelligent question-generation system with GPT-4, LongT5, and Sentence-BERT, generating dynamic diagnostic queries.
- Deployed on Hugging Face with FastAPI, MongoDB, and Express.js, integrated into a React web app with an AI-powered chatbot for real-time interaction.
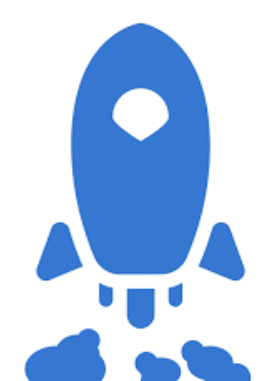
Future Work

Fine-tune DeepSeek   Expand the dataset   Deploy the website

References

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