Lotus Valley International School Gurugram

<Insert title>: a bot to solve student troubles

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Abstract—This project, <name>, is a chatbot that is designed to solve the most frustrating that students face in their daily lives. From struggling to find assignments to needing help with their cumbersome homeworks, this chatbot can do it all — all while being reliable and easy to use.

Keywords—*shiv-nadar.vercel.app*

Contents

1. Introduction

Welcome to <name>, the chatbot to solve it all. This bot is designed to fulfil your every need as a student: it can find your homework, and it can help you solve it. Utilizing modern frameworks, the bot entails a clean, functional UI, making the power of Python accessible to the layperson. This document is a guide to the inner working of <name>

2. Technologies Used

1. NextJS (frontend)
    - Shadcn/ui (UI)
    - Better Auth (User Authentication)
2. Python (backend)
    - API calls — FastAPI
    - LLM — PyTorch and Transformers (HuggingFace)
3. PostgreSQL (database)
    - ORM — Drizzle
    - DB provider — Vercel Postgres (Neon)

2.1. Frontend

For a fast and responsive frontend, we used NextJS. Its vast ecosystem, and reliability were major perks. It allowed us to create many complex functions effectively. To make NextJS even better, we used Shadcn, a popular UI library that provides accesible base components. For authentication, we used BetterAuth, an open-source authentication library that gives us support for many social logins like Google and Github.

2.2. Backend & Database

The backend has two parts: the LLM and the API. The LLM is powered by PyTorch and Transformers, where we have fine-tuned a model to cater to a student's needs. To allow the frontend to interact with the LLM, we have a FastAPI wrapper around the model. The API has one route: `/requests?text=<string>`, which the frontend sends a `GET` request to.

The database is a PostgreSQL database, which is used to store user information and their chat history. We use Vercel Postgres, with Neon, for a fast and scalable experience. As the ORM, we use Drizzle, which is a performant, easy to use ORM that gives us ease of use and flexibility.