

Project: AI-Powered Python Tutor

Project overview:-

The AI-Powered Python Tutor is an interactive web application designed for children to learn Python coding with AI assistance. The tutor provides guidance, coding challenges, and interactive feedback to make learning engaging and effective.

Features

- 1. Home Page:**
 - Brief description of the application.
 - Engaging UI with a child-friendly design.
 - Navigation to tutor interface.
- 2. AI Chat Integration:**
 - Interactive chatbot for Python coding assistance.
 - AI-based suggestions and corrections.
 - Ability to ask questions related to Python.
- 3. Customizable Tutor Characters:**
 - Select from different AI tutor avatars.
 - Personalization options for engagement.
- 4. Interactive Coding Challenges:**
 - Predefined Python coding exercises.
 - AI-generated feedback and hints.
 - Progress tracking.
- 5. Secure API Key Management:**
 - Store API keys securely using environment variables.
 - Quota management to prevent excessive usage.
- 6. Form Validation & Security:**
 - Input validation for safe interactions.
 - Secure communication with AI API.
- 7. Deployment & Hosting:**
 - Hosted on a free platform.
 - Accessible via a URL in the format: <https://ajit-kumar-ai-powered-python-tutor.netlify.app/>

Implementation Steps:

Frontend Development:

- Initialize React project using Vite.
- Set up Tailwind CSS for styling.
- Create UI components: Home, AI Chat, Challenges.
- Implement state management for user interactions.

- Connect AI API for chat functionality.
- Add dynamic routing using React Router.

Integration & Deployment:

- Test all features thoroughly.
- Configure environment variables for API keys.
- Deploy on a free hosting service.
- Ensure mobile responsiveness.

Evaluation Criteria:

1. **Hosted Application:**
 - Functional AI-powered tutoring system.
 - User-friendly and visually appealing design.
2. **Code Review:**
 - Clean, maintainable codebase.
 - Proper API integration and security measures.

Conclusion: This project aims to create an engaging and educational platform that makes learning Python fun for children. By leveraging AI, interactive challenges, and a friendly UX, it provides an effective way to grasp Python concepts with personalized guidance.

Installation and Setup

Prerequisites

- *Node.js (v16 or higher)*
- *Npm*

Steps

1. Clone the repository:

- *Git clone :<https://github.com/ajitdehri/ajit-kumar-AI-Powered-Python-Tutor.git>*

2. Navigate to the project directory

- *cd ajit-kumar-AI-Powered-Python-tutor-main*

3. Install dependencies:

- *npm install*

4. Start the development server:

- *npm run dev*

5. Open the application in your browser:

- <http://localhost:5173>