

Personalized TutorBot

AI-Powered Programming & AI Education Assistant

By Team: PAK_AI

Track: BLACKBOX_AI



Made with **GAMMA**

The Challenge of Learning AI & Programming

Lack of Personalization

Generic courses fail to adapt to individual learning styles or skill levels, leading to disengagement and incomplete understanding.

High Cost of Expertise

Students spend hundreds on mentors or bootcamps, which are often out of reach for many, creating an access barrier to quality education.

Limited Practical Application

Many platforms overlook project-based learning and foundational skill-building, leaving students without practical experience.

Introducing Our Multi-Agent AI TutorBot

Our solution revolutionizes education by providing a dynamic, personalized learning experience.

Understand Goals & Skill

Conversational AI chatbot intuitively gauges user objectives and current proficiency.

Interactive Learning

Generates custom tutorials, quizzes, and practical coding tasks.

Personalized Roadmaps

AI creates tailored learning paths that adapt to individual progress and needs.

Intelligent Code Review

AI provides specific, actionable feedback on user code, fostering rapid improvement.

Core Features: The Learning Journey



Secure User Management

Robust signup/login system securely stores user data and learning history, ensuring a personalized experience.



Intuitive Chatbot UI

Engage in natural conversations to define learning goals, skill levels, and preferred topics, driving the entire personalized flow.



Dynamic Roadmap Agent

Leverages AI to craft a customized learning plan based on your input, outlining key milestones and topics.



Interactive Tutorial Agent

Delivers daily lessons, concepts, and detailed code examples tailored to your roadmap, making complex ideas accessible.

Core Features: Practical Application & Progress



Hands-on Exercise Agent

Generates diverse quizzes and coding challenges that reinforce learning, adapting difficulty to your progress.



Intelligent Review Agent

Provides instant, AI-driven feedback on your code, identifying areas for improvement and offering best practices.



Integrated Coding Environment

Practice and test code directly within the app, powered by seamless Replit integration, for an efficient workflow.



Comprehensive Progress Dashboard

Visualize your learning journey, track completed modules, and monitor skill advancement through an intuitive dashboard.

Architectural Overview

Our robust architecture ensures a seamless and responsive learning experience, powered by advanced AI.

1

Frontend (React)

User-friendly interface for chatbot, code editor, and progress dashboard.

2

Backend (FastAPI)

Handles API requests, orchestrates data flow, and facilitates agent communication.

3

Multi-Agent AI System

Leverages LLMs via Blackbox API Key for intelligent reasoning and personalized content generation.

4

Learning Flow Generation

Outputs personalized Roadmaps, Tutorials, Exercises, and Code Reviews.

Key Technologies Driving Innovation

- [Blackbox.ai](#): Core LLMs for multi-agent reasoning
- **Blackbox API Key**: Powers secure agent access and real-time coding suggestions within the IDE.
- **FastAPI**: Python web framework for backend API.
- **React**: Modern JavaScript library for building the dynamic web interface.
- **PostgreSQL**: Storing user credentials and comprehensive learning history.



Transformative Impact of Our Solution

\$0

Cost Savings

Eliminates the need for expensive paid mentors or bootcamps, making high-quality education accessible to all.

100%

Personalized Learning

Adapts dynamically to each learner's unique level and specific goals, optimizing the learning curve.

0

Setup Time

Offers a seamless "chat → roadmap → review" learning flow with no complex configurations required.

1K+

Scalability

Designed to scale efficiently to thousands of users without requiring human overhead, ensuring broad reach.

1

Accessibility

Provides quality AI and coding education to anyone, anywhere, breaking down geographical and financial barriers.

Future Enhancements & Vision

We are committed to continuous innovation, enhancing the TutorBot's capabilities for an even richer learning experience.

Enhanced Accessibility

Integrating text-to-speech capabilities to cater to diverse learning needs and improve inclusivity for all users.

Gamified Learning Experience

Introducing gamified quizzes, XP levels, and leaderboards to boost engagement and motivation, making learning fun.

AI Progress Coach

Developing an advanced AI coach for dynamic feedback, personalized revision suggestions, and proactive learning path adjustments.



Demo

