

Abstract

AI-Powered IDE

AI-Powered IDE is a cutting-edge Integrated Development Environment designed to enhance the coding experience through advanced artificial intelligence integration. Targeted at postgraduate students and professional developers, this IDE offers a robust set of features to streamline development processes, improve code quality, and increase productivity.

The IDE features a comprehensive File Explorer for efficient project file management, a Code Editor with syntax highlighting, intelligent code completion, and automated code correction. It includes real-time language checking and linting to ensure code accuracy and adherence to best practices. The integrated terminal supports various shell environments, while Live Preview provides immediate feedback on HTML/CSS/JS code changes.

AI-powered functionalities are central to the IDE, offering intelligent code suggestions, automated code reviews, and natural language processing (NLP) for generating and translating documentation. The system also includes contextual code search and smart refactoring to optimize code development.

Additional features encompass seamless version control integration with Git, real-time collaboration capabilities with chat and video conferencing, and user behavior analytics to deliver personalized suggestions and insights into coding patterns.

Technically, the IDE leverages Angular, HTML, CSS, and JavaScript for frontend development; Node.js and Express.js for backend services; Python for AI services; and MongoDB for data storage. OpenAI API supports advanced code suggestions and NLP features, while Git facilitates version control.

AI-Powered IDE aims to revolutionize the coding experience by providing a sophisticated, AI-driven environment that enhances code quality, supports real-time collaboration, and delivers personalized insights to developers.