SmartSDLC –AI Enhanced Software Development

Lifecyle

Project title: SmartSDLC -AI enhanced software
development Lifecycle
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Abstract

SmartSDLC is an intelligent system that automates and optimizes various phases of the Software Development Life Cycle. It integrates planning, analysis, design, coding, testing, and deployment with AI assistance. The aim is to improve productivity, reduce errors, and enhance collaboration.

Introduction

Traditional SDLC requires manual effort and lacks automation. SmartSDLC provides AI-driven recommendations, automatic task allocation, and integrated project tracking to streamline software development.

Proposed System

Key Features: - Automated task assignment - AI-based requirement analysis - Progress tracking dashboard - Integration with GitHub/CI tools Advantages: Saves time, reduces errors, and improves team collaboration.

System Design

The system follows a layered architecture with modules for user management, task allocation, requirement analysis, and reporting. Diagrams such as Use Case, DFD, and ER illustrate the workflow.

Implementation

Technologies used: ReactJS (Frontend), Node.js/Django (Backend), MySQL/MongoDB (Database), Python (AI modules). Modules include: User Management, Requirement Analysis, Task Allocation, Project Dashboard, and Report Generation.

Conclusion & Future Work

SmartSDLC successfully automates SDLC phases and enhances efficiency. Future work includes AI-driven bug fixing, cloud deployment integration, and a mobile application.

Architecture
Diagram

Key features:

Personalized learning paths- AI analysis user data to create tailared learning path and development paths.

Applications

- Education – Smart learning platforms for students.
- Corporate Training – Employee development and knowledge retention.
- Software Development – AI-powered automation in SDLC.

Conversational Interface

- Natural Language Processing (NLP) for query handling.
- AI Chatbots for real-time guidance.

Workflow Diagram

User Input	AI Engine	Output/Feedback

SmartSDLC Architecture Diagram

User	Frontend (ReactJS)	Backend (Node.js/Django)

	AI Module (Python)	Database (MySQL/MongoDB)