Project Design Phase-II

Data Flow Diagram & User Stories

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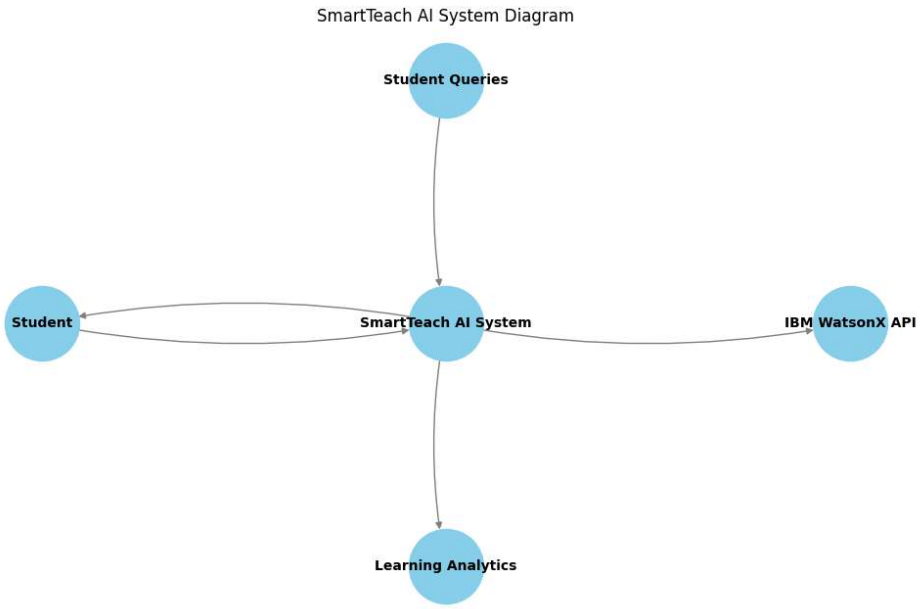
Project Name: SmartTeach AI

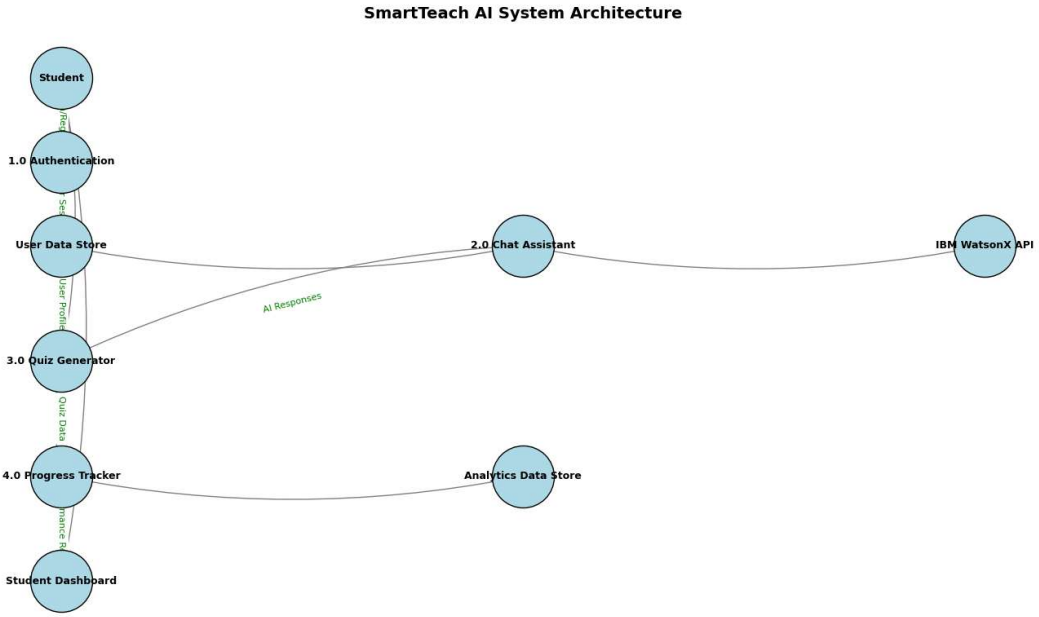
Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

Level 0 DFD (Context Diagram) - SmartTeach AI



Level 1 DFD - SmartTeach AI System



User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
Student	**Registration**	USN-1	As a student, I can register for SmartTeach AI by entering my email, password, and confirming my password.	I can access my account dashboard with secure authentication	High	Sprint-1
Student	Registration	USN-2	As a student, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm to activate account	High	Sprint-1
Student	Registration	USN-3	As a student, I can register for the application	I can register & access the dashboard with	Medium	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
			through social login options	social media login		
Student	**Login**	USN-4	As a student, I can log into the application by entering email & password	I can successfully authenticate and access my dashboard	High	Sprint-1
Student	Login	USN-5	As a student, I can maintain my session across multiple interactions	My login session persists during my learning activities	High	Sprint-1
Student	**AI Chat Assistant**	USN-6	As a student, I can ask educational questions through the chat interface	I receive accurate, context-aware responses from the AI assistant	High	Sprint-1
Student	AI Chat Assistant	USN-7	As a student, I can upload documents to provide context for my questions	The AI uses my uploaded materials to give more relevant answers	High	Sprint-2
Student	AI Chat Assistant	USN-8	As a student, I can view my chat history for reference	I can access previous conversations and responses	Medium	Sprint-2
Student	**Quiz Generation**	USN-9	As a student, I can generate quizzes on specific topics	The system creates relevant questions based on my chosen topic	High	Sprint-2
Student	Quiz Generation	USN-10	As a student, I can select	I can choose Easy, Medium, or Hard	Medium	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
			difficulty levels for my quizzes	difficulty for generated questions		
Student	Quiz Generation	USN-11	As a student, I can take generated quizzes and receive immediate feedback	I get real-time scoring and detailed explanations for answers	High	Sprint-2
Student	**File Processing**	USN-12	As a student, I can upload PDF files for text extraction	The system extracts and processes text content from my PDFs	High	Sprint-2
Student	File Processing	USN-13	As a student, I can upload images with text for OCR processing	The system converts text in images to searchable format	Medium	Sprint-3
Student	File Processing	USN-14	As a student, I receive error messages for unsupported file formats	I get clear feedback when uploading incompatible files	Low	Sprint-3
Student	**Progress Tracking**	USN-15	As a student, I can view my learning progress on a dashboard	I see comprehensive analytics of my performance and trends	High	Sprint-3
Student	Progress Tracking	USN-16	As a student, I can track my quiz performance over time	I can monitor improvement trends and identify weak areas	Medium	Sprint-3

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
Student	Progress Tracking	USN-17	As a student, I can export my progress reports	I can download or share my learning analytics	Low	Sprint-4
Student	**Resource Finder**	USN-18	As a student, I can search for educational resources	The system helps me find relevant learning materials	Medium	Sprint-3
Student	Resource Finder	USN-19	As a student, I can bookmark useful resources	I can save and organize helpful educational content	Low	Sprint-4
System	**Security**	USN-20	As a system, I can encrypt and securely store user passwords	User credentials are protected with industry-standard encryption	High	Sprint-1
System	Security	USN-21	As a system, I can validate and sanitize all user inputs	All user data is properly validated to prevent security vulnerabilities	High	Sprint-1
System	Security	USN-22	As a system, I can manage secure user sessions	User sessions are properly managed with timeout and encryption	High	Sprint-1
System	**Performance**	USN-23	As a system, I can respond to AI queries within 3 seconds	Response time meets performance requirements	High	Sprint-2
System	Performance	USN-24	As a system, I can handle concurrent	The platform supports multiple	High	Sprint-3

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
			users without degradation	simultaneous users		
System	Performance	USN-25	As a system, I can process files efficiently	File upload and processing completes within acceptable timeframes	Medium	Sprint-2
Administrator	**User Management**	USN-26	As an administrator, I can view user activity and system analytics	I have access to comprehensive system monitoring dashboards	Medium	Sprint-4
Administrator	User Management	USN-27	As an administrator, I can manage user accounts and permissions	I can control user access and resolve account issues	Medium	Sprint-4
API Integration	**WatsonX Integration**	USN-28	As a system, I can integrate with IBM WatsonX API for AI capabilities	The system successfully connects and communicates with WatsonX services	High	Sprint-1
API Integration	WatsonX Integration	USN-29	As a system, I can handle API failures gracefully	The system provides fallback mechanisms when external APIs are unavailable	High	Sprint-2
API Integration	WatsonX Integration	USN-30	As a system, I can optimize model selection based	The system automatically chooses the most	Medium	Sprint-3

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
			on query complexity	appropriate AI model for different queries		

Sprint Planning Summary

- **Sprint 1 (Weeks 1-2)**: Core authentication, basic AI chat, WatsonX integration
- **Sprint 2 (Weeks 3-4)**: Quiz generation, file processing, performance optimization
- **Sprint 3 (Weeks 5-6)**: Progress tracking, resource finder, concurrent user support
- **Sprint 4 (Weeks 7-8)**: Advanced features, administration tools, system optimization