Product Requirements & Specification Document

Project Name

StoryWeaver - AI Creative Writing Workshop

Description

StoryWeaver is a collaborative, open-source platform enabling users to co-author stories with generative AI. The system provides real-time suggestions for plot, dialogue, and style, supports multiple genres and languages, and includes version control, peer feedback, and exportable manuscripts. Designed for creative education and teamwork, it emphasizes modularity, security, and extensibility.

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1. Goals & Objectives

Goal	Description
Collaborative Story Creation	Enable users to co-author stories with AI and peers in real time
AI-Assisted Writing	Provide generative AI suggestions for plot, dialogue, and style
Version Control	Track changes, support branching, and allow rollbacks
Peer Feedback	Facilitate structured feedback and collaborative review
Exportable Manuscripts	Allow users to export stories in common formats (PDF, DOCX, TXT)
Multi-Genre & Multi-Language Support	Support diverse genres and languages for global accessibility
Secure User Management	Ensure privacy, authentication, and role-based access
Modular, Open-Source Architecture	Enable extensibility and community contributions

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2. User Roles & Permissions

Role	Permissions
Guest	View public stories, register, limited AI demo
Writer	Create/edit stories, collaborate, receive AI suggestions, give/receive feedback
Educator	Manage groups, assign tasks, moderate content, access analytics
Admin	Full access, manage users, system settings, moderate content

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3. Functional Requirements

3.1 Story Creation & Collaboration

- Real-time collaborative editing (multiple users per story)
- AI-generated suggestions (plot, dialogue, style) via sidebar or inline
- Genre and language selection per story
- Story branching and merging (version control)
- Autosave and manual save options

3.2 Version Control

- Track all changes with timestamps and authorship
- View, compare, and revert to previous versions
- Support for story branching and merging

3.3 Peer Feedback

- Inline and general comments
- Structured feedback forms (rubrics, ratings)
- Notification system for feedback and replies

3.4 Export & Publishing

- Export stories as PDF, DOCX, TXT
- Option to publish stories publicly or keep private
- Download version history

3.5 User Management & Security

- Registration, login, password reset
- OAuth2 and email/password authentication
- Role-based access control
- GDPR-compliant data handling

3.6 Multi-Genre & Multi-Language

- Genre templates (e.g., sci-fi, fantasy, mystery)
- Language selection for UI and AI suggestions
- AI model supports at least 3 major languages at launch

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4. Non-Functional Requirements

Category	Specification
Performance	Real-time collaboration latency < 500ms
Scalability	Support 10,000+ concurrent users
Security	Encrypted data storage, secure API endpoints, regular audits
Accessibility	WCAG 2.1 AA compliance
Extensibility	Modular plugin system for AI models, genres, and export formats
Open Source	MIT or Apache 2.0 license, public repository

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5. Technical Specifications

Component	Technology/Framework
Frontend	React, TypeScript
Backend	Python (FastAPI), RESTful API
Database	PostgreSQL
AI Integration	Generative AI (OpenAI, HuggingFace)
Real-Time Sync	WebSockets (Socket.IO or similar)
Auth	OAuth2, JWT
Deployment	Docker, Kubernetes
CI/CD	GitHub Actions

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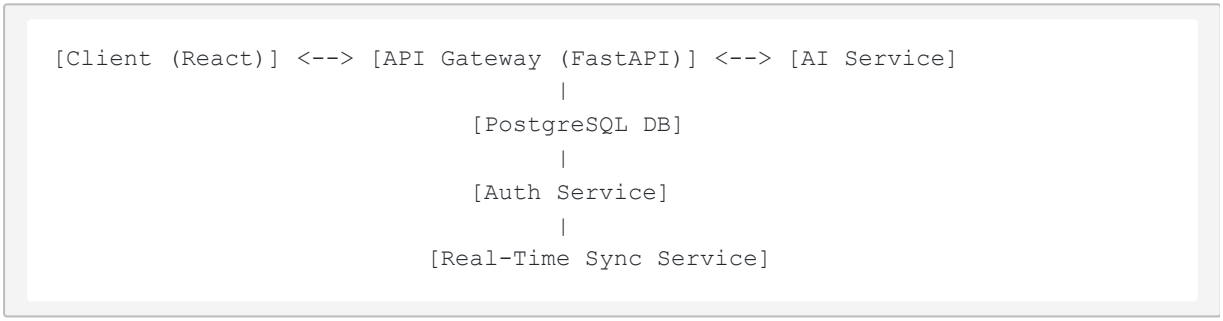
6. System Architecture Overview



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7. Key User Flows

7.1 Story Creation

1. User logs in/registers
2. Selects genre/language
3. Starts new story or joins existing
4. Edits collaboratively; receives AI suggestions
5. Saves, branches, or merges versions
6. Requests/gives peer feedback
7. Exports or publishes manuscript

7.2 Educator Workflow

1. Creates group/class
2. Assigns collaborative writing tasks
3. Monitors progress, provides feedback
4. Reviews analytics

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8. Milestones & Deliverables

Milestone	Deliverable	Timeline
MVP Platform	Core collaboration, AI suggestions, versioning	Month 2
Peer Feedback Module	Inline comments, feedback forms	Month 3
Export & Publishing	Export formats, public/private publishing	Month 4
Multi-Language Support	3 languages, genre templates	Month 5
Educator Tools	Group management, analytics	Month 6
Open Source Release	Public repo, documentation	Month 6

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9. Risks & Mitigations

Risk	Mitigation
AI content quality	Human-in-the-loop editing, user feedback loops
Data privacy	Strong encryption, GDPR compliance
Scalability bottlenecks	Cloud-native, modular architecture
Abuse/misuse	Moderation tools, reporting, role controls

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10. Open Questions

- Which AI models will be supported at launch?
- What is the minimum viable set of genres/languages?
- How will educator analytics be visualized?

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