# Project Documentation: AI Writing Assistant (MERN Stack)

## 🧠 Project Overview

Create a SaaS platform where users can:

- Sign up / log in

- Get free credits

- Generate marketing text, blogs, product descriptions using AI

- Manage their generations

- Subscribe to paid plans for more usage

## 🎨 Frontend (React.js)

Pages/Routes:

Landing Page - Overview of service, CTA buttons (Sign up, Login)

Signup Page - New users register

Login Page - Existing users log in

Dashboard - See credits, generate content, view history

Generate Page - Input prompts and get AI responses

History Page - List of past AI generations

Profile Settings - Update email/password

Subscription Page - View plans and purchase via Stripe

Admin Panel (optional) - Manage users, usage analytics

Frontend Features:

- Responsive design (TailwindCSS / Material-UI)

- Authenticated routes

- React Router for navigation

- Axios for API requests

- Toast notifications

- Loading spinners

- Form validation

## 🚀 Backend (Node.js + Express)

API Routes:

POST /api/auth/signup - Create new user

POST /api/auth/login - Authenticate user

GET /api/user/profile - Get user profile

PUT /api/user/profile - Update user profile

POST /api/ai/generate - Generate text with AI

GET /api/ai/history - Get user's past generations

POST /api/stripe/create-checkout-session - Create Stripe checkout

POST /api/stripe/webhook - Handle Stripe events

GET /api/admin/users - Get list of users (Admin Only)

Backend Features:

- JWT Authentication

- Role-based authorization

- Secure password hashing (bcrypt)

- Rate limiting

- Error handling middleware

- Stripe integration

- AI integration

- Credit system

- Email sending (optional)

## 🗄 Database (MongoDB)

Collections/Schemas:

- User: name, email, password, credits, isAdmin, subscriptionStatus, timestamps

- Generation: userId, inputPrompt, aiResponse, timestamps

- Subscription (optional): userId, planId, status, payment details

## 🛡 Security Features

- Secure environment variables (.env)

- HTTP-only cookies

- Input validation

- Stripe webhook validation

- Admin route protection

- Rate limiting

## 💳 Stripe Payment Plans

Free Plan - $0 - 1000 words per month

Basic Plan - $9/month - 10,000 words per month

Pro Plan - $29/month - 50,000 words per month

## 🧹 Extra Features (Stretch Goals)

- Dark mode toggle

- Google OAuth login

- Download text as PDF

- Share generation links

- Multi-language support

- Admin analytics dashboard

## 📂 Suggested Folder Structure

/client/src/components

/pages

/services

/context

/utils

App.js

index.js

/server/controllers

/routes

/models

/middleware

/utils

server.js

config.env

## 🛠 Tools/Services to Use

- Frontend: React.js, TailwindCSS, Axios

- Backend: Node.js, Express.js

- Database: MongoDB Atlas

- Authentication: JWT

- Payments: Stripe

- AI: OpenAI API

- Hosting: Vercel (Frontend), Render/Heroku (Backend)

## ✨ Basic UI/UX Wireframe

Landing Page - Logo, Navigation, Hero Section, Features, Footer

Signup Page - Name, Email, Password Inputs

Login Page - Email, Password Inputs

Dashboard - Welcome, Credits Remaining, Quick Actions

Generate Page - Form for Prompt, Dropdowns for Tone, Content Type

History Page - List of Previous Generations

Subscription Page - Plan Options

Profile Settings - Update Name, Password

Admin Panel - User Management, Analytics

## ✨ Design Style

- Clean, minimalistic layout

- Primary color: Blue or Dark theme

- Rounded buttons with hover animations

- Modern typography (Inter, Poppins)

## ✅ Final Deliverables

- Working full-stack app

- Live deployed version

- GitHub repository with README

- (Optional) Demo video

## 🌟 Goal

This project will showcase:

- Frontend skills (React)

- Backend/API development

- Integration of external APIs (AI, Stripe)

- Authentication/Security practices

- SaaS product building experience