VIT

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Software Development Life Cycle (SDLC) Report for Sentiment Analysis Dashboard

Planning and Analysis

Objective: Define the project scope, gather requirements, and create detailed documentation.

Activities:

- **Requirement Gathering:** Business analysts and project managers will meet with stakeholders to gather detailed requirements for the Sentiment Analysis Dashboard. This includes understanding the core functionality (text input for analysis, displaying sentiment results, managing sentiment records) and any specific features or constraints.
- **Documentation:** Create a detailed Software Requirement Specification (SRS) document. This document will include:
    - Project overview and objectives.
    - Functional requirements (e.g., ability to input text, display sentiment analysis, manage sentiment records).
    - Non-functional requirements (e.g., performance, usability, security).
    - Technical requirements (e.g., technologies to be used, integration points).
    - User stories and use cases.
- **Review and Sign-Off:** The SRS document will be reviewed with stakeholders to ensure all requirements are accurately captured and understood. Stakeholders will sign off on the SRS document, indicating their agreement and approval.

Deliverables:

- SRS Document
- Sign-off from stakeholders

Design

Objective: Create the system architecture, design user interfaces, and prepare for implementation.

Activities:

- **System Architecture Design:** Developers will create a high-level system architecture that includes:
    - Backend architecture using Node.js, Express, and MongoDB.
    - Frontend architecture using React.
    - Integration of the Python script for sentiment analysis.
- **Database Design:** Define the MongoDB schema for storing sentiment analysis results.
- **API Design:** Define the API endpoints required for the frontend to communicate with the backend.

- **UI/UX Design:** Designers will create mockups and wireframes for the user interface, ensuring a user-friendly experience for inputting text, displaying results, and managing records.

Deliverables:

- System Architecture Diagram
- Database Schema
- API Design Document
- UI/UX Design Mockups

Development

Objective: Implement the design specifications into a functional system.

Activities:

- **Backend Development:**
  - Set up the Express server.
  - Develop API endpoints for handling text input, analyzing sentiment, storing results, and managing records.
  - Integrate the Python script for sentiment analysis.
- **Frontend Development:**
  - Set up the React project.
  - Implement components for text input, displaying analysis results, and managing sentiment records.
  - Connect frontend components to backend APIs using Axios.
- **Database Integration:** Set up and configure MongoDB, ensuring proper connections and data storage.

Deliverables:

- Backend Code
- Frontend Code
- Integrated Python Script

Testing

Objective: Ensure the system functions correctly and meets all requirements.

Activities:

- **Unit Testing:** Write and execute tests for individual components (both frontend and backend) to ensure they function as expected.
- **Integration Testing:** Test the interactions between different components (frontend, backend, Python script) to ensure they work together seamlessly.
- **System Testing:** Perform end-to-end testing to validate the complete functionality of the Sentiment Analysis Dashboard.

- **User Acceptance Testing (UAT):** Allow stakeholders to test the system to ensure it meets their requirements and expectations.

Deliverables:

- Test Cases Document
- Test Reports
- Bug Fixes

Deployment and Maintenance

Objective: Deploy the application to a production environment and provide ongoing support and updates.

Activities:

- **Deployment:**
  - Set up the production environment, including server and database configuration.
  - Deploy the backend, frontend, and Python script to the production server.
  - Ensure all components are correctly configured and operational.
- **Maintenance:**
  - Monitor the application for any issues.
  - Provide regular updates and patches to fix bugs and improve performance.
  - Handle user feedback and implement new features or enhancements as needed.

Deliverables:

- Deployed Application
- Deployment Documentation
- Maintenance Logs

Summary

By applying the Waterfall model to our Sentiment Analysis Dashboard project, we follow a structured and sequential approach to development. Each phase is carefully planned and executed, with clear deliverables and objectives, ensuring a well-documented and thoroughly tested final product.