Social Pulse Insight Hub

Test Plan

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1 Introduction

The Test Plan for the Social Pulse Insight Hub outlines the strategy and approach for validating the functionality, performance, and reliability of the application. This document provides a structured framework for testing various components and features to ensure that the application meets the specified requirements and user expectations.

2 Objectives

The primary objectives of the Test Plan are as follows:

- Validate the functionality of essential features such as user authentication, social media integration, data fetching, real-time updates, analytics dashboard, and data visualization.
- Verify that the application works seamlessly across multiple platforms and devices, ensuring cross-platform compatibility and responsive design.
- Evaluate the usability and accessibility of the application, identifying any usability issues and ensuring accessibility for all users.
- Assess the performance and scalability of the application under various conditions, including response time, load handling, and backend infrastructure scalability.
- Ensure that the application adheres to security best practices, protecting user data and mitigating common security vulnerabilities.
- Test error handling and recovery mechanisms to ensure that the application handles errors gracefully and maintains data integrity and stability.
- Validate integration between different components and third-party services, ensuring seamless interaction and data synchronization.
- Perform regression testing to ensure that recent code changes do not introduce new defects or regressions, maintaining the overall quality and stability of the application.

3 User Stories

The project consists of several features and functionalities:

3.1 Must-Have

Title	Description
User Authentications	As a user, I want to log in securely to access my social media analytics dashboard.
Social Media Integration	As a user, I want to connect and authenticate my social media accounts (Facebook, Instagram, X, Snapchat, Thread, etc.) to the dashboard.
Data Fetching	As a user, I want to fetch data from connected social media platforms (Facebook, Instagram, X, Snapchat, Thread, etc.) to view analytics.
Real-Time Updates	As a user, I want to receive real-time updates on social media metrics such as post engagement, follower growth, etc.
Analytics Dashboard	As a user, I want to view and analyze social media analytics in a visually appealing dashboard.
Data Visualization	As a user, I want to visualize social media analytics data using plots, graphs, and charts for better insights.

3.2 Should-Have

Title	Description
Customizable Data Visualization	As a user, I should be able to customize and interact with data visualization (e.g., filter data) to tailor them to my needs.
Multi-Platform Support	As a user, I should be able to access the application and view the analytics dashboard from multiple platforms (e.g., desktop, and mobile).
Responsive Design	As a user, I should be able to experience a responsive design that adapts well to different screen sizes and orientations across various devices.

3.3 Could-Have

Title	Description
Predictive Analytics	As a user, I could predict analytics features that forecast future trends based on historical data.
Collaboration Features	As a user, I could collaborate with team members by sharing analytics dashboards and insights.
Social Media Scheduling	As a user, I could schedule social media posts directly from the analytics dashboard.

3.4 Won't-Have

Title	Description
Advanced Machine Learning Models	As a user, I will not have access to advanced machine learning models for predictive analytics due to resource constraints.
Built-in Social Media Posting	As a user, I will not have the ability to post directly to social media platforms from the dashboard.

4 Test Cases

4.1 Authentication

Objective: Ensure users can securely log in to the application.

Step	Title	Description	Expected Result
6.1.1	Valid credentials	Verify that valid credentials allow access to the dashboard.	Successful login.
6.1.2	Invalid credentials	Verify that invalid credentials are rejected with appropriate error messages.	Send an error message to the user.
6.1.3	Forgot password	Test the functionality of the "Forgot Password" feature.	Change password functionality works properly and the user can log in with the new password.

4.2 Social Media Integration

Objective: Verify that users can successfully connect and authenticate their social media accounts.

Step	Title	Description	Expected Result
6.2.1	Integration	Test the integration with various social media platforms.	Successful integration with social media platforms.
6.2.2	Revoke	Ensure that users can revoke access to connected accounts.	Able to revoke the connection between the accounts.
6.2.3	Error handling	Test the handling of authentication errors and prompts for reauthentication.	Proper error handling for security reasons.

4.3 Data Fetching

Objective: Validate that the application can fetch data from connected social media platforms.

Step	Title	Description	Expected Result
6.3.1	Data fetch	Verify that data is fetched accurately and promptly.	Up-to-date data analysis is shown on the dashboard.
6.3.2	API	Test the handling of API rate limits and errors.	API works properly.
6.3.3	Data match	Ensure that fetched data matches expectations and is consistent across platforms.	Correct data is presented on the dashboard.

6.4 Analytics Dashboard

Objective: Ensure that the analytics dashboard displays data accurately and effectively.

Step	Title	Description	Expected Result
6.4.1	Analytics	Verify that all analytics metrics (e.g., post engagement, follower growth, popular hashtags) are displayed correctly.	Correct data are displayed.
6.4.2	Performance	Test the performance and scalability of real-time updates with a large dataset.	The application is working properly despite a large number of datasets.
6.4.3	Notify	Ensure that users receive appropriate notifications for significant changes in metrics.	Send a notification or mail to the user about any changes.

4.5 Cross-Platform Compatibility

Objective: Validate that the application works seamlessly across different platforms and devices.

Step	Title	Description	Expected Result
6.5.1	Web browser	Test the application on various web browsers (e.g., Chrome, Firefox, Explorer).	Proper performance on different web browsers.
6.5.2	Functionality	Verify the functionality and UI consistency on different operating systems (e.g., Windows and Android).	Proper performance on mobile and desktop.

6.6 Usability and Accessibility

Objective: Evaluate the usability and accessibility of the application for all users.

Step	Title	Description	Expected Result
6.6.1	Alpha	Conduct usability testing with representative users to identify any usability issues.	Collect feedback from testers and update the application according to that.
6.6.2	Beta	Conduct usability testing with representative users to identify any usability issues.	Collect feedback from testers and update the application according to that.

6.7 Performance and Scalability

Objective: Assess the performance and scalability of the application under various conditions.

Step	Title	Description	Expected Result
6.7.1	Response time	Test the application's response time and loading speed with different network conditions.	Quick and fast response time.
6.7.2	Usage	Conduct load testing to determine the application's performance under heavy user traffic.	Proper performance under heavy user traffic.
6.7.3	Structure	Evaluate the scalability of the application's backend infrastructure to handle increased data volume.	Proper backend structure.

4.8 Security

Objective: Ensure that the application adheres to security best practices and protects user data.

Step	Title	Description	Expected Result
6.8.1	Vulnerabilities	Test for common security vulnerabilities (e.g., SQL injection, cross-site scripting) using automated scanning tools.	Successful scanning.
6.8.2	Sensitive data	Verify that sensitive user data is encrypted both in transit and at rest.	No leaking of any sensitive information about the users.
6.8.3	Penetration testing	Conduct penetration testing to identify and address potential security weaknesses.	Proper and successful testing.

4.9 Error Handling and Recovery

Objective: Validate that the application handles errors gracefully and provides appropriate error messages.

Step	Title	Description	Expected Result
6.9.1	Troubleshooting	Verify that error messages are clear and informative, and help users troubleshoot issues.	Clear error messages for the users.
6.9.2	Recovery	Test the recovery process after encountering errors to ensure data integrity and application stability.	Professional recovery.

4.10 Integration Testing

Objective: Test the integration between different components and third-party services.

Step	Title	Description	Expected Result
6.10.1	Process	Verify that data fetched from social media platforms is correctly processed and integrated into the analytics dashboard.	Proper and correct integration.
6.10.2	Connection	Test the interaction between the frontend UI and backend APIs for a seamless user experience.	Proper performance between the UI and the APIs.

4.11 Regression Testing

Objective: Ensure that recent code changes have not introduced any new defects or regressions.

Step	Title	Description	Expected Result
6.11.1	Verify	Re-run previously executed test cases to verify that existing functionality remains unaffected.	Test until they are successful, safe and secure.