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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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.

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| --- | --- | --- | --- |
| 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. |