

Test Plan
Project Title: Mental Health Analysis

CS-5493 Large-Scale Data Management

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Purpose of the Document

Using the Test Plan document to describe the testing approach and overall framework that will drive the testing of this project Mental Health Analysis.

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1 Introduction

1.1 PURPOSE

For testing, different testing methods are followed like unit testing, functional testing of all features that is involved in the project. So basic idea is to test the working module of project before the final submission and presentation ensuring that all are working and good to proceed.

Provide a summary of the test strategy, test approach, execution strategy and test management.

1.2 PROJECT OVERVIEW

To analyze the mental health of the user by their social media posts in twitter, Instagram, reddit, Facebook and other platforms. Analyzing that data and harvesting meaning out of that is a tedious job. In this work, the number of tweets in which opinions are highly unstructured and are either positive or negative or sometimes neutral is being used for the analysis. Sentiment Analysis can be supported with several machine learning algorithms to classify the mental health of the user. Simulation results show the enhancement in sentiment analysis of the Twitter data for the intuitive mental wellness of a person. This project highlights the methodology for mental health analysis for the intuitive well-being of the person. It uses sentiment analysis and its approach to analyze the mental well-being of users and display results using data visualization.

2 Scope

2.1 IN-SCOPE

Testing is done from dataset collection to end of the phase of project which is visualization this includes testing the web scraping script running, data obtained matches the expectation, data being loaded correctly, webui is user interactive and user friendly also sentiment analysis results are as expected and data visualization for these results are optimal and accurate. The security of webserver and the project server is also being ensured. This involves testing backend to front end of the project.

2.2 OUT-OF-SCOPE

Nil

Identify all features and combinations of features which will not be tested and the reasons.

3 Testing Strategy

3.1 TEST OBJECTIVES

1. To test the web scraping script is working fine as expected and data is being downloaded in .csv files for all the keywords/ topics that is used as part of mental health analysis.
2. Verify the .csv file data is readable and in UTF-8 encoding as it is being created by script.

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3. To verify the data cleaning script and the output fields from this data cleaning process should not contain Quotes("") as it is being removed and cleaned data should be in .csv files.
 4. Verify the DB server and a new database for LSDM project is being created and working.
 5. Verify whether data loaded to the database tables are same as the data in .csv files.
 6. To verify the webui and its features added are working with the DB integration part to display the results.
 7. To Validate the results of sentiment analysis by using some samples matching with the content of people post and their mental state whether it is positive, negative or neutral.
 8. Validate the results of data visualization in form of bar graphs and word clouds for all the topics/keywords that are used.

3.2 TEST ASSUMPTIONS

All the objectives of the test should be tested and successfully working as expected.

3.3 DATA APPROACH

Test Data is we using actual data that is being imported to the database from the files. To validate this data we are matching the data imported and exported by exact validation and comparing the counts of data loaded and received into the database. For results of sentimental analysis checking we considering 10 samples results and comparing with actual data content of person's tweet/share in the social media and analyzing it and verify that the expected results is being achieved or not.

3.4 LEVEL OF TESTING

List the types of testing to be performed.

Test Type	Description	Responsible Parties
Unit testing	Every flow to be tested	All
Integration testing	All backend details should work	All
User Acceptance Testing	All frontend details should work	All
Security Testing	Ensure the security for the UI and DB	All

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3.5 UNIT TESTING

Unit testing will be performed to ensure that each individual component of the project is functioning correctly. This will involve testing the code for the data collection process, data analysis, and visualization dashboard to ensure they work as expected. For data collections process we ensured web scraping script returns the expected data only. We validated results by ensuring the same amount of data is being imported and exported. Also the ensured the content is of data being matched during the load. Also ensured that the features added in WebUI is working as expected

Participants:

Tester's Name	Test Description	Results
Cole R Holub	Web Scraper	Working as Expected
Laxmi Narayanan Appu Saravanan	Web- interface deployment	Working successfully
Safiuzzama Khan	Data Validation	Data is matching

3.6 INTEGRATION TESTING

To ensure that all the individual components of the project are working together correctly. This will involve testing the interaction between the data collection, data storage, and dashboard visualization components. As part of this we have tested the server is being connected and stable between the database and webserver that is hosting the webpage and returns the expected results for the search functionality.

Participants:

Tester's Name	Test Description	Results
Laxmi Narayanan Appu Saravanan	Web and DB connection using php	Working Successfully
Altamish Merchant	Search functionality	Returns expected results
Cole R Holub	Testing the project server setup running in backend to integrate the DB and web-interface	Working as Expected

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3.7 USER ACCEPTANCE TESTING

User acceptance testing will be performed to ensure that the dashboard and website are user-friendly and meet the requirements of the target audience. While a search keyword is given in webui whether it is returning the accurate results as expected are not is also part of this testing and this has been validated. This will involve getting feedback from end-users and incorporating any necessary changes to improve the user experience in webui. Also to ensure that the system can handle a large volume of data and traffic without crashing or slowing down. This will involve simulating high traffic and data volume scenarios to test the system's performance under heavy load.

Participants:

Tester's Name	Test Description	Results
Safiuzzama Khan	Testing the data that is returned is expected data or not	Data is matching
Altamish Merchant	Dashboard displaying trends and statistics is to be tested	Working as expected
Cole R Holub	System check that webui requested data and DB server can handle request and return large volume of data without interruption	Working successfully for large volume of data returning.

3.8 SECURITY TESTING

Security testing will be performed to ensure that the system is secure from cyber threats and that user data is protected. This will involve testing the system for vulnerabilities, implementing security measures, and conducting penetration testing to ensure that the system is secure. We use the personalized server for the database and to host the webserver. By performing these testing procedures, we can ensure that the mental health project is accurate, effective, user-friendly, and secure. Any issues identified during testing will be addressed promptly to ensure that the final product meets the highest standards.

Participants:

Tester's Name	Test Description	Results
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Laxmi Narayanan Appu Saravanan	Checking the authentication and authorization at all levels of project server and DB server	Authentication is working as expected. And only authorized users are allowed to perform actions.
Cole Holub	Verify the server has SSL/TLS implementation is "A" rated.	Verified it is 'A' rated.
Altamish Merchant	Verify whether website uses https format and not http and data should not be visible in source code of html implementation.	Website uses https and no visible actual data contents in html source code, data is from DB only directly.

4 TEST RESULTS

1. The web scrapping script is working fine as expected and data is being downloaded in .csv files for all the keywords/ topics that is used as part of mental health analysis.
2. CSV file the downloaded data is readable and in UTF-8 encoding as it is being created by script.
3. The data cleaning script and the output fields from this data cleaning process is not having Quotes("") as it is removed and cleaned data are present .csv files with the keywords/topics that are related to the mental health
4. The DB server and a new database for LSDM project is being created and indexes and primary key for the list of tables are also present and data is viewable and can be processed.
5. Data Validation is performed and as a result the data loaded to the database tables are same as the data in .csv files.
6. The webui and its features added are working as all pages within the web page can be viewed and interacted with the user and the search functionality is returning the results as matching with the keyword that is entered that means DB integration part to display the results.
7. Validated the results of sentiment analysis by considering some samples of data in the keywords related to mental health and matching with the content of people post and their mental state whether it is positive, negative or neutral.
8. Validates the results of data visualization in form of bar graphs and word clouds for all the topics/keywords that are used.