



COMSATS University Islamabad (CUI)

**Software Requirement Specification
(SRS DOCUMENT)**

for

**<Automatic detection of Cyber Bullying in Social Media
Platforms>**

Version 1.0

By

Waleed Umar

CIIT/FA18-BSE-102/ISB

Aseed Ali Khokhar

CIIT/FA18-BSE-015/ISB

Supervisor

Dr. Tahir Mustafa Madni

Co-Supervisor

Dr. Uzair Iqbal Janjua

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Supervised by
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Signature_____

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1. Introduction

1.1 Purpose

The SRS document contains functional and non-functional requirements for Cyber Watch, an Android, IOS, and Web-based application designed for avid social media users who spend the majority of their time on social networking sites. The idea is to come up with a platform to detect cyberbullying with the help of machine learning algorithms. In addition to this, the system will provide assistance to the victim of bullying by recommending stuff the user likes in order to improve their mood.

The purpose of writing this document is to provide assistance to the developers and software testers. This document covers all the functional and non-functional requirements of the system and would help developers to develop the system. Moreover, it will be beneficial for software testers to test each and every functionality implemented in the system according to requirements specified.

1.2 Scope

For social media users who spend most of their time surfing different social networking sites & are prone to cyberbullying and attacks, Cyber Watch is a multi-platform application that will provide daily reports of their social media usage. Along with the help of different indicators and machine learning algorithms, the system will check if the use of social media is hurting the mind of user. It will also keep an eye on the mood of the user and would suggest different activities to the user to improve their mood and emotions. The system will have a chatbot that will be the first to respond to users when they are exposed to bullying.

The purpose of our proposed system is to provide a platform which can help user to use social media more safely, provide parents a platform where they can monitor whether their children are facing online bullying and harassment or not. In addition to this, our system will provide users with an option to search for the intent of market related to a specific keyword. Moreover, to tackle the situation of loneliness and depression detection in users, a chatbot will be implemented, which will coordinate with analyses models to detect the users' mood. If the user is feeling sad, the chatbot will suggest user activities that best suit their interests. For parents, they would receive the reports generated for the activity of their children which will help them to know if their wards are subjected to some abnormal activity on social media platforms.

All this will be implemented with the help of efficient NLP models with the help of Deep Learning and Neural Network concepts

1.3 Modules

1.3.1 User Account Management System (Parents and Kids)

Features:

- In this module, features regarding account creation and login will be handled
- New users can easily register for our system by filling in the sign up form
- Users will be given option to change their name and password
- Users will have an option to delete their accounts.

1.3.2 Data Gathering Using APIs

Features:

- Gathering Facebook data (posts, comments, replies, conversations) with the help of **Graph API**.
- Users will generate access token by authentication with the help of Facebook login.
- Twitter data will be captured through **Twitter API**
- Users will generate access token by authentication with the help of Twitter login

1.3.3 Data Preprocessing

Features:

- The datasets that would be used for machine learning models will be filtered.
- All the data would be cleaned by performing operations like
 - (a) Removing outliers
 - (b) Converting the whole dataset into lowercase
 - (c) Removal of special characters (@, #)

1.3.4 Sentiment Analysis

Features:

- In this module, the sentiment analysis model will be implemented to check sentiment of user's activity on different social media platforms.
- The model will be trained using different machine learning algorithms like **Naive Bayes, Support Vector Machine and CNN**
- The model analyzes the text and classify the text in three categories which are "Bullying", "Non-Bullying" and "Neutral"
- In this module emotional analysis is also implemented which checks for the emotions of the user based on their social media activity.
- A report will be generated based on these analysis and will be delivered to the guardians or emergency contacts of the user.

1.3.5 Activity Analysis

Features:

- This module will be used to track and record activities of the user.
- User will be able to record their activities and their moods.
- On base of the entered data, the system will recommend related activities to the user on the basis of his current mood.

1.3.6 Virtual Assistant Chatbot

Features:

- In this module a chatbot will be implemented
- The chatbot will analyze the behavior and mood of the user on basis of different analyses as discussed above.
- On basis of mood of the user, the chatbot will provide recommendation to the user along with an option to have a chat.

1.3.7 Data Visualization

Features:

- In this module, the results of sentiment analysis will be visualized to user in form of bar charts and graphs on weekly basis
- In this module, the results of emotional analysis will be visualized to user in form of bar charts and graphs on weekly basis

1.3.8 Development of Mobile Application

In this module, we will make the mobile application of our project.

1.3.9 Development of Website

In this module, we will develop a website for our proposed system. The website will be built on principles of Human Computer Interaction and would be responsive.

1.4 Overview

The purpose of writing SRS document is to document all the requirements regarding the proposed system and to elicit all the constraints and limitations that we need to keep in mind while working on our project. We will write everything from Scope to Functional and Non-Functional requirements in this document.

At first we will come up with Scope and Purpose of our system. After that Product Perspective will be written describing whether our project is a new product or continual of an existing product line. In addition to this, the document covers the constraints that developers need to keep in mind while developing the system alongwith writing the environment in which the system will. The environment can be anything from particular Operating Systems on which the app would run to geographical locations where it would be used.

After writing all this down, then the document covers the requirement identification technique that would be used to elicit requirements from the user. In this case, the identification technique used is User Stories which would help to determine what the users want from the system in order to make it a success in the market.

2. Overall Description

2.1 Product Perspective

Cyber Watch is a new software system that aims to provide a platform that gives users especially marketers a chance to check the sentiment of the audience regarding a particular brand or keyword on Twitter. Moreover, users can connect their Twitter and Facebook accounts with our platform. As a result, the system will generate reports using different machine learning algorithms informing the type of content the user interacted with.

In addition to this, the system has an integrated chatbot that will provide assistance to the user when he/she goes through a rough patch. The chatbot will provide an option to have chat with it. It will also recommend different content to the user depending on his/her choices. The system will also inform the guardian contact of the user regarding the mood or emotions they are in.

2.2 User classes and characteristics

User class	Description
Children/Teenagers	Children and teenagers makes up more than 50% of the social media users. Recently, it was stated that the teenagers spend about 3 hours a day surfing through different social media platforms. But the dominant platforms that they spend most of their time are Facebook, Twitter and Instagram. For our system, children and teenagers are main the users of our system.
Parents	Parents want to ensure the best of everything for their children. They try their best to ensure that their children are out of harm's way. This system will provide a platforms for parents which can help them know if their child is being bullied on social media so that he can be helped timely.
Marketers	Marketers always want some data before making decisions regarding marketing of their brand and products. The system will provide them an option to check the sentiment of public regarding their particular queries..

2.3 Operating Environment

OE-1	The system shall work on android devices with OS versions 5.0 or higher
OE-2	The system shall work on IOS version 11 or higher
OE-3	The database of the system is MongoDB which shall be connecting through Node JS
OE-4	The system shall be available for use in all countries where Facebook and Twitter are used

2.4 Design and Implementation Constraints

CO-1	The system shall use MongoDB as database to store data
CO-2	Flutter shall be used for frontend UI development
CO-3	Tensorflow library shall be used for making machine learning models
CO-4	The backend to be written using MERN framework
CO-5	Python language shall be used for making machine learning
CO-6	The Twitter account of the user should not be private.

3. Requirement Identifying Technique

The requirement identifying technique that we are going to use for our project is **User Stories**. User stories help to identify functional requirements keeping end user perspective in mind.

The format of user story is as follow:

As a <who> I want to <what> so that <why>.

Here “who” answers the question that who will be the user of the product and for whom the requirement is made.

“What” is the task or functionality that is to be added for the stakeholder

“Why” tells the rationale or vision behind using the requirement

Example:

“As a passenger, I want to link my credit card to my profile so that I can pay faster”

Here the **passenger** responds to the answer **WHO**, **link my card to profile** responds to **WHAT** and to **pay faster** responds to the answer **WHY**

Following are User Stories for our project:

US-1: As a user, I want to be able to connect my Facebook and Twitter account with system so I can use all functionalities

US-2: As a parent, I would want to know if my child is exposed to toxic environment on social media so that I can help him

US-3: As a user, I want to connect to platform through Google Accounts for easy set up

US-4: As a user, I want to chat with the bot in a way that we usually do in other platforms so that I can feel comfortable while using it.

US-5: As a marketer, I want to be able to check sentiment of public regarding particular keyword on Twitter in order to make better marketing decisions.

US-6: As a user, I want the system to display me my Social Media interactions in terms of charts and graphs on a weekly basis.

US-7: As a user, I want the system to have a chat with me when I am going through a fragile mental state.

US-8: As a user, I want the system to add an emergency contact to share emotional and sentimental behavior report so that they can help me out.

US-9: As a user, I want to be able to edit my account whenever I want in order to keep my account information updated.

US-10: As a user, I want the system to show me my daily Social Media Analyses report so that I can have a glimpse of the type of exposure I had on social media

US-11: As a user, I want the system to keep a track of my daily activities along with my mood in order to suggest me content in the future.

4. Functional Requirements

Functional requirements helps to identify **What** the system in question suppose to do. The following section contains functional requirements for our proposed system.

4.1 Functional Requirements

- **Register**
 - (a) Register.UniqueEmail
 - (b) Register.UserAlreadyExists
 - (c) Register.UniqueEmail.ChooseNew
 - (d) Register.ChoosePassword
 - (e) Register.Password.CheckMinimumLength
 - (f) Register.Password.CheckCapital
 - (g) Register.Password.CheckSpecialCharacter
 - (h) Register.DateofBirth
 - (i) Register.Country
 - (j) Register.ConnectGoogleAccount
 - (k) Register.ConnectGoogleAccount.GoogleAccountAlreadyLinked
- **Login**
 - (a) Login.CheckEmptyFields
 - (b) Login.Unregistered
 - (c) Login.WithGoogle
 - (d) Login.ForgetPassword
 - (e) Login.TwoWayAuthentication
- **User Profile**
 - (a) UserProfile.EditProfile
 - (b) UserProfile.LinkFacebook
 - (c) UserProfile.LinkTwitter
 - (d) UserProfile.AddEmergencyContact
 - (e) UserProfile.DeleteAccount
 - (f) UserProfile.Logout
- **Gather Data**
 - (a) GatherData.VerifyFacebookAuthKey
 - (b) GatherData.VerifyTwitterAuthKey
 - (c) GatherData.RetrieveFacebookUserData
 - (d) GatherData.RetrieveTwitterUserData
- **Analyze Data**
 - (a) AnalyzeData.CheckSentiment
 - (b) AnalyzeData.CheckEmotion

- (c) AnalyzeData.CheckBullying
- (d) AnalyzeData.CheckHarrasment

- **Activity Analysis**
 - (a) ActivityAnalysis.FillActivitySurvey
- **Chatbot**
 - (a) Chatbot.ChatWithUser
 - (b) Chatbot.RecommendActivities
 - (c) Chatbot.UnderstandDialogues
 - (d) Chatbot.ShareYesterdayReport
- **Visualization Dashboard**
 - (a) Dashboard.DisplaySocialMediaActivities
 - (b) Dashboard.DisplaySentimentMetrics
 - (c) Dashboard.DisplayEmotionMetrics
 - (d) Dashboard.DisplayBullyingMetrics
 - (e) Dashboard.DisplayHarrasmentMetrics

Fucntional Requirement: Register

<Register.UniqueEmail >

Table 1: Description of FR-1.0

Identifier	FR-1.0
Title	Register.UniqueEmail
Requirement	The system shall not assign same email account to two different users
Source	The source of this requirement comes from studying similar systems already present in the market.
Rationale	The reason is to provide each user a unique id so that it is easy to fetch data for a particular user and not to cause a confusion for system while working on the database
Business Rule (if required)	No two users can be given same email
Dependencies	Requirements ID that is dependent on this requirement
Priority	High

<Register.UserAlreadyExist >

Table 2: Description of FR-1.1

Identifier	FR-1.1
Title	Register.UserAlreadyExist
Requirement	The system shall display error message to the user if the entered email is already linked to another user account.
Source	The source of this requirement comes from studying similar systems already present in the market.
Rationale	The reason is to provide each user a unique id so that it is easy to fetch data for a particular user and not to cause a confusion for system while working on the database
Business Rule (if required)	No two users can be given same email
Dependencies	NULL
Priority	High

<Register.UserAlreadyExist.ChooseNew >

Table 3: Description of FR-1.2

Identifier	FR-1.2
Title	Register.UserAlreadyExist.ChooseNew
Requirement	If the email is already taken, the system shall prompt user to enter a new email account
Source	The source of this requirement comes from studying similar systems that already exist in the market.
Rationale	The reason is to provide each user a unique id so that it is easy to fetch data for a particular user and not to cause a confusion for system while working on the database
Business Rule (if required)	No two users can be given same username
Dependencies	NULL
Priority	High

<Register.ChoosePassword>

Table 4: Description of FR-1.3

Identifier	FR-1.3
Title	Register.ChoosePassword
Requirement	The user shall choose password in order to complete the register process and to secure their account
Source	The source of this requirement comes from studying similar systems that already exist in the market.
Rationale	The reason is to ensure that the account of the user is secure and cannot be accessed by unauthorized people easily
Business Rule (if required)	NULL
Dependencies	FR-1.4
Priority	High

<Register.Password.CheckMinimumLength>

Table 5: Description of FR-1.4

Identifier	FR-1.4
Title	Register.Password.CheckMinimumLength
Requirement	The system shall check the minimum password length entered by the user before validating it.
Source	The source of this requirement comes from studying similar systems that already exist in the market.
Rationale	The reason behind this requirement is to strengthen the account security and to come up with a password that cannot be easily cracked.
Business Rule (if required)	NULL
Dependencies	NULL
Priority	High

<Register.Password.CheckPattern>

Table 6: Description of FR-1.5

Identifier	FR-1.5
Title	Register.Password.CheckPattern
Requirement	The system shall check the pattern of email entered by the user before accepting it. If the password entered does not meet the criteria, it should prompt the user to re-enter password
Source	The source of this requirement comes from studying similar systems that already exist in the market.
Rationale	The reason behind this requirement is to strengthen the account security and to come up with a password that cannot be easily cracked.
Business Rule (if required)	NULL
Dependencies	NULL
Priority	High

<Register.ConnectGoogleAccount>

Table 7: Description of FR-1.6

Identifier	FR-1.6
Title	Register.ConnectGoogleAccount
Requirement	The users shall be able to register on the platform by connecting their google accounts
Source	The source of this requirement comes from the stakeholders involved.
Rationale	The reason behind this requirement is to make the registration process easy for the user
Business Rule (if required)	None
Dependencies	NULL
Priority	Medium

<Register.ConnectGoogleAccount.AccountAlreadyLinked>

Table 8: Description of FR-1.7

Identifier	FR-1.7
Title	Register.ConnectGoogleAccount.AccountAlreadyLinked
Requirement	The system shall display error message to the user if the entered google account is already linked to another user account.
Source	The source of this requirement comes from studying similar systems.
Rationale	The reason is to provide each user a unique id so that it is easy to fetch data for a particular user and not to cause a confusion for system while working on the database
Business Rule (if required)	None
Dependencies	NULL
Priority	Medium

Functional Requirement: Login

<Login.CheckEmptyFields >

Table 9: Description of FR-2.0

Identifier	FR-2.0
Title	Login.CheckEmptyFields
Requirement	The system shall check if the user has entered both the email and password. If anyone of the following fields are not filled, the system shall prompt the user to fill out the particular field.
Source	The source of this requirement comes from studying similar systems.
Rationale	The reason is to ensure that the only registered users can have access to the services being offered.
Business Rule (if required)	Only registered users can access the system
Dependencies	NULL
Priority	Medium

<Login.Unregistered >

Table 10: Description of FR-2.1

Identifier	FR-2.1
Title	Login.Unregistered
Requirement	The system shall check if the user already exist or not by verifying the credentials entered. If the credentials do not belong to the user, the system shall prompt the user to enter valid credentials or to create an account.
Source	The source of this requirement comes from studying similar systems.
Rationale	To make it easy for user to create account. They would not have to get back to go to account creation instead make with single click
Business Rule (if required)	Only registered users can access the system
Dependencies	FR-2.4
Priority	Medium

<Login.WithGoogle >

Table 11: Description of FR-2.2

Identifier	FR-2.2
Title	Login.WithGoogle
Requirement	The users shall be able to login into their account by using their google account credentials
Source	Stakeholders
Rationale	The reason is to ensure that the only registered users can have access to the services being offered.
Business Rule (if required)	Only registered users can access the system
Dependencies	NULL
Priority	Medium

<Login.ForgetPassword >

Table 12: Description of FR-2.3

Identifier	FR-2.3
Title	Login.ForgetPassword
Requirement	The users shall be able select new password in case they forget the old password.
Source	Stakeholders
Rationale	The reason is to ensure that the user does not loose access to their account
Business Rule (if required)	NULL
Dependencies	NULL
Priority	Medium

<Login.TwoWayAuthentication >

Table 13: Description of FR-2.4

Identifier	FR-2.4
Title	Login.TwoWayAuthentication
Requirement	<p>The system shall send One Time Password (OTP) through email to the users after they have initiazted the login request.</p> <p>The user shall be able to enter the received OTP in order to gain access to their account.</p>
Source	Stakeholders
Rationale	The reason is to ensure that the only registered users can have access to the services being offered.
Business Rule (if required)	Only registered users can access the system
Dependencies	NULL
Priority	Medium

Fucntional Requirement: User Profile

<UserProfile. EditProfile>

Table 14: Description of FR-3.0

Identifier	FR-3.0
Title	UserProfile.EditProfile
Requirement	The users shall be able to modify their account details for instance change password or change emergency contact.
Source	Stakeholders
Rationale	The reason is to ensure that users are able to keep their profile information up to date.
Business Rule (if required)	NULL
Dependencies	NULL
Priority	Medium

<UserProfile. LinkFacebook>

Table 15: Description of FR-3.1

Identifier	FR-3.1
Title	UserProfile.LinkFacebook
Requirement	The users shall be able to connect their Facebook account with the system
Source	Stakeholders
Rationale	The reason is that the main goal of the system is to gather data from user's Facebook profile to perform analysis through machine learning algorithms
Business Rule (if required)	Users should have working Facebook account
Dependencies	NULL
Priority	High

<UserProfile.LinkTwitter>

Table 16: Description of FR-3.2

Identifier	FR-3.2
Title	UserProfile.LinkTwitter
Requirement	The users shall be able to connect their Twitter account with the system.
Source	Stakeholders
Rationale	The reason is that the primary goal of the system is to gather data from user's Twitter profile to perform analysis through machine learning algorithms.
Business Rule (if required)	Users should have working Twitter account.
Dependencies	NULL
Priority	High

<UserProfile.DeleteAccount >

Table 17: Description of FR-3.3

Identifier	FR-3.3
Title	UserProfile.DeleteAccount
Requirement	The user shall be able to close their account whenever they deem fit.
Source	The source of this requirement comes from studying similar systems.
Rationale	The reason is to ensure that the user is able to quit using the system according to his will.
Business Rule (if required)	Only registered users can delete their account.
Dependencies	NULL
Priority	Low

<UserProfile.AddEmergencyContact>

Table 18: Description of FR-3.4

Identifier	FR-3.4
Title	UserProfile.AddEmergencyContact
Requirement	The user shall be able to add their friends' or family members' email as emergency contacts.
Source	Stakeholders
Rationale	The reason is to ensure that the users can get timely assistance from their loved ones.
Business Rule (if required)	The email entered of emergency contact should be valid.
Dependencies	NULL
Priority	Medium

<UserProfile.Logout >

Table 19: Description of FR-3.5

Identifier	FR-3.5
Title	UserProfile.Logout
Requirement	The user shall be able to signout from the system whenever he wants.
Source	The source of this requirement comes from studying similar systems.
Rationale	The reason is to ensure that the users are able to leave the app whenever he feels like.
Business Rule (if required)	NULL
Dependencies	NULL
Priority	LOW

Fucntional Requirement: Gather Data

<GatherData.VerifyFacebookAuthenticationKey >

Table 20: Description of FR-4.0

Identifier	FR-4.0
Title	GatherData.VerifyFacebookAuthenticationKey
Requirement	The system shall be able to verify Facebook authentication key in order to access data from profile of users
Source	Stakeholders
Rationale	The reason is to connect user's Facebook account with our system.
Business Rule (if required)	Only registered users can access the system
Dependencies	FR-5.0 to FR-5.3
Priority	Medium

<GatherData.VerifyTwitterAuthenticationKey >

Table 21: Description of FR-4.1

Identifier	FR-4.1
Title	GatherData.VerifyAuthenticationKey
Requirement	The system shall be able to verify authentication key in order to access data from Twitter handles of users.
Source	Stakeholders
Rationale	The reason is to ensure that the only registered users can have access to the services being offered.
Business Rule (if required)	Only registered users can access the system
Dependencies	FR-5.0 to FR-5.3
Priority	Medium

Fucntional Requirement: Analyze Data

<AnalyzeData.CheckSentiment >

Table 22: Description of FR-5.0

Identifier	FR-5.0
Title	AnalyzeData.CheckSentiment
Requirement	The system shall be able to analyze the sentiment of the user's Facebook and Twitter and categorize it whether it is positive, negative or neutral. The user shall be able to see the sentiment of a particular keyword on Twitter.
Source	Stakeholders
Rationale	The reason for the requirement is that one of the main goals of the system is analyze the sentiments of data user interacts with.
Business Rule (if required)	User's Facebook and Twitter account should be attached with the system.
Dependencies	NULL
Priority	High

<AnalyzeData.CheckEmotion>

Table 23: Description of FR-5.1

Identifier	FR-5.1
Title	AnalyzeData.CheckEmotion
Requirement	The system shall be able to analyze the emotions of the user's Facebook and Twitter activity.
Source	Stakeholders
Rationale	The reason for the requirement is that one of the main goals of the system is analyze the emotion of data user interacts with.
Business Rule (if required)	Only registered users can access the system
Dependencies	FR-6.1
Priority	High

<AnalyzeData.CheckBullying>

Table 24: Description of FR-5.2

Identifier	FR-5.2
Title	AnalyzeData.CheckBullying
Requirement	The system shall be able to check whether the user is being bullied on Facebook and Twitter.
Source	Stakeholders
Rationale	The reason for the requirement is that one of the main goals of the system is analyze if the user is being bullied or not.
Business Rule (if required)	NULL
Dependencies	NULL
Priority	High

<AnalyzeData.CheckHarrasment>

Table 25: Description of FR-5.3

Identifier	FR-5.3
Title	AnalyzeData.CheckHarrasment
Requirement	The system shall be able to check and point out whether the user is being harassed on Facebook or Twitter
Source	Stakeholders
Rationale	The reason implementing this feature is to check if the user was harassed online or not.
Business Rule (if required)	NULL
Dependencies	NULL
Priority	High

Fucntional Requirement: Chatbot

<Chatbot.ChatWithUser>

Table 26: Description of FR-6.0

Identifier	FR-6.0
Title	Chatbot.ChatWithUser
Requirement	The chatbot integrated in the system shall be able to initiate talks with the users when they are in bad mood
Source	Stakeholders
Rationale	The reason implementing this feature is to provide a system which can provide assistance to user when he/she is in bad mood.
Business Rule (if required)	Chatbot should be able to initiate talk with the user when he is in a bad state of mind.
Dependencies	NULL
Priority	High

<Chatbot.RecommendActivites>

Table 27: Description of FR-6.1

Identifier	FR-6.1
Title	Chatbot.RecommentActivities
Requirement	The chatbot shall recommend activities to user similar to their preference when they are not in good mood or if they were exposed to bullying or harassment.
Source	Stakeholders
Rationale	The reason implementing this feature is deviate the mind of user from the bad experience that they faced
Business Rule (if required)	Chatbot should recoomend activities preferred by the particular user.
Dependencies	NULL
Priority	High

<Chatbot.UnderstandDialogues>

Table 28: Description of FR-6.2

Identifier	FR-6.2
Title	Chatbot.UnderstandDialogues
Requirement	The chatbot shall be able to understand dialogues and it should respond to user questions and queries
Source	Stakeholders
Rationale	The aim is to make a chatbot that understands the language of the user and indulge in meaningful conversations..
Business Rule (if required)	Chatbot should understand the user input and reply accordingly.
Dependencies	NULL
Priority	High

<Chatbot.ShareReport>

Table 29: Description of FR-6.3

Identifier	FR-6.3
Title	Chatbot.ShareReport
Requirement	The system shall be able to check and point out whether the user is being harassed on Facebook or Twitter
Source	Stakeholders
Rationale	The reason implementing this feature is to check if the user was harassed online or not.
Business Rule (if required)	NULL
Dependencies	NULL
Priority	High

Fucntional Requirement: Dashboard

<Dashboard.DisplaySocialMediaActivity>

Table 30: Description of FR-7.0

Identifier	FR-7.0
Title	Dashboard.DisplaySocialMediaActiivity
Requirement	The users shall be able to see their social media activity like number of posts,comments, likes and tweets in form of cards.
Source	Stakeholders
Rationale	The reason implementing this feature is to provide overview to the user regarding his/her activities on social media platforms.
Business Rule (if required)	The user should be able to see their social media activities of last seven days.
Dependencies	NULL
Priority	Medium

<Dashboard.DisplaySentiment>

Table 31: Description of FR-7.1

Identifier	FR-7.1
Title	Dashboard.DisplaySentimentMetrics
Requirement	The users shall be able to see the number of positive,negative and neutral interactions they made on social media in the form of graphs and chart.
Source	Stakeholders
Rationale	The reason implementing this feature is to provide overview to the user regarding the type of content he/she interacted with.
Business Rule (if required)	The user should be able to see sentiment of their social media interactions in last seven days
Dependencies	NULL
Priority	Medium

<Dashboard.DisplayEmotionMetrics>

Table 32: Description of FR-7.2

Identifier	FR-7.2
Title	Dashboard.DisplyEmotionMetrics
Requirement	The users shall be able to see their emotions like how happy and sad they were while interacting on social media platforms.
Source	Stakeholders
Rationale	The reason implementing this feature is to provide overview to the user regarding his/her activities on social media platforms.
Business Rule (if required)	The user should be able to see their social media activities of last seven days.
Dependencies	NULL
Priority	Medium

<Dashboard.DisplayBullyingMetrics>

Table 33: Description of FR-7.3

Identifier	FR-7.3
Title	Dashboard.DisplayBullyingMetrics
Requirement	The users shall be able to see the name of the account and the time they were bullied in the form of cards.
Source	Stakeholders
Rationale	The reason regarding implementation of this feature is to make user know when and by whom he/she was bullied.
Business Rule (if required)	The user should be able to see the person who bullied.
Dependencies	NULL
Priority	Medium

<Dashboard.DisplayHarassmentMetrics>

Table 34: Description of FR-7.4

Identifier	FR-7.4
Title	Dashboard.DisplayHarassmentMetrics
Requirement	The user shall be to see when and by whom he/she was harassed while using Facebook and Twitter in form of cards.
Source	Stakeholders
Rationale	The reason implementing this feature is to provide overview to the user regarding the type of content he/she interacted with.
Business Rule (if required)	The user should be able to see sentiment of their social media interactions in last seven days
Dependencies	NULL
Priority	Medium

Fucntional Requirement: Activity Analysis

<ActivityAnalysis.FillSurvey>

Table 35: Description of FR-8.0

Identifier	FR-8.0
Title	ActivityAnalysis.FillSurvey
Requirement	<p>The users shall be able fill survey of the type of activities they like to perform when they are in different mood states</p> <p>The system shall make it compulsory for the user to fill out the survey when he access the system for the first time.</p>
Source	Stakeholders
Rationale	The reason implementing this feature is to provide overview to the user regarding his/her activities on social media platforms.
Business Rule (if required)	It is mandatory for user to fill out the survey
Dependencies	NULL
Priority	Medium

<ActivityAnalysis.EditSurvey>

Table 36: Description of FR-8.1

Identifier	FR-8.1
Title	ActivityAnalysis.EditSurvey
Requirement	The users shall be able edit the responses of survey that they had filled in the past.
Source	Stakeholders
Rationale	The reason implementing this feature is to provide overview to the user regarding his/her activities on social media platforms.
Business Rule (if required)	It is mandatory for user to fill out the survey
Dependencies	NULL
Priority	Medium

5. Non-Functional Requirements

In this section, will talk about non-functional requirements about our system. They are of immense importance as it answers the question related to **HOW** our system should perform specific functions

5.1 Availability

AVL-1	The system shall be available in all geographic locations 95% of the time
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5.2 Usability

USE-1	The user using system for the first time shall be able to learn how to use it by using it for the third 95% of time
USE-2	User using the system for first time shall be given understandable error messages

5.3 Performance

PE-1	The system shall authenticate credentials and login within 5 seconds 95% of the time
PE-2	The system shall display the result of sentiment analysis of particular keyword within 30 seconds 95% of the time.
PE-3	The system shall be able to load and display data to users within 1 minute 95% of the time

5.4 Security

SEC-1	After three consecutive failed login attempts, the system shall send an OTP on registered email within 2 minutes
SEC-2	User shall not be allowed to order any service without logging in or making an account
SEC-3	A particular user shall not be given access to other user's data.

5.5 Installability

INS-1	An untrained user shall be able to install and setup the system within 10 minutes 95% of the time
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5.6 Robustness

ROB-1	If the internet connection error occurs while the user is using it, the system shall recover from the last step before it went out
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5.7 Modifiability

ROB-1	Incorporating any new change in the system shall not take more than 7 days for a group of 2 member development team 90% of the time.
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5.8 Interoperability

IOP-1	The system shall be able to fetch data from Rest APIs.
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6. External Interface Requirements

External Interface requirements help to identify how the system will interact with its surroundings or other software systems in order to fulfill its requirement.

6.1 User Interfaces Requirements

UI-1	The system shall provide error message to show what went wrong.
UI-2	The password selection part on signup page shall have guidance regarding the pattern of password
UI-3	UI shall be consistent throughout the project.

6.2 Software interfaces

SI-1	The chatbot shall interact with Machine Learning model outputs to determine mood of the user in order to recommend activities.
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6.3 Hardware interfaces

There are no Hardware Interfaces for Cyber Watch.

6.4 Communications interfaces

CI-1	The system shall send an email to user after someone tried to intrude into his/ her account
CI-2	The system shall email report to the guardian contact of the user.

7. References

List any documents or other resources to which this SRS refers, if any. These might include user interface style guides, standards, system requirements specifications, interface specifications, or the SRS for a related product. The following are a few examples of different resources i.e. journal article, book, and website.

- [1] Lyda M.S. Lau, Jayne Curson, Richard Drew, Peter Dew and Christine Leigh, (1999), Use Of VSP Resource Rooms to Support Group Work in a Learning Environment, ACM 99, pp-2. **(Journal paper example)**
- [2] Hideyuki Nakanishi, Chikara Yoshida, Toshikazu Nishimura and Turulshada, (1996), FreeWalk: Supporting Casual Meetings in a Network, pp 308-314 **(paper on web)**
<http://www.acm.org/pubs/articles/proceedings/cscw/240080/p308-nakanishi.pdf>
- [3] Ali Behforooz & Frederick J. Hudson, (1996), Software Engineering Fundamentals, Oxford University Press. Chapter 8, pp255-235. **(book reference example)**
- [4] Page Author, Page Title, <http://www.bt.com/bttj/archive.htm>, Last date accessed. **(web site)**