MTwitter
Software Requirements Specification
For Mini Twitter Project

Version <1.0>

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Revision History

Date	Version	Description	Author
27/10/23	1.0	The initial steps where the task and the requirements are being listed.	Zi Xuan Li, Jubyaid Uddin, Chengshui Zhu, Kenny Zhu

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Software Requirements Specification

1. Introduction

The Mtwitter Software Requirements Specification (SRS) outlines the specifications and requirements for the development of a mini Twitter clone project, named Mtwitter. This document provides a detailed description of the messaging system, outlining the functionalities, user types, and system behavior. It includes both functional and non-functional requirements, design constraints, and other essential factors needed to create a comprehensive understanding of the software.

1.1 Purpose

The purpose of this SRS is to define the external behavior of the Mtwitter messaging system. It aims to provide a clear and detailed outline of the features, functionalities, and interactions expected from the system. This document serves as a guide for developers, designers, and stakeholders, ensuring a shared understanding of the project's goals and requirements. Additionally, the SRS specifies non-functional requirements, design constraints, and other aspects necessary for the successful development and implementation of the Mtwitter application.

1.2 Scope

The Mtwitter messaging system is a social media platform that allows users to create accounts, post messages, interact with other users' content, and perform various actions based on their user types. The system defines five distinct user types: Super-user (SU), Corporate-user (CU), Trendy-user (TU), Ordinary-user (OU), and Surfer. Each user type has specific privileges and capabilities within the system.

The scope of this SRS includes:

- User Types: The system caters to five types of users: SU, CU, TU, OU, and Surfer, each with unique roles and permissions.
- Message Features: Messages in the system contain information about the author, timestamp, keywords, read counts, likes, dislikes, and complaints. Messages with specific criteria are promoted to "trendy posts."
- User Interactions: Users can post, delete, comment, like, dislike, tip, follow, subscribe, and report messages. Users can also create profiles and follow other users based on their activity history.
- Financial Transactions: The system handles financial transactions for billing users based on message length and clicks on ads or job openings. Users receive warnings for insufficient funds and can dispute warnings.
- Content Moderation: The system automatically detects and moderates messages containing taboo words. Users generating such content receive warnings, and repeat offenses lead to penalties or removal from the system.
- User Recommendations: The system suggests accounts for users to follow based on their activity history.

The Mtwitter messaging system will feature a graphical user interface (GUI), although it is not necessarily web-based. The system will not require a database and will use plain text-based files for data storage. The system is designed for a small-scale operation, accommodating fewer than ten users.

1.3 Definitions, Acronyms and Abbreviations

- Super-user (SU): A user with the highest level of privileges in the messaging system. They are capable of warning, adding, or deleting any users and messages.
- Corporate-user (CU): A user type with the ability to post advertisements and job openings in the system.
- Trendy-user (TU): A subset of ordinary users with specific criteria, including a large number of subscribers, significant tips, and have a prior history of trendy posts.
- Ordinary-user (OU): A user who has access to the basic features such as posting, deleting, commenting, liking, disliking, and following messages.
- Surfer: A user type that can only view and search messages and report misinformation
- Tabooed words: words that are prohibited in messages and are subject to automatic blocking or replacement with asterisks.
- Trendy post: A message with a significant amount of reads, likes, and dislikes that is featured in the trending tab of the system.
- SRS: System requirement specification, this document outlining the requirements and specifications of the messaging system.
- GUI: Graphical User Interface, a visual way for users to interact with the messaging system.
- DB: Database, a structured collection of data that stores information for the system.
- Likes/Dislikes: a measure of user approval, likes, or disapproval, dislikes, of a message.

1.4 References

1. [Document Title] - Report number (if applicable)
    - Date: Month Day, Year
    - Publishing Organization (if applicable)
    - Source/URL (if applicable)
2. [Document Title] - Report number (if applicable)
    - Date: Month Day, Year
    - Publishing Organization (if applicable)
    - Source/URL (if applicable)
3. [Document Title] - Report number (if applicable)
    - Date: Month Day, Year
    - Publishing Organization (if applicable)
    - Source/URL (if applicable)

1.5 Overview

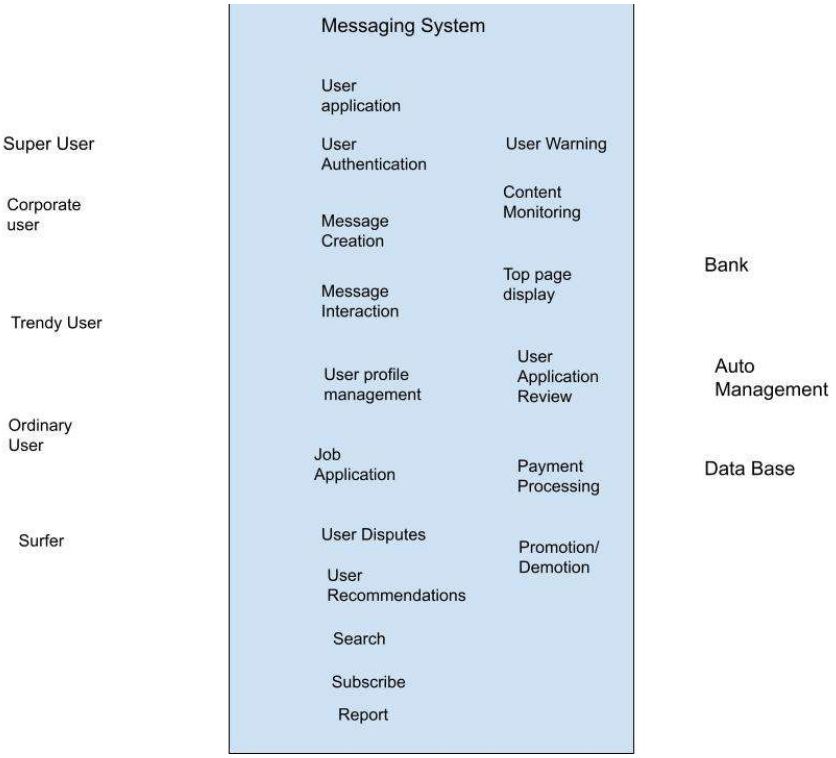
1. Introduction: In this section, we introduce an overview of the SRS containing the purpose, scope, definitions, acronyms, abbreviations, references.
2. Overall description: This section offers a broader perspective on the project. It provides background information, such as its functions, characteristics of intended users, constraints, assumptions, dependencies, and requirements subsets.
3. Use-Case Model Survey: This section summarizes the use-case model. It includes a list of use cases, diagrams, and relationships that give a clear picture of the interactions and functionalities the software is designed to support.
4. Assumptions and Dependencies: Here, we outline the key assumptions and dependencies that may impact the feasibility and availability of project related aspects of the software.
5. Specific Requirements: This section contains a detailed breakdown of all the software requirements. These specification details are presented at a sufficient level that enables us to design a system that meets these requirements and testers to verify their fulfillment.
6. Use-Case Reports: In this section, each use case defines a significant portion of the functional and nonfunctional requirements. The use-case reports are referenced or enclosed in this section, ensuring that each requirement is labeled and well-defined.

7. Supplementary Requirements: This section encompasses the requirements not included in the use-cases. These requirements are refined to a sufficient level of detail to describe specific subsystems or features and play a role in defining the software's full range of functionalities.
8. Supporting Information: To enhance the usability of the SRS, this section will provide a table of contents, an index, and any relevant appendices.

2. Overall Description

The MTwitter presents a comprehensive messaging system to serve a diverse range of users. The product perspective for Mini Twitter it is for serving a limited user base. Users can register and interact with the system in several ways, from creating and managing profiles to posting messages and engaging with other users' content. The system allows for trend users (TU) and ordinary users (OU) to post short messages for free, with charges applied for longer content. The system's financial interactions are governed by strict rules, including warnings and dispute resolution processes. Furthermore, it offers a search and filtering feature for users to find messages based on various criteria. The functionality extends to corporate users (CU) who can post ads and job applications, each interaction incurring a cost to the CU. the functions of the system will be underpinned by assumptions and dependencies. The detailed requirements for the project are delineated in Section 3, providing a granular view of the specific features and functionalities.

2.1 Use-Case Model Survey



User Class

1. Super-user (SU): An administrative user with privileges to manage other users, messages, and system functionality.
2. Corporate-user (CU): Users who can post advertisements and job openings on the platform.
3. Trendy-user (TU): A subset of ordinary users who meet specific criteria and have more privileges.
4. Ordinary-user (OU): Regular users who can interact with the system in various ways, such as

posting, commenting, and following other users.
5. Surfer: Passive users who can view content and report misinformation to super-users.

Management Class

1. Bank: Where payment goes to.
2. Auto Management system: System that does auto content monitoring, regulate recommandation, promotion of trendy-user.
3. Database: Stores messages created and relating datas.

Function

1. User Registration: New users can register and create accounts. Super-users process registration applications.
2. User Authentication: Users can log in to the system securely. Password change is enforced for first-time logins.
3. Message Creation: Users can create new messages with text, images, or videos.
4. Message Interaction: Users can interact with messages by liking, disliking, tipping, and commenting.
5. User Profile Management: User can construct and update their profiles, OU and TU are subject to comments and reports from others.
6. Content Monitoring: The system monitors messages for taboo words, applies censorship or warnings, and blocks messages as necessary.
7. User Dispute: Users can dispute warnings issued by super-users, leading to potential warning removal or penalties for the reporting user.
8. User Recommendation: The system suggests accounts for users to follow based on their reading, liking, tipping, and following history.
9. Message Promotion: Messages with high engagement (reads, likes, dislikes) are promoted to the "trendy post" section.
10. Payment Processing: The system automatically bills users for certain actions, such as posting messages or clicking on CU's advertisements.
11. Job Application Handling: CU can post job openings, and users can apply to these jobs. The system tracks clicks and applications and charges CU accordingly.
12. User Warning: The system issues warnings to users for violations of rules and policies. Users with multiple warnings face penalties or removal from the system.
13. Search: All users can search for messages based on various criteria, including author, keywords, presence of media, and engagement metrics.
14. Top Page Display: The system features the top three most-liked messages and top three trendy users on the main page for surfers.
15. User Application Review: Super-users review and process user applications, either accepting or denying them, with corresponding actions.
16. Subscribe: All users can subscribe to other users and newly created of content of the subscribed will appear on top page.
17. Report: All users and surfer can report profile page and message created, report will be examined and confirm by super-user and can be disputed.
18. Promotion and demotion: Base on subscribed amount and likes, ordinary users can become trendy-user. If trendy-users are reported can confirmed, the user can be demoted back to ordinary user.

Relations:

1. **User Appliaction** is for surfers, and are then transferred to **User applications** review which will be given to **Super-users** to review.
2. **User Authentication** is for all users to login and is conpleteted by the **auto management system** using data stored in the **database**.

3. **Message creation** can be done by all users, all except for **Super-user** are subject to **content monitoring**.
4. **Content monitoring** can give **warning** if not passed to users.
5. **Message interaction** can be done by all users.
6. **User profile management** can be done by all users. subjected to content monitoring and report.
7. **Users can dispute** a warning to **Super-user**, who will decide whether or not to pass.
8. **User Recommandtation** will be done by system through like, history, and trendy-user.
9. **Message promotion** are part of **promotion/demotion** function, base on like, messages can become trendy message.
10. **Payment process** will be access for user if they post two much info in a message, or if they want to remove a complaint. **Corporate user** will access to payment process to post ad or job listing.
11. **Job applications** are done by corporate user to list jobs, can will charge them base on clicks.
12. **User warning** will be given out by **Super-user** for report or system for failing **content monitoring** check.
13. **Search function** will allow **user** and **surfer** to access to database for intend message they want to search for.
14. **Top page display** for surfers will be trendy message and users, for users, it will be their own **User Recommdation.**
15. **User Application review** will be done by **Super-user** to make surfers in user.
16. **Subscribe** can be done by users to subscribe to other users, will link to **user recommandation** for recommending.
17. **Reports** can be done by **surfer** and **users** on **messages** or **User profile**, reports are given to **Super-user** to decide authenticity.
18. **Promotion** will happen to **messages** or **users** base on like amount. **Demotion** can happen to **users** who receive too many **warnings**.

2.2 Assumptions and Dependencies

User Engagement and Application Submission:

Assumption: The system assumes that users and surfers will engage with the platform and submit applications for various user roles, such as ordinary users and corporate users. Super users will be active and complete tasks assigned to them.

Dependency: The processing of user applications and the functioning of the user roles are dependent on users taking the initiative to apply for different roles. Super-users especially have important duties, including user review and acceptance or denial, it is a user-driven process.

Payment System and User Compliance:

Assumption: The system assumes that users will comply with the payment system rules and deposit money into their accounts to cover actions such as posting messages and clicking on corporate users' advertisements.

Dependency: The proper functioning of the system and the enforcement of payment-related actions, including warnings and penalties, depend on users having sufficient funds in their accounts and adhering to the payment system guidelines.

Content Monitoring and User Compliance:

Assumption: The system assumes that users will adhere to content guidelines and that messages will be monitored for taboo words.

Dependency: The effectiveness of content filtering and user warning processes relies on user compliance with content guidelines and the accuracy and completeness of the taboo word list. Users' adherence to these guidelines is crucial for maintaining the environment on the platform. Otherwise Super-user will be heavily

tasked.

User Disputes and Dispute Resolution:

Assumption: The system assumes that users will actively engage in the dispute resolution process, including providing evidence and participating in discussions.

Dependency: The dispute resolution process is dependent on users initiating disputes when necessary and actively participating in the resolution process. The effectiveness of the system's dispute resolution functionality hinges on user and super-user's engagement in dispute-related activities.

User Engagement and System Recommendations:

Assumption: The system assumes that users will actively engage with the platform by reading, liking, and following other users.

Dependency: The system's ability to provide user recommendations and suggest accounts for users to follow is contingent on user engagement and interactions. The quality of user recommendations and the overall engagement experience depend on users' activities and preferences.

Scale and User Base:

Assumption: The system is designed to serve a limited user base without fast exploding user base.

Dependency: The system's performance and resource requirements are calibrated for a limited scale. The assumption of a smaller user base is a critical factor influencing system design and functionality.

Third-Party Packages and Integration:

Assumption: The project may utilize third-party packages or libraries for certain functionalities, with proper credit provided as comments.

Dependency: The successful integration and usage of third-party packages are dependent on the availability and compatibility of these packages with the system.

3. Specific Requirements

Features:

1. When a surfer visits the system, the top 3 most liked messages and the top 3 trendy-users will be featured on the top page; the surfer is given the choice of applying to be an ordinary or corporate user with their chosen id.
2. The super-user processes user applications with accept or deny: if accepted, a temporary password is sent to the user and the user must change it when first logging in, and an amount of money should be deposited to the system; if denied, a justification should be provided.
3. When a TU/OU/CU logins, the system will suggest accounts for the user to follow based on this user's reading/liking/tipping/following history.
4. A TU/OU/CU can construct their own profiles, which again are subjected to comments/reports by others, same warning policy will apply if the profile contains misinformation.
5. TU/OU can post messages with <= 20 words (an image is equivalent to 10 words, while a video is equivalent to 15 words) for free, any messages >20 words will be billed by the system automatically with the amount (# - 20)*$0.1; a CU's message is billed #*$1 without free ones. If the user does not have enough money in the account, a warning is issued, and when the user logs in, it will automatically be directed to the payment page.
6. Any user receiving a warning can dispute with the SU: if they win the dispute the warning is removed:

if the warning is initialized by another user, the user who reported/complained will be warned once: if the warning is by a surfer, the complained user is rewarded by 3 likes from the SU. Any CU/OU with 3 outstanding warnings will be given the choice of paying out the fine to remove the complaints or removed from the system. Any TU with 3 outstanding warnings will be demoted to OU with no warnings.

7. All users can search for messages based on author, keywords, with/without images and or videos, # of likes/dislikes.
8. CU is allowed to post ads or job applications that other users can click and apply, CU will pay the system (SU) $0.1 for each click and application.
9. Any TU/OU who posts ads or job opportunities will be fined $10 and one warning.
10. Ability to upload and download files, allowing sharing between users.

3.1 Use-Case Reports

There are 5 types of users in this messaging system:

1. Super-user (SU): who can warn/add/delete any users and/or messages.
2. Corporate-user (CU): who can post ads and job openings.
3. Trendy-user (TU): the subset of ordinary users who were a) subscribed by > 10 users, and b) received > $100 tips or #likes - $dislikes > 10, and c) author of at least 2 trendy messages.
4. Ordinary-user (OU): besides having all the features of a surfer, who can post/delete, comment, tip, like/dislike, complain, follow messages, and subscribe to other users.
5. Surfer: who can only view/search the messages and report/complain to the super-user about the misinformation.

For each message of the different types of users:

1. Carry the author, time and date, and up to 3 keywords chosen by the author.
2. Show the number of times others read it, the number of likes/dislikes, and the number of complaints.
3. If there are 1 or 2 tabooed words, the words are changed to the corresponding number of asterisks; if more than 2, the message will be blocked automatically and the author is warned once automatically.
4. Any message with more than 10 reads, #likes - #dislikes greater than 3 will be promoted to “trendy post” shown in the “trending tab.”

3.2 Supplementary Requirements

1. GUI is required, but not necessarily web-base: a local GUI-based app is fine.
2. No need for DB, plain text-based files are fine for this system.
3. No need to consider the scale, < 10 users are fine for this system.

4. Supporting Information

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