A Real Time and Interactive Dashboard in Tourism Industry

Software Requirement Specification

By

Junyu Zhou 592115508

Yawei Li 592115518

Department of Software Engineering,

College of Arts, Media and Technology,

ChiangMai University

Project Advisor



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# 1. Document History

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| History | Status | Date | Viewable | Editable | Responsible |
| Project-Software Requirement Specification\_v1.docx  Create:  - Introduction  - Project Feature  - User Requirement Specification  - Specific Requirement  - System Requirement Specification  - Reference | Draft | 29 June 2019 | ZJY, LYW,  AJP | ZJY, LYW | ZJY, LYW |
| Project-Software Requirement Specification\_v2.docx  Modify:  User Requirement Specification  - Specific Requirement  - System Requirement Specification | Final | 7  Aug  2019 | ZJY, LYW,  AJP | ZJY, LYW | ZJY, LYW |

ZJY = Junyu Zhou

LYW = Yawei Li

AJP = Dr. Pree Thiengburanathum

# 2. Introduction

## 2.1 Purpose

The purpose of the software requirement specification (SRS) is to describe the functional and non-functional requirements of a real time and interactive dashboard in tourism industry. The requirements in the SRS are involved with the users to use the web-based application. The software requirement specification provides developers and users to understand each other in structure details. The application will be designed followed the SRS.

## 2.2 Project Overview

A real time and interactive dashboard in tourism industry is developed for the decision maker to view and manage the data easily and efficiently. Due to a large number of data, there are numerous work and extra things to do for doing statistics. A real time and interactive dashboard in tourism industry will provide the effective platform to decision maker to manage and statistics the massive data.

**2.2.1 Project Scope**

A real time and interactive dashboard in tourism industry is a web-based application. It is for decision maker to do the easy statistics of mess data in a real time way. For decision maker to manage and keep tracks all the data.

**2.2.2 Document Scope**

This document will include use case, use case description and software requirement of A real time and interactive dashboard in tourism industry. The scope of use case will cover the dashboard system and login/logout system.

Use case diagrams are usually referred to as behavior diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors).

A software requirements specification (SRS) is a comprehensive description of the intended purpose and environment for software under development. The SRS fully describes what the software will do and how it will be expected to perform.

## 2.3 User Characteristics

This system provides visualization data for decision makers easily to do statistics. In addition, A real-time and interactive dashboard in tourism industry will provide more than one types of visualization for users (for example, heatmap, word cloud)), they will reduce the paper-based work and record all data in an understandable way.

In this application we have two actors following:

**2.3.1 The super admin**

The super admin can manage accounts and do all admin stuffs.

**2.3.2 The admin**

The admin can register accounts, login to dashboard and view data visualization summaries.

**2.3.3 The user**

The user can view and write comments.

## 2.4 Operation Environment

PyCharm

Visual Studio Code

MongoDB

Pusher

React

Flask

GitHub

Draw.io

## 2.5 Acronyms and Definitions

**2.5.1 Acronyms**

ZJY = Junyu Zhou

LYW = Yawei Li

AJP = Dr. Pree Thiengburanathum

UC = Use Case

URS = User Requirement Specification

SRS = System Requirement Specification  
AD = Activity Diagram

CD = Class Diagram

**2.5.2 Definitions**

|  |  |
| --- | --- |
| Name | Description |
| Use case | (1) A use case is a software and system engineering term that describes how a user uses a system to accomplish a particular goal. A use case acts as a software modeling technique that defines the features to be implemented and the resolution of any errors that may be encountered. [1] |
| Requirement | (1)A condition or capability needed by the user to solve a problem or achieve an objective for project.  (2) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document. [2] |
| Specification | Description of an activity or work product that serves as the basis or input for further activities or work product. A specification can comprise requirements to a Product and how they will be solved. [3] |
| User Interface | Visual part of computer application or operating system through which a user interacts with a computer or a software. It determines how commands are given to the computer or the program and how information is displayed on the screen. [4] |

# 3. Project Feature

[On progress Report I]

**Feature-1. Account authorization**

* Super admin could login to system.
* Super admin could view all accounts.
* Super admin could delete account.
* Super admin could add admin account directly.
* Super admin could accept or reject admin account register request.
* Admin could register account.
* Admin could login to dashboard.
* Admin could login to dashboard with Facebook account.
* Admin could login to dashboard with Google account.
* Admin could edit their account information.
* Admin could logout.

**Feature-2. Admin views the summary of data visualization result**

* Admin could view all visualization data summaries which contain:

1. All the summary sparkline chart.

2. Positive comments rate line chart.

3. Word frequency bar chart.

4. Number of comments bar chart.

5. Types of comments stacked column chart.

# 4. User Requirement Specification

## 4.1 User Requirement Analysis

In systems engineering and software engineering, requirements analysis encompasses those tasks that go into determining the needs or conditions to meet for a new or altered product or project, taking account of the possibly conflicting requirements of the various stakeholders, analyzing, documenting, validating and managing software or system requirements.

Requirements analysis is critical to the success or failure of a systems or software project. The requirements should be documented, actionable, measurable, testable, traceable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design.[5]

## 4.2 User Requirement Specification

[On Progress Report I: Feature-1 – Feature-3]

**Feature-1. Account authorization**

URS-01: Super admin can login to system.

URS-02: Super admin can view account management page.

URS-03: Super admin can edit account information.

URS-04: Super admin can delete account.

URS-05: Super admin can add admin account directly.

URS-06: Super admin can accept admin account register request.

URS-07: Super admin can reject admin account register request.

URS-08: Admin can register account.

URS-09: Admin can login to dashboard.

URS-10: Admin can login to dashboard with Facebook account.

URS-11: Admin can login to dashboard with Google account.

URS-12: Admin can edit account information.

URS-13: Admin can logout.

**Feature-2. Admin views the summary of data visualization result**

URS-14: Admin can view all the summary sparkline chart.

URS-15: Admin can view positive comments rate line chart.

URS-16: Admin can view word frequency bar chart.

URS-17: Admin can view number of comments bar chart.

URS-18: Admin can view types of comments stacked column chart.

# 5. Specific Requirement

## 5.1 Use Case Scenario

**5.1.1 Use Case Diagram of Feature 1**

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**5.1.2 Use Case Diagram of Feature 2**

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## 5.2 Use Case Description and activity diagram

**5.2.1 login & logout System**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-01 | | | |
| Use Case Name | Login to the administer system | | | |
| Actors | Super admin | | | |
| Description | Super admin can login to the administer system by inputting username and password | | | |
| Trigger | Super admin clicks “Login” button | | | |
| Preconditions | System connect with internet successful | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
| Username | String | - More than 0 digits.  - Must contain characters and not more than 10 digits.  - No special characters and space. | | Admin001 |
| Password | String | - Not less than 6 digits. | | Admin001 |
| Post conditions | Super admin login to dashboard successful. | | | |
| Normal Flows | User | | System | |
|  | 1. Super admin clicks login button. | |  | |
|  |  | | 2. System provides the login interface. | |
|  | 3. Super admin inputs username and password. | |  | |
|  |  | | 4. System checks input format. [E1] [E2] | |
|  |  | | 5.System validates that the username and password. [A1] | |
|  |  | | 6.System directs to admin page. | |
| Alternative Flow | A1: Username and password do not match.  1: Display: “The username or password is incorrect.”  2: System goes to 3rd step in normal flows. | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 3rd step in normal flows. | | | |
| Assumption | Decision maker must have an individual account. | | | |

**AD01: Login to the system**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-02 | | | |
| Use Case Name | View all accounts | | | |
| Actors | Super admin | | | |
| Description | Super admin can view all accounts | | | |
| Trigger | Super admin clicks “Account management” button | | | |
| Preconditions | Super admin must login into the system | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
|  |  |  | |  |
| Post conditions | Super admin can view all accounts information. | | | |
| Normal Flows | User | | System | |
|  | 1. Super admin clicks account management button. | |  | |
|  |  | | 2. System displays all accounts information. [E1] | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel. | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD02: View all accounts**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-03 | | | |
| Use Case Name | Super admin edits account information | | | |
| Actors | Super admin | | | |
| Description | Super admin can edit account information | | | |
| Trigger | Super admin clicks “Edit” button | | | |
| Preconditions | Super admin must login into the system | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
| Username | String | - More than 0 digits.  - Must contain characters and not more than 10 digits.  - No special characters and space. | | Admin001 |
| Password | String | - Not less than 6 digits. | | Admin001 |
| Post conditions | Super admin can edit account information. | | | |
| Normal Flows | User | | System | |
|  | 1. Super admin clicks Edit button. | |  | |
|  |  | | 2. System provides edit information page. [E1] | |
|  | 3. Super admin inputs information. | |  | |
|  | 4. Super admin saves information. | |  | |
|  |  | | 5. System checks input format. [E2] | |
|  |  | | 6. System stores to database. | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 4th step in normal flows. | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD03: Super admin edits account information**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-04 | | | |
| Use Case Name | Delete account | | | |
| Actors | Super admin | | | |
| Description | Super admin can delete account | | | |
| Trigger | Super admin clicks “Delete” button | | | |
| Preconditions | Super admin must login into the system | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
|  |  |  | |  |
| Post conditions | Super admin can view all accounts information. | | | |
| Normal Flows | User | | System | |
|  | 1. Super admin clicks delete account button. | |  | |
|  | 2. Super admin selects account to delete. | |  | |
|  |  | | 3. System deletes account. [E1] | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel. | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD04: Delete account**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-05 | | | |
| Use Case Name | Add admin account directly | | | |
| Actors | Super admin | | | |
| Description | Super admin can add admin account for admin directly | | | |
| Trigger | Super admin clicks “Add admin account” button | | | |
| Preconditions | System connect with internet successful | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
| Username | String | - More than 0 digits.  - Must contain characters and not more than 10 digits.  - No special characters and space. | | Admin001 |
| Password | String | - Not less than 6 digits. | | Admin001 |
| Post conditions | Super admin login to dashboard successful. | | | |
| Normal Flows | User | | System | |
|  | 1. Super admin clicks “Add admin account” button. | |  | |
|  |  | | 2. System provides add account page. [E1] | |
|  | 3. Super admin inputs username and password. | |  | |
|  | 4. Super admin clicks save information. | |  | |
|  |  | | 5. System checks input format. [E2] [E3] | |
|  |  | | 6. System stores to database | |
|  |  | | 7. System displays: “Add account successful.” | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 4th step in normal flows.  E3: Account already exists in database.  1: Display: “The account already exists in database.”  2. System goes to 3rd step in normal flows. | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD05: Add admin account directly**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-06 | | | |
| Use Case Name | Accept admin account register request | | | |
| Actors | Super admin | | | |
| Description | Super admin can accept admin account register request | | | |
| Trigger | Super admin clicks Accept button | | | |
| Preconditions | Super admin must login into the system | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
|  |  |  | |  |
| Post conditions | Super admin can accept admin account register request. | | | |
| Normal Flows | User | | System | |
|  | 1. Super admin clicks account management button. | |  | |
|  |  | | 2. System displays all waiting list accounts information. [E1] | |
|  | 3. Super admin clicks accept button. | |  | |
|  |  | | 4. System stores account into database. | |
|  |  | | 5. System returns result to admin. | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel. | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD06: Accept admin account register request**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-07 | | | |
| Use Case Name | Reject admin account register request | | | |
| Actors | Super admin | | | |
| Description | Super admin can reject admin account register request | | | |
| Trigger | Super admin clicks Reject button | | | |
| Preconditions | Super admin must login into the system | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
|  |  |  | |  |
| Post conditions | Super admin can reject admin account register request. | | | |
| Normal Flows | User | | System | |
|  | 1. Super admin clicks account management button. | |  | |
|  |  | | 2. System displays all waiting list accounts information. [E1] | |
|  | 3. Super admin clicks reject button. | |  | |
|  |  | | 4. System returns result to admin. | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel. | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD07: Reject admin account register request**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-08 | | | |
| Use Case Name | Register account | | | |
| Actors | Admin | | | |
| Description | Admin can register account | | | |
| Trigger | Admin clicks “Register” button | | | |
| Preconditions | System connect with internet successful | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
| Username | String | - More than 0 digits.  - Must contain characters and not more than 10 digits.  - No special characters and space. | | Admin001 |
| Password | String | - Not less than 6 digits. | | Admin001 |
| Post conditions | Admin can register account. | | | |
| Normal Flows | User | | System | |
|  | 1. Admin clicks Register button. | |  | |
|  |  | | 2. System provides register information page. [E1] | |
|  | 3. Admin inputs information. | |  | |
|  | 4. Admin saves information. | |  | |
|  |  | | 5. System checks input format. [E2] | |
|  |  | | 6. System sends account information to waiting list. | |
|  |  | | 7. System displays: “register information was recorded, please wait for the result.” | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 4th step in normal flows. | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD08: Register account**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-09 | | | |
| Use Case Name | Login to dashboard | | | |
| Actors | Admin | | | |
| Description | Admin can login to dashboard | | | |
| Trigger | Admin clicks “Login” button | | | |
| Preconditions | System connect with internet successful | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
| Username | String | - More than 0 digits.  - Must contain characters and not more than 10 digits.  - No special characters and space. | | Admin001 |
| Password | String | - Not less than 6 digits. | | Admin001 |
| Post conditions | Admin login to dashboard successful. | | | |
| Normal Flows | User | | System | |
|  | 1. Admin clicks login button. | |  | |
|  |  | | 2. System provides the login interface. | |
|  | 3. Admin inputs username and password. | |  | |
|  |  | | 4. System checks input format. [E1] [E2] | |
|  |  | | 5.System validates that the username and password. [A1] | |
|  |  | | 6.System directs to dashboard. | |
| Alternative Flow | A1: Username and password do not match.  1: Display: “The username or password is incorrect.”  2: System goes to 3rd step in normal flows. | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 3rd step in normal flows. | | | |
| Assumption | Decision maker must have an individual account. | | | |

**AD09: Login to dashboard**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-10 | | | |
| Use Case Name | Login to dashboard with Facebook account | | | |
| Actors | Admin | | | |
| Description | Admin can login to dashboard with Facebook account | | | |
| Trigger | Admin clicks “Login with Facebook” button | | | |
| Preconditions | System connect with internet successful | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
|  |  |  | |  |
|  |  |  | |  |
| Post conditions | Admin login to dashboard successful. | | | |
| Normal Flows | User | | System | |
|  | 1. Admin clicks Login with Facebook button. | |  | |
|  |  | | 2. System provides the login page. | |
|  | 3. Admin inputs Facebook username and password. | |  | |
|  |  | | 4. System validates that the username and password. [E1] [E2] [A1] | |
|  |  | | 5. System directs to dashboard. | |
| Alternative Flow | A1: Username and password do not match.  1: Display: “The username or password is incorrect.”  2: System goes to 3rd step in normal flows. | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 3rd step in normal flows. | | | |
| Assumption | Decision maker must have an individual account. | | | |

**AD10: Login to dashboard with Facebook account**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-11 | | | |
| Use Case Name | Login to dashboard with Google account | | | |
| Actors | Admin | | | |
| Description | Admin can login to dashboard with Google account | | | |
| Trigger | Admin clicks “Login with Google” button | | | |
| Preconditions | System connect with internet successful | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
|  |  |  | |  |
|  |  |  | |  |
| Post conditions | Admin login to dashboard successful. | | | |
| Normal Flows | User | | System | |
|  | 1. Admin clicks Login with Google button. | |  | |
|  |  | | 2. System provides the login page. | |
|  | 3. Admin inputs Google username and password. | |  | |
|  |  | | 4. System validates that the username and password. [E1] [E2] [A1] | |
|  |  | | 5. System directs to dashboard. | |
| Alternative Flow | A1: Username and password do not match.  1: Display: “The username or password is incorrect.”  2: System goes to 3rd step in normal flows. | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 3rd step in normal flows. | | | |
| Assumption | Decision maker must have an individual account. | | | |

**AD11: Login to dashboard with Google account**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-12 | | | |
| Use Case Name | Admin edits account information | | | |
| Actors | Admin | | | |
| Description | Admin can edit account information | | | |
| Trigger | Admin clicks “Edit” button | | | |
| Preconditions | Admin must login into dashboard | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
| Username | String | - More than 0 digits.  - Must contain characters and not more than 10 digits.  - No special characters and space. | | Admin001 |
| Password | String | - Not less than 6 digits. | | Admin001 |
| Post conditions | Admin can edit account information. | | | |
| Normal Flows | User | | System | |
|  | 1. Admin clicks Edit button. | |  | |
|  |  | | 2. System provides edit information page. [E1] | |
|  | 3. Admin inputs information. | |  | |
|  | 4. Admin saves information. | |  | |
|  |  | | 5. System checks input format. [E2] | |
|  |  | | 6. System stores to database. | |
| Alternative Flow |  | | | |
| Exception Flow | E1: Cannot connect to database.  1: Display: “Cannot connect to database.”  2: System provides a button to refresh/cancel.  E2: Input format error.  1: Display error message.  2: System goes to 4th step in normal flows. | | | |
| Assumption | Admin must have an individual account. | | | |

**AD12: Admin edits account information**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC-13 | | | |
| Use Case Name | Log out | | | |
| Actors | Admin | | | |
| Description | Admin can log out from dashboard | | | |
| Trigger | Admin clicks “Logout” button | | | |
| Preconditions | Admin must login into dashboard | | | |
| Use Case Input Specification | | | | |
| Input | type | Constraint | | Example |
|  |  |  | |  |
| Post conditions | Super admin can view all accounts information. | | | |
| Normal Flows | User | | System | |
|  | 1. Admin clicks Log out button. | |  | |
|  |  | | 2. System log out from dashboard. | |
| Alternative Flow |  | | | |
| Exception Flow |  | | | |
| Assumption | Super admin must have an individual account. | | | |

**AD13: Log out from dashboard**

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# 6.System Requirements Specification

## 6.1 Requirements Specification of Decision maker

**6.1.1 Use Case: Login to the system**

SRS-01: The system provides the login interface.

SRS-02: The system checks input format.

SRS-03: The system validates that the username and password.

SRS-04: The system directs to dashboard.

**6.1.2 Use Case: View the summary**

SRS-05: The System displays the word frequency bar chart, number of comments histogram, types of comments Stacked column chart and positive comments rate line chart.

**6.1.3 Use Case: Log out to the system**

SRS06: The system provides the log out interface.

SRS07: The system logs out to the system.

# 7. Reference

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