Software Requirement Specification

for

Blog System

## 1. Introduction

### 1.1 Purposes

The documentation is intended to give all users the common understanding of the initial regulations of the software, and make it become the basic of the development process. The software requirement specification is used by the software designer, developers, testers, manufacturer and end-users. Besides, it is used to be the evidence of the product validation and acceptance.

### 1.2 Intended audiences

Software designers：Luo Zhiqiang

Software developers：Huang Hailing

Software testers：Li Yiwei

Software manufacturer：Luo Zhiqiang

Software end-users：Unregistered, direct access to the interface of visitors, registered users of the system, the system administrator.

### 1.3 Product scope

The overall goal is to do detailed requirements analysis to ensure that the blog system meets the user requirements. Write requirements documentation to meet the following requirements:

a．No ambiguity: On every one of the characteristics of the final product description of a term; if a term in a special article in has a variety of meanings, so deal with each kind of meaning of the term explanation and pointed out its applicability.

b．Integrity:Demand analysis report should include all significant demand, whether it is related to the design constraint function and performance, and also related to the external interface requirements; definition of response to all possible input data to response to the legal and non legal input value regulations; all the illustrations, table, graphic marking; definitions of all terms and measures.。

c．Verifiability:Each requirement described by the requirements analysis report should be verifiable. A finite process can be used to check whether the software products meet the requirements。

d．Uniformity:The description of the requirements in the requirements analysis report can not contradict each other. E. modifiable requirements analysis report should have an orderly, easy to use content organization; there is no redundancy, that is, the same requirement cannot be repeated in the requirement analysis report.

f．Traceability:The source of each requirement must be clear, and each requirement can be easily cited in the process of further generating and changing the documentation.

g Availability of operation and maintenance:phases Requirements analysis report must meet the needs of operation and maintenance stage. The source and purpose of the function should be stated in the requirement analysis report.

### 1.4 Reference

[1].(US) Deng Yingchun Han Song Shah works with [Deng Yingchun] Han Song's translator's Translation: object oriented software engineering and traditional methods (Eighth Edition). Mechanical industry press 201201

[2].Christian Nagel, C# advanced programming [M]. Tsinghua University press, 201705

[3].VUE.JS front-end development, quick entry and professional applications, Chen Luyang's works. Posts and Telecommunications Press, 2017022、General description

## 2. General Description

### 2.1 Product Perspective(产品前景)

In recent years, with the progress of information technology, blog has also developed rapidly. Blog system has become a platform for technical personnel to publish their own ideas.

This software is for the exclusive custom personal blog system, in this system so that the system, you can complete the personal blog, user login, browse and edit the published articles and pictures, video messages, comments and even personalized design blog web page layout, and other functions, anywhere can access the Internet can see you write a blog, and read your article, visitors can through the mobile phone or mail registration can be performed after the message, comments and other operations.

The purpose of this system is based on Linux Ubnutu platform, using B/S architecture, which is scalable, maintainable architecture, open (Open Architecture), and can provide good compatibility, and has a good man-machine interface.

### 2.2 Product Features

The system is divided into three modules: System Functionalities, Personal Blog Management, Ordinary User Management.

#### 2.2.1 System Actors（系统参与者）

There are three kinds of roles in the system:

1. System Administrator（系统管理员）: Access to the background, to the user, permissions, articles and other content management
2. Ordinary Users（普通用户）: Registered users can only do some front operations (Leaving a message, comments and other operations), can not enter the background.
3. Tourists:（游客） tourists can only browse articles.

Figure 1 Total use case diagram

#### 2.2.2 System Functionalities

##### User Management（用户管理）

For the system administrator, the system administrator can see all registered users information, can reset the user password, disable the user (disable users will not be able to log on), delete users and other operations. Add a user and set the role (common users, system administrators and others), edit user information, reset user password.

The following functions also belong to user management

a.User Registration（用户注册）

The system is open to all users, all users can enter the system through the browser, the user registered by mail.

After inputting the mail, the nickname, setting the password, repeating the password, after clicking to get the verification code, the system will send the verification code to the user, and the verification code will be input correctly. After submission, the system will jump to the interface of the logged state.

The users registered here are ordinary users.

b.User login（用户登录）

In order to ensure the security and reliability of the account, the system needs to confirm whether the user exists in the database when logging in. The login process can be operated in two ways:

.Password authentication: users need to enter the correct password to log in to their accounts. If the wrong input reaches three times or more, your account will be temporarily locked and unlocked within 5 minutes.

.mobile phone number verification: if you forget the password, the user can use the phone number login. They will receive the verification code on the mobile phone. If validated correctly, they will also log in successfully.

c Password Retrieval（找回密码）

When the user forgets his password, he can retrieve the password by mail and phone number:

This step involves security issues. Please verify the security in accordance with the following procedures: (taking mobile phone number as an example)

Step 1: enter the cell phone number

Step 2: get the phone number verification code, and token (unique certificate, associated with the phone number) returned to the front end

Step 3: verify the phone number and verification code is consistent, if the anastomosis, step 4; if not consistent, step 1 or 2;

Step 4: enter a new password

Step 5: submit the changes (at this time the parameters submitted include cell phone number, new password, and certificate token).

Retrieve password proof: prove the password modification account number with the previous input mobile phone number is consistent.

If there is no token similar mechanism, if hackers only need to step 5 to capture, mobile phone number change, you can successfully modify any mobile phone number password, so there is a reset any user password vulnerabilities.

In addition, when the password is retrieved, within a certain period of time, if a IP has multiple password reset requests, the user IP should be banned for one hour. Prompt the user: the system is busy, please try again later. If token, the 3 validation is unsuccessful, disable this user IP for an hour.

d. Quit Login（退出登录）

Ordinary users and system administrators can click out of the login button to quit the system (jump to the login interface) or directly shut the browser to quit the system.

Exit login: empty user status and other information

e. Information Maintenance（信息维护）

For general users, after the user login, the user can maintain their own personal information, modify passwords and other operations.

##### 2) Role Management(角色管理)

We can maintain the role information, manage the role member under the role, and authorize the current role. The administrator can disable a role and dynamically assign permissions to each role.

A role corresponds to multiple users, a role corresponding to multiple permissions, permissions are simple and convenient configuration.

The administrator can view the configuration of personnel under all roles.

##### Module Function (模块功能)

Mainly includes the background menu, button, and other permissions for management. Authorization through roles. In this way, unauthorized functions will not be present by the current logged in user

#### 2.2.3 Blog Backstage Functionalities (博客的后台功能)(黄海林)

##### 1) Article Management（文章管理）

The system administrator can add, edit and publish the article. When editing articles, the article can be simple and effective typesetting, functional enough to be powerful enough.

You can select the uploaded picture and put the download link of the attachment to the article. You can also upload pictures directly, attachments.

Provide set top, recommended, choose classification (details please refer to the table structure design)

##### 2) Review Audit（评论审核）

For the system administrator, the system administrator can view all the ordinary users in the background, comments on the article, the administrator has the right to review, review, delete, delete, and other operations of the user. You can also respond to comments.

##### 3) Message Audit（留言审核）

User message: registered ordinary users can leave messages on the message board.

Reply: as a system administrator blogger, users can reply to the message, when the system administrator replies the user, and the user through the mail / mobile phone prompt, so that the user can know the real-time message to the bloggers have been see.

Delete: system administrators have the right to delete messages (users meaningless message or illegal text messages, etc.)

##### 4) File Management（文件管理）

When publishing articles, the system administrator can select the uploaded pictures, files and other resources to be placed in the article, providing users to view and download.

File management is divided into two modules:

1. picture management: administrator upload pictures, you can preview, delete.

2. attachment Management: after uploading the attachment, administrators can delete, download, and provide the attachment download address for use in the article management.

##### 5) Dictionary Management（字典管理）

In the process of development, there will always be some sort of dictionary set that can be managed in a module.

For example, in this system, the article has category: category belongs to one of the dictionary,

There will be a category under an article. Category is a kind of dictionary

There are a lot of tags under the article, and the labels are similar to the category. Labels are also a category in dictionaries.

So, in dictionary management, there is a tree structure, which is a generic dictionary category, such as: article category, an article category corresponding to a number of specific list data (such as: learning, technology, the Internet, etc.)

Role categories correspond to multiple role information (common users, administrators)

The status corresponds to multiple information (temporary storage, submission, audit pass, pull black, disable, etc.)

These data can be used as dictionary sets in dictionary management. Function point is the need to manage classification, multiple data corresponding to the category management (increase, delete). Change, query

##### 6) Point Praise View（点赞查看）

The article can have praise function, one article can have multiple users point of praise, a user only to a point like the first, users point of praise, the background can be what the users point of praise, praise the time.

#### 2.2.4 Blog Front Functionalities (博客的前台功能)(李一维)

Visitors can browse articles and download specified attachments.

For registered ordinary users, only browse, comment articles, message, download the specified accessories function, in addition to comments, message function, does not involve the blog website system backend database table modification.

##### 1) Browse Articles（浏览文章）

All users can browse the article, the article was browsed once, the article's browsing amount will +1, the registered user point praise article, should praise the point of the user, time record.

##### 2) Review Articles（评论文章）

The logged in user, below the article, can enter the content of the comment and comment.

##### 3) Collecting articles(收藏文章)

Common users who have logged in can browse the article and store it in their own category

##### 4) Category Management(类别管理)

Because users need to collect their favorite articles, and classification operations, similar to a category of dictionary management

##### 5) Personal Information(个人信息)

The logged in user, maintains the personal information, resets the password.

##### 6) Leave a Message(留言)

The logged in user can leave a message under the message module.

##### 7) About blog introduction (查看关于博客简介)

Here to show the blogger's personal information, bloggers can wri te some of their abilities and experiences in this location, users can understand the blogger through this module.

##### 8) Query articles （查询文章）

Users can query the article according to the keywords, get the detailed query results, click on the detailed page.

##### 9) Tags （标签）

In the blog, there are multiple tags distributed in a certain location, a tag can correspond to a number of articles, all users click on the tag, you can jump to the corresponding list of articles.

### 2.3 User Classes and Characteristics

The software has three end users, including tourists, ordinary users, and system administrators.

The first thing to pay attention to is the stability of software. Because the system needs a long time to work, the processing speed must be fast.

In addition, due to the data is the most important, must be authorized authentication, to provide certain security measures.

#### 2.3.1 System use case diagram



Figure 2 system use case diagram

#### 2.3.1 Blog Backstage use case diagram

Figure 3 blog backstage use case diagram

#### 2.3.1 Blog Front use case diagram

Figure 4 blog front use case diagram

### 2.4 Operating Environment

#### 2.4.1 Specified tool

Programming tools：Miscrosoft Visual Studio Enterprise 2017

Database management system：MSSQL 2008

Source code management:git

Source code visualization management tool:SourceTree

Source code management platform:gitee

#### 2.4.2 Environmental choice

Operating system used in development：Windows 7

Deploying operating systems:windows server 2012

testing environment:ChoromeBrowser,360Browser,IE 11 and above,QQ browser，FireFox browser

#### 2.4.3 Framework and development language selection

Back end language selection:C#

Front end language selection:HTML+CSS+JS

Database: MSSQL

Backend development framework selection:Asp.Net MVC5.0+EF 6.1+WebApi

Front end frame:Vue 2.0+Ajax+LayUI

### 2.5 Design and Implementation Constraints

1）The development of work specifications and standards: maintenance costs are quite high, so detailed documentation is necessary, including the necessary notes and instructions. Its proportion is not less than 1/5。

2）The front-end development language uses HTML5, and the back-end is C# and database: MSSQL.

3）Interface requirements: because of the openness of the blog, everyone can access, in front of the display can be flat. Compatible with mobile phone, tablet, PC, beautiful and generous in display.

### 2.6 User Document

Documentation includes service contracts and user instructions. The document shows that the main function table, jurisdiction (authority) of the user, error elimination (excluding) unexpected event processing program.

### 2.7 Hypothesis And Dependence

1) Development cost is less than 15000 yuan.

2) Task switching time is not more than 1 second.

3) Management policies, including unrestricted hardware, parallel running security and privacy (unrestricted hardware, parallel operation, security and privacy constraints) restrictions.

4) Development cycle: documentation for 1 weeks, coding for 2 weeks, software testing for 1 weeks.

## 3. External interface requirements

## 3.1 User interface

As a user interface, it should have good compatibility, flattening and streaming layout.

## 3.2 Hardware

PC, mobile phone, Ipad and so on

## 3.2 Software requirements

Recommend using Chrome browser, FireFox browser

## 3.3 Communication interface

All users who can access the network access the domain name or IP through the browser.

## 4 System characteristics

## 4.1 Precision

According to the requirement of precision, the length of input and output data is controlled according to the requirement of precision. Ensure the normal use of users while saving system space.

## 4.2 Function

The function can be as perfect as possible, and the information can be updated in real time. Ensure the system has good stability

## 5 Other not Functional Requirements

## 5.1 Time characteristic requirements

Blog home page, response time within 1 second. Upload file size restrictions on attachments, to ensure that meet the general needs and transmission unobstructed, while saving space.

## 5.2 Flexibility

The system can be run on all kinds of mainstream browsers, and has good adaptability to different resolutions of the display. According to the new requirements of users, the system can be flexibly modified.

## 5.3 Data Management Capability Requirements

The new system requires stable and complete database system support, which can accommodate large amounts of data and various data. At the same time, it also has flexible data management capabilities, including query, update, modify, statistics and other functions. Database maintenance and backup should also be convenient and concise.

## 5.4 Troubleshooting Requirements

When the system fails, the system's own maintenance tools can be used to troubleshoot the system.

## 5.5 Other Requirements

If the system can set different access rights, users can set different access rights for different levels of users for security. When users use the system, the operation is simple and convenient. At the same time, the system has the special requirements such as maintainability, complementarity, readability, reliability, and the conversion of operating environment.