|  |
| --- |
| **E:\My Documents\Desktop\Logo_FPT_University_doc.jpg** |
| Software Requirement Specification |
|  |
|  |
| **Rental House Finding System Team | FPT University** |
| **Hanoi, 4th Mar 2013** |

|  |
| --- |
|  |

Table of Contents

[3. User Requirement Specification 4](#_Toc351897347)

[3.1 Visitor Requirements 4](#_Toc351897348)

[3.2 Registered user requirements 4](#_Toc351897349)

[3.3 Administration requirements 4](#_Toc351897350)

[3.4 System Requirement 5](#_Toc351897351)

[3.5 Post Requirement 5](#_Toc351897352)

[3.6 Ranking Requirement 6](#_Toc351897353)

[3.7 Search Requirement 6](#_Toc351897354)

[3.8.1 Quick Search 6](#_Toc351897355)

[3.8.2 Advanced Search 6](#_Toc351897356)

[I. System Requirement Specification (Specific Requirements) 7](#_Toc351897357)

[1. External Interface Requirements 7](#_Toc351897358)

[1.1 User Interfaces 7](#_Toc351897359)

[1.2 Hardware Interfaces 7](#_Toc351897360)

[1.3 Software Interfaces 7](#_Toc351897361)

[1.4 Communications Protocol 8](#_Toc351897362)

[2. System Features 8](#_Toc351897363)

[2.1 Create a New Place 8](#_Toc351897364)

[2.2 Edit a Place’s Information 15](#_Toc351897365)

[2.3 Edit a Place’s Location 21](#_Toc351897366)

[2.4 View Edit History of a Place 26](#_Toc351897367)

[2.5 View a Revision of a Place 30](#_Toc351897368)

[2.6 Compare 2 Revisions of a Place 34](#_Toc351897369)

[2.7 Approve a Revision 39](#_Toc351897370)

[2.8 Set a revision as current 44](#_Toc351897371)

[2.9 View a Place Detail 48](#_Toc351897372)

[2.10 Search Places 55](#_Toc351897373)

[2.11 Report a Place 62](#_Toc351897374)

[2.12 Mark a Place as Visited 66](#_Toc351897375)

[2.13 Rate a Place 68](#_Toc351897376)

[2.14 Post a Comment 71](#_Toc351897377)

[2.15 Delete a Comment 75](#_Toc351897378)

[2.16 Vote a Comment 78](#_Toc351897379)

[2.17 Highlight Best Comment 83](#_Toc351897380)

[2.18 Report a Comment 86](#_Toc351897381)

[2.19 Question & Answer Page 91](#_Toc351897382)

[2.20 View Question Detail 94](#_Toc351897383)

[2.21 Create a New Question 99](#_Toc351897384)

[2.22 Vote a Question 103](#_Toc351897385)

[2.23 Report a Question 107](#_Toc351897386)

[2.24 Post an answer 111](#_Toc351897387)

[2.25 Vote an answer 115](#_Toc351897388)

[2.26 Report an answer 119](#_Toc351897389)

[2.27 Delete an answer 124](#_Toc351897390)

[2.28 View Favorite List 127](#_Toc351897391)

[2.29 Add a Place to Favorite List 130](#_Toc351897392)

[2.30 Remove Places from Favorite List 133](#_Toc351897393)

[2.31 List Top Places of Month 136](#_Toc351897394)

[2.32 List Newest Places 137](#_Toc351897395)

[2.33 List Most Searched Categories 140](#_Toc351897396)

[2.34 List Most Contributors 143](#_Toc351897397)

[2.35 Log In 145](#_Toc351897398)

[2.36 Log Out 150](#_Toc351897399)

[2.37 Register an Account 153](#_Toc351897400)

[2.38 Reset Forgot Password 158](#_Toc351897401)

[2.39 Edit Your Profile 162](#_Toc351897402)

[2.40 Change Password 168](#_Toc351897403)

[2.41 View an User’s Profile 171](#_Toc351897404)

[2.42 <Admin> List all Users 177](#_Toc351897405)

[2.43 <Admin> View User Detail 180](#_Toc351897406)

[2.44 <Admin> Edit an User 183](#_Toc351897407)

[2.45 <Admin> Delete Users 186](#_Toc351897408)

[2.46 <Admin> List All Categories 188](#_Toc351897409)

[2.47 <Admin> Create a New Category 191](#_Toc351897410)

[2.48 <Admin> Edit a Category 195](#_Toc351897411)

[2.49 <Admin> Delete Categories 199](#_Toc351897412)

[2.50 <Admin> List All Advertises 202](#_Toc351897413)

[2.51 <Admin> Create New Advertise 204](#_Toc351897414)

[2.52 <Admin> Edit an Advertise 208](#_Toc351897415)

[2.53 <Admin> Delete Advertise 211](#_Toc351897416)

[2.54 <Admin> Manage Reported Places 214](#_Toc351897417)

[2.55 <Admin> Manage Reported Comments 218](#_Toc351897418)

[2.56 <Admin> Manage Reported Questions 222](#_Toc351897419)

[2.57 <Admin> Manage Reported Answers 226](#_Toc351897420)

[3. Software System Attributes 230](#_Toc351897421)

[3.1 Usability 230](#_Toc351897422)

[3.2 Reliability 231](#_Toc351897423)

[3.3 Availability 231](#_Toc351897424)

[3.4 Security 231](#_Toc351897425)

[3.5 Maintainability 232](#_Toc351897426)

[3.6 Portability 232](#_Toc351897427)

[3.7 Performance 232](#_Toc351897428)

[II. References 233](#_Toc351897429)

# User Requirement Specification

## Visitor Requirements

* Visitors can create accounts to become a registered user. Email address, mobile phone and password are required to register. Each email can only register once.
* Visitors can also use Open ID to login into website such as Yahoo, Google, Facebook.
* Visitors can view detail info of all houses for lease posts, which match their search and need.
* Visitors can post new house for lease with less functions comparing to registered users (they don’t have user workspace to control all their account activities easily).
* Visitors can add and delete a post they like to their favorite list.
* Visitors can compare two or three information of house for lease after adding them to favorite list.
* Visitors can search house for lease by using Quick Search and Advanced Search (with many options for users who know well about their needs.)
* Visitor can share their favorite post to others using many popular social networks.
* Visitor can send question to the owner of a post

## Registered user requirements

* Registered users have full functions of Visitor.
* Registered users can post new house for lease.
* Registered users can view; edit and delete their posts, which were posted by themselves.
* Registered users can renew their post when their post was hidden. (After amount of time).
* Registered users can edit individual information such as: name, telephone, address….
* Register users can report if topic as spam to administrator.

## Administration requirements

* Admin have full power in the system.
* Admin can view a list of all nearby places in the system, add locations and delete locations.
* Admin can view a list post on the website, add, edit or delete post, expired date
* Admin can view a list of report topics, decide they are spam or not to remove or edit.
* Admin can view all payments from users in system
* Admin can manage all categories of houses, flats for lease.
* Admin can add, edit, delete and list all locations (city, district, and province).

## System Requirement

* System will auto hide the topic post after amount of time posted.
* System will auto send active require SMS to poster’s mobile phone and/or email in order to approve the post to the website.
* System will auto immediately active the post after poster send payment SMS successfully.
* System will auto filter all post with bad words to blacklist before sending active require SMS to posters and waiting for manual check from admin. After getting approve from admin, system auto send active SMS as normal.

## Post Requirement

* Title: subject of the post. (Required)
* Type: type of house for lease. There are 4 types: house for lease, rental room, finding other to rent together, room remise(Required)
* City: the city of house. (Required)
* District: the district of house. (Required)
* Detail address: the detail address of house.
* Price: price to rent. (Required)
* Area: total area. (Required)
* Contact telephone: the phone number of person, who have house for lease. (Required)
* Contact email
* Instant Message: IM, Skype
* Water fee: fee for water service.
* Electricity fee: fee for electricity service.
* Private toilet: available or not.
* Internet: available or not.
* Motor parking: available or not.
* Garage for car: available or not.
* Air conditioner: available or not.
* Bedroom with beds: available or not.
* Cable TV: available or not.
* Kitchen: private cooking allow or not.
* Security: protected by guard or not.
* Time of door closing: 22h, 22h30, 23h, 23h30, 24h or not regulation.
* Image: pictures of house.
* Location in map: the location of house on map.
* View: the number of visitor and user view this post.
* Description: more description of house for lease.

## Ranking Requirement

A number of important data information fields below:

* + - Description
    - NumberAddress
    - Street
    - Title
    - Category
    - District
    - Province
    - NearbyPlace

will have a ranking percentage which is defined by admin. The search result will be displayed in order of highest ranking post to lower ranking posts.

HungCQ:

Chúng ta có các trường như trên. Tùy vào nhu cầu người dùng họ sẽ cung cấp những thong tin bắt buộc cần phải có là Category và Province. Trường District người dùng có thể tùy chọn search tất cả hoặc search theo từng district riêng. Với các tiêu chí còn lại chúng ta sẽ quy định điểm cho mỗi tiêu chí tương ứng.

Điểm này hoạt động như thế nào:

* Khi người dùng không nhập từ khóa để search thì bộ điểm này sẽ không được sử dụng, và hệ thống mặc định sẽ tìm tất cả bài đăng thỏa mãn 3 điều kiện rang buộc là category district province.
* Tuy nhiên khi người dùng nhập 1 từ khóa bất kỳ, hệ thống sẽ sử dụng tính năng Fulltextsearch trong MSSQL để tìm trong tất cả các trường như trên. Điều đặc biệt là hệ thống sẽ áp dụng cách thức tính rank của hàm Freetextable trong fulltextsearch (dựa vào công thức OKAPI BM25) để tính rank cho mỗi trường tương ứng. Sau khi đã có rank của mỗi trường tương ứng hệ thống sẽ dùng điểm rank đó và NHÂN với số điểm mà đã được quy định từ trước để ra được điểm cuối cùng. Kết quả trả về sẽ được sắp xếp theo thứ tự giảm dần của điểm này.

Và tất nhiên, admin có thể tùy ý thay đổi số điểm này cho mỗi trường để phù hợp với nhu cầu của từng thời điểm

Ref: hệ thống tính rank Fulltext search SQL <http://msdn.microsoft.com/en-us/library/ms345119(SQL.90).aspx>

## Search Requirement

There are 2 kinds of search in the website: Quick Search and Advanced Search:

## 3.8.1 Quick Search

This is a main region on the home page and is displayed as a bar and is accessible from every page. The users will choose the category of house for lease they want to search and the area they want to find places in. The search area fields will automatic title suggestion.

## 3.8.2 Advanced Search

This function provides users more options to make search result become more precise. It is extremely effective for users who know well their needs. These options are:

+ specific location: province, city, and streets.

+ specific price and area.

+ specific interior utility with need evaluation for user. They can define the priority of each item.

Search result will display in order of the highest priority matches on the top as in ranking requirements.

HungCQ:

Mục đích: Tìm tất cả các bài post thỏa mãn quận huyện thành phố loại, giá cả và diện tích, và sắp xếp chúng theo thứ tự từ cao xuống thấp dựa theo bộ điểm tiêu chí của người dùng tự định sẵn.

Có 4 mức điểm thể hiện độ quan tâm của người dùng với từng tiêu chí:

* Không quan tâm: 0 điểm
* Thấp: 5 điểm
* Vừa: 10 điểm
* Cao: 15 điểm

Người dùng sẽ chọn mức độ quan tâm của mình tương ứng với từng tiêu chí, và sau đó hệ thống sẽ trả về 1 danh sách các bài đăng với số điểm được tính toán dựa trên mức độ quan tâm của người dùng.

Do yêu cầu được đặt ra là tìm tất cả các bài đăng thỏa mãn yêu cầu nên cần 1 thuật toán chạy nhanh mà vẫn xử lý chính xác yêu cầu.

Mô tả thuật toán: Chúng ta có 11 tiêu chí ở dạng có hoặc không có, quy định có là 1 điểm và không có là 0 điểm. Tương ứng với từng số điểm người dùng đặt ra cho mức độ quan tâm của từng tiêu chí, chúng ta sẽ nhân với cặp giá trị 0 1 kia. Ví dụ người dùng chọn mức độ quan tâm Internet là 15 thì với bài đăng có Internet thì điểm cho tiêu chí này sẽ là 1\*15 = 15, ngược lại nếu không có Internet thì số điểm cho tiêu chí này của bài đăng đó sẽ là 0\*15 = 0. Chúng ta cộng tất cả điểm cho 11 tiêu chí sẽ ra được điểm cuối cùng của mỗi bài đăng, và sẽ dựa vào đó để sắp xếp kết quả trả về.

Chúng ta có 11 tiêu chí, mỗi tiêu chí có giá trị 0 hoặc 1, như vậy ta có 1 dãy nhị phân gồm 11 số …

# System Requirement Specification (Specific Requirements)

## External Interface Requirements

### User Interfaces

Interface needs to attract the attention of users to the product image. Website should have the background simple, less color, less attention but that also shows clear boundaries between each section: photos with text, photos with photos, and photos with the background…Color choices should be pleasing to the eye and should stimulate the user's interest.

The look and feel of this website should be based on user requirements. Page layout and navigation should be as intuitive and easy as possible.

The overuse of product images should not increase the time in which a page downloads, which has a negative impact on usability.

### Hardware Interfaces

RHF website needs to run are the peripheral devices mouse and keyboard with internet connection. System can display many image formats, such as: jpg, png, jpeg

### Software Interfaces

Products run on web application, it requires the use of programming languages supported on the browser.

Outside, the system should use other programs to manage resources data, these programs can be combined with the system, can change and update from the system. Data will be exchanged between systems and external data through data management software such as SQL Server…

|  |  |  |
| --- | --- | --- |
| Software name | Version | Source |
| .NET Framework | 4.0 | Microsoft |
| SQL Server | 2008 R2 | Microsoft |
| Visual Studio | 2010 | Microsoft |
| MVC | 3.0 | Microsoft |

### Communications Protocol

RHF website uses the protocol HTTP to call service from Google Map API. These web services use HTTP requests to specific URLs, passing URL parameters as arguments to the services. Generally, these services return data in the HTTP request as either JSON or XML for parsing and/or processing by system.

System implemented on the browser, using standard protocols to communicate between users and server.

In the process of communication, some important information of the user system will be encrypted using special algorithms.

Besides the design synchronize data and systems, all components of the system can access data at any time.

The system should produce nicely formatted HTML that popular social network such as Facebook, MySpace can share information.

The web pages must be easy for search bots such as Google, Yahoo to find and cache.