**MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

Capstone Project Document

**Building a web-based application that manages activities of the maid service**

|  |  |
| --- | --- |
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| **Capstone Project code** | MS-Website |

- Ho Chi Minh City, December 2014-

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# Definitions, Acronyms, and Abbreviations

|  |  |  |
| --- | --- | --- |
| **No.** | **Abbreviation & Acronym** | **Definition** |
| 1 | MS | Maid Service |
| 2 | OS | Operation System |
| 3 | Admin | Administrator |
| 4 | HTTP | Hyper Text Transfer Protocol |

# Introduction

## Project Information

* **Project name:** Maid Services
* **Project Code:** MS-Website
* **Product Type:** Web-based Application
* **Start Date:** September 9, 2014
* **End Date:** December 20, 2014

## Introduction

The main goal of MS Website is to help users to easily find suitable person for taking care of household chores as well as help maids to quickly find a suitable job.

## Current Existence Method

Currently, most of job centers are supplying maid service with many functions such as posting maid’s information, maid searching by criteria (expected salary, age, experiences …) but the customers can’t post their private requests and give rating, comment about the maid that they have recruited. Moreover, maid’s information is not detailed and complete. The system can’t match and suggest the maid to the customer, negotiation and signing the contract are time-consuming.

## System Overview

The system has two main targets:

* **Customer:** busy with works and want to find people who can take care of houseworks for them. Customer can post a recruitment with demanded skills and the system will automatically match that recruitment with suitable job requests. Customer can choose one of them to apply.
* **Maid:** has experience in doing houseworks and want to find a job but doesn’t have knownledge about IT. They can come to talk directly with staff to post a job request or ask a person with knownledge about IT to become a mediator. The mediator can post new job request but still has to pay staff directly to active the posted job request.

## Role and Responsibility

|  |  |  |
| --- | --- | --- |
| **Role and Responsibilities** | **Full name** | **E-mail** |
| Instructor | Nguyễn Trọng Tài | taint@fpt.edu.vn |
| Leader | Bùi Tiến Tuân | tuanbtse60824@fpt.edu.vn |
| Member | Mạnh Quang Tuyến | tuyenmqse60890@fpt.edu.vn |
| Member | Trương Hải Đăng (drop out) | dangthse60841@fpt.edu.vn |
| Member | Nguyễn Tấn Công | congntse60920@fpt.edu.vn |

# Software Project Management Plan

## Problem Definition

### Name of this Capstone Project

* The system is for maid and the people who are searching for maid.
* The language is Vietnamese.
* The end product includes: the website and documents involved with the system.

### Problem Abstract

Nowadays, the demand of playing sports for relaxing after work, studying...more and more decrease especially playing badminton sports. Moreover, there are not many websites supporting for badminton players, badminton court owners and badminton trainers to rent courts, manage courts, manage badminton classes…

This website system is developed and focus on target users are badminton sport fans who want to rent badminton courts for playing; bosses of badminton courts who want to provide for sport fan renting court services; badminton trainers who want to apply teaching jobs; trainees who want to join to badminton course to improve their abilities

### Project Overview

#### The Current System

There are have many website about work such as http://timviec.com, timviecnhanh.com, vietnamworks.com …. But they have some problem:

* **Advantages:** Provider many information about works in Vietnam.
* **Disadvantages:**
  + There is so much information.
  + There is no centralized information about Maid.

#### The Proposed System

Our site focuses on those who are busy with their works so they need to find maids to help them with household chores and the maids who are searching for jobs. Maids can quickly find job for themselves and it also makes it easy for people who are in need of finding maids to choose and recruit. With small amount of money, the website can connect those two together. The maids are people who don’t have much knowledge about IT, so our purpose is to create a website with ease of use and simple.

There are three main users whom the website interacts with including:

* **Maid representation:** Because of the lack of knowledge in IT, they can ask someone has knowledge to become their representation and register for them. Manage requested job, Search jobs, Apply job, View maid statistic.
* **Customer:** Manage recruitment, View customer statistic, Comment, Search maids, Rating, Apply maid.
* **Staff:** Can help maid to register and post info in place of them. Manage post time, Confirm request, Manage fee.

#### Boundaries of the System

* The system is for maid and the people who are searching for maid.
* The language is Vietnamese.
* The end product includes: the website and documents involved with the system.

#### Development Environment

##### Hardware requirements

**For Server**

|  |  |  |
| --- | --- | --- |
| Windows | Minimum Requirements | Recommended |
| Internet Connection | 512Kbs | 1Mbs |
| Operating System | Window 7 | Window 8 |
| Computer Processor | Intel® Core 2 Duo | Intel® Core(TM) i5 CPU , M 460 @ 2.53GHz |
| Computer Memory | 2GB RAM | 3GB or more |

##### Software requirements

* Microsoft Windows 7: Operating System.
* SQL Server 2008 R2: used for managing the database for system.
* StarUML 5.0: designing models and diagrams tools.
* Visual Studio 2012: used to implement website and web service.
* Google Code & TortoiseSVN: used for source control.

## Project organization

### Software Process Model

With the schedule of weekly reports for every stage, the software will be developed by using waterfall model it is very simple and require minimal resource for implementation. With waterfall model, developing process will include six main phases:

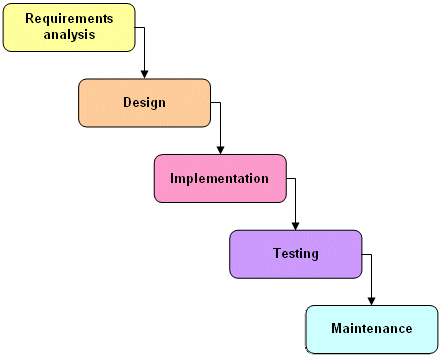


Figure 1: Waterfall model

* **Requirement analysis and software definition**: The first phase is also the most important phase of the process which may cause great effect to other phases. This phase includes gathering as much as possible requirements from customer, or other information source like World Wide Web, and producing a most detail and accurate software definition.
* **System design**: This phase is fundamental for implementation phase. Based on customer’s requirements to create logical modules, and definite their inter relations. Using algorithm and diagram to describe implementation of those modules.
* **Implementation**: This phase consists of actually constructing the product as per the design specification(s) developed in the previous step. Typically, this step is performed by a development team consisting of programmers, interface designers and other specialists, using tools such as compilers, debuggers, interpreters and media editors.
* Testing:
  + **System implementation and Unit testing**: Developing software modules follow detail designs, and doing unit testing for each module.
  + **Integration and System testing**: Testing output, performance in modules integrating process, and retests all functions of whole system.
  + **User acceptance testing**: A proper execution of all the preceding stages ensures an application as per the provided requirements and most importantly, it ensures a satisfied client.
* **System deployment and maintenance**: After testing completely, the software is handle over client, developing team will respond for maintenance of the system.

### Roles and responsibilities

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Full name** | **Role in Group** | **Responsibilities** |
| **1** | Nguyễn Trọng Tài | Project manager | * Specify user requirement * Control the development process * Give out technique and business analysis support |
| **2** | Bùi Tiến Tuân | Team Leader, BA, DEV, Tester | * Managing process * Assign task for team member * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **3** | Mạnh Quang Tuyến | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **4** | Trương Hải Đăng | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **5** | Nguyễn Tấn Công | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |

Table 1: Roles and Responsibility Details

### Tools and Techniques

#### For Development

* Front-end technologies: HTML5, CSS3, JavaScript, jQuery, AJAX.
* Back-end: ASP .NET MVC4, Entity Framework.
* Data Management System: SQL Server 2008 R2.
* IDE: Visual Studio 2012
* System design tool: StartUML
* IIS: web server

#### For Management

-Process and code tracking: Team Foundation Server.

-Tortoise SVN: Document version control and tracking.

## Coding Convention

C#: Using to develop MS-website.

Summary:

* Naming Convention.
* Indentation.
* Declaration.
* Code Examples.

All “Code Conventions for the C# Programming Language, by Microsoft

<http://msdn.microsoft.com/en-us/library/ff926074.aspx>

# Software Requirement Specification

## User Requirement Specification

### Guest requirement

To satisfy the demand of guest, system has these functions:

* **Register Account:** guest need to register to become member.
* **Login:** when guest have account they can login with username and password.
* **Search:** guest can search information about jobs, before they determine become a member.
* **View JobRequest:** view JobRequest details.
* **View Recruitment:** view Recruitment details.

### Authenticated User requirement

After logging in, user becomes authenticated user and has these functions:

* **View Profile:** user can view profile.
* **Log out:** user can log out .
* **View JobRequest:** view JobRequest details.
* **View Recruitment:** view Recruitment details.

**View Notifications:** view Notifications when system sends.

### Staff requirement

A person: to manage the maid’s request, fee and allow maid to post request.

* **Manage post time**: staff manage maid’s request post time.
* **View post time**: staff can allow customer and maid the time that maid’s request posted.
* **Manage fee**: staff can manage the customer’s fee, maid’s fee
* **Confirm request**: staff can allow the maid’s request to post to the website.
* **View Requests Statistic:** User can view all statistic of request in year.
* **View Income Statistic:** User can view all statistic of income in year.
* **Active Job Request:** Staff can choose of list job request not active, Staff choose one of them was paid money by maid.
* **Active Recruitment:** Staff can choose of list recruitment not active, staff choose one of them was paid money online by paypal from customer.
* **Approve Job Request:** staff to approve job request to public it on website
* **Manage Job Request:** staff view all jobrequests that is not active
* **Manage Recruitment:** staff view all recruitments that is not active
* **Manage Applied Job Request:** staff view all applied jobrequests
* **View Maid Manager Statistic:** staff to view personal statistic as maid
* **Add Maid:** User add maid for management
* **View Maid:** User to view a maid’s detail
* **Edit Maid:** Useredit a maid’s info
* **Public Job Request:** User to public a job request for customer to apply.
* **Hide Job Request:** User to hide a job request and can’t be applied by any customer.
* **Extend Job Request:** User to extend job request.
* **Edit Job Request:** User to edit job request.
* **Post Job Request:** User to post job request.

### Customer requirement

A person: They can hire maid and do all function by Customer roll.

* **Apply Job Request:** Customer use a them Recruitment have status “Waiting” to Apply a JobRequest have status “Waiting” too.
* **Comment Job Request:** When customer applied a JobRequest, they can comment for this JobRequest if Maid come back and tell to staff Approved this Job**.**
* **Rate Job Request:** When customer applied a JobRequest, they can rate for this JobRequest if Maid come back and tell to staff Approved this Job.
* **Edit Customer Profile:** customer to edit profile.
* **Extend Recruitment:** customer to extend recruitment.
* **Hide Recruitment:** Customer to hide a recruitment and can’t be seen by any one.
* **Public Recruitment:** Customer to public a job request for customer to apply.
* **Post Recruitment:** Customer to post job request
* **Edit Recruitment:** Customer to edit recruitment
* **Pay:** Customer will pay online by Paypal for them Recruitment
* **View Customer Statistic:** Customer to view personal statistic as customer.

### Maid mediator requirement

A person: This is a role mediator of maid. They help maid post job request and add Maid.

* **View Maid Manager Statistic**: User to view personal statistic as maid.
* **Add Maid:** User add maid for management
* **View Maid:** User to view a maid’s detail
* **Edit Maid:** Useredit a maid’s info
* **Public Job Request:** User to public a job request for customer to apply.
* **Hide Job Request:** User to hide a job request and can’t be applied by any customer.
* **Extend Job Request:** User to extend job request.
* **Edit Job Request:** User to edit job request.
* **Post Job Request:** User to post job request.

### Webmaster requirement

A person: This is admin of system. They can mange user, config and run algorithm.

* **Add Staff:** User to add maid for management.
* **Manage User:** user to view a maid’s detail
* **Ban Account:** User will ban account
* **Unban Account:** User will active account
* **View Requests Statistic:** View statistic of all request of MS-Website in year
* **View Income Statistic:** View statistic of all income of MS-Website in year
* **Manage Number of Kmean:** Change number K of Kmean algorithm. K same number of group.
* **Manage Number of Weeks:** Change maximum week when user post a JoRequest or Recruiment in to MS-Website.
* **Manage Job Request Price:** Change price when a new JobRequest post to MS-Website.
* **Manage Recruitment Price:** Change price when a new Recruitment post to MS-Website.

### System requirement

A person: this is a system, automatic run some function.

* **Suggests:** system automatically suggest JobRequest for customer when they post a recruitment on MS-Website
* **Send SMS:** Notify for Maid, Customer, Maid Mediator or Staff when Customer apply JobRequest of Maid
* **Send Notifications:** Notify for Maid, Customer, Maid Mediator or Staff when Customer apply JobRequest of Maid. Notify for all Staff when customer report about payment.

## System Requirement Specification

### External Interface Requirement

#### User Interface

* The general interface of website is simple and simplifies user interfaces.
* The design is simple and monochrome is more prefer.
* The layout of information in page is showing simple but full of functions.
* The error, warning and notification messages must be simple, neat, and easy to understand. Error warning does not discomfort to the user.
* The working layout of user is spacious.
* Member can contact with manager and admin easily.

#### Hardware Interface

There is no extra hardware interfaces are needed. The system will use the standard hardware and data communications resources of a standard computer.

#### Software Interface

Browser: Chrome, Firefox

#### Communication Protocol

* Thien Nam website uses HTTP/HTTPS protocol for communication with the web browser and the web server. In addition, TCP/IP network protocol for communication with HTTP protocol

### Functional Requirement

#### System Overview Use Case

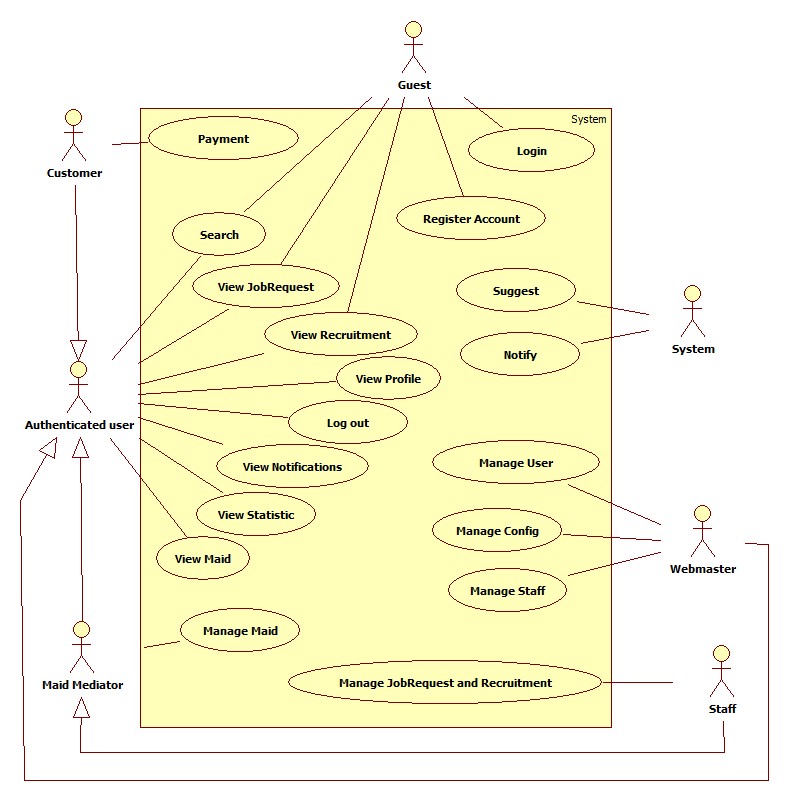


Figure 2: System Overview Use Case

#### List of Use Case

##### <Guest> Register



Figure 3: <Guest> Register

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC001 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Register | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Guest  **Summary:** This use case allows guest to create an account in website system.  **Goal:**  It helps guest to create an account on website.  **Trigger:** Click on the “Đăng ký” button to register on home page  **Pre-conditions:**   * Page is loaded successfully * Register page will be shown   **Post conditions:**   * Success: Register successfully, guest will have an account in system and will be logged into system. * Failure: Show message error.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Click on “Đăng ký” button home page 2. Input right information about username, email, password, full name, phone, role 3. Click on the “Đăng ký” button | 2. System redirect to register page for guest, contain a register form :   * Tên tài khoản [Username: textbox ] * Mật khẩu [Password : textbox] * Nhập lại mật khẩu [Repassword : textbox] * Địa chỉ email [Email: textbox] * Họ và tên [Fullname : textbox] * Điện thoại[Phone : textbox] * Vai trò[Role : dropdownlist] * Đăng ký[button]   [Exception 1]   1. Validate valid username, password, email, phone 2. Redirect to login page |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | |  |  |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]   1. “Tên đăng nhập” is emtpy 2. “”Mật khẩu” is empty 3. “Nhập lại mật khẩu” if different with “Mật khẩu” 4. “Điện thoại” is empty or not a numberic value 5. “Họ và tên” is empty 6. “Email” is empty or not correct type [abc@abc.abc](mailto:abc@abc.abc) 7. “Tên đăng nhập” is already have in database | 1. Display message: “Vui lòng nhập tên đăng nhập” 2. Display message: “Vui lòng nhập mật khẩu” 3. Display message: “Mật khẩu không trùng khớp” 4. Display message: “Vui lòng nhập số” 5. Display message: “Vui lòng nhập họ và tên” 6. Display message: “Vui lòng nhập đúng định dạng [abc@abc.abc](mailto:abc@abc.abc)” 7. Display message: “Tên đăng nhập đã tồn tại” |   **Relationships:** N/A  **Business Rules:** When register an account, users have to input username, email, password, phone.   * If username, email is already have in database, an error message will be displayed. | | | | |

##### <Guest> Login



Figure 4: <Guest> Login

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC002 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Login | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Guest  **Summary:** This use case allow guest to login the website  **Goal:** Guest become a member of the website  **Trigger:** Click on the “Đăng nhập” button to login on home page  **Pre-conditions:**   * Page is loaded successfully * The login page will shown   **Post conditions:**   * Success: Login successfully, guest will have a role in system and can use more function of system. * Failure: Show message error   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Click on “Đăng nhập” button home page 2. Input right information about username, password 3. Click on the “Đăng nhập” button | 1. System redirect to login page for guest, contain a login form :  * Tên tài khoản [Username: textbox ] * Mật khẩu [Password : textbox] * Đăng nhập [button]  1. Redirect to login successful page |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]   1. “Tên đăng nhập”,”Mật khẩu” ,” is empty 2. “Tên đăng nhập”,”Mật khẩu” ,” is incorrect 3. “Tên đăng nhập” is IsActive(false) | 1. Display message “Vui lòng nhập tên đăng nhập” or “Vui lòng nhập mật khẩu” 2. Display message “Tên đăng nhập hoặc mật khẩu không đúng, vui lòng thử lại” 3. Display message “Tên đăng nhập đã bị khóa” |   **Relationships:** N/A  **Business Rules:** User must input username, password. The username and password must unique and have in database and the username is not blocked. If the username is blocked or not unique or not have in database, an error message is displayed. | | | | |

##### <Authenticated user > Search



Figure 5: <Authenticated user > Search

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC003 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Search | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Guest, Customer, Maid Mediator, Staff, Webmaster.  **Summary:** This use case allow guest can search information on the website  **Goal:** Guest can search information by search job  **Trigger:** Fill in “Tìm kiếm” textbox, then click on “Tìm kiếm” button  **Pre-conditions:**   * Page is loaded successfully * The search page will shown   **Post conditions:**   * Success: Search successfully, the system will shown search result * Failure: N/A   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Fill in “Tìm kiếm” text box 2. Click on “Tìm kiếm” button | 1. System redirect to search page for guest and show search results |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:**  **Business Rules:** All of role can search but search results are different in some roles:   * If user is a guest, search results are jobrequests and recruitments. * If user is a staff, customer or webmaster, search results are jobrequests and recruitments. * If user is a maid mediator, search results are jobrequests. | | | | |

##### C:\Users\USER\Desktop\AdvanceSearch.jpg< Authenticated user >Advance Search

Figure 6: < Authenticated user >Advance Search

###### C:\Users\USER\Desktop\SearchbySkill.jpg<Authenticated user> Search by Skill

Figure 7: <Authenticated user> Search by Skill

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC005 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Search by skill | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Guest, Customer, Maid Mediator, Staff, Webmaster.  **Summary:** This use case allow guest can search information by skill  **Goal:** Guest can search information by search skill  **Trigger:** Click on skill radio button on website  **Pre-conditions:**   * Page is loaded successfully * The search page will shown   **Post conditions:**   * Success: Search successfully, the system will shown search result * Failure: N/A   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Fill in “Tìm kiếm” text box 2. Click on “Tìm kiếm” button 3. Click on skill radio button of skill | 1. System redirect to search page 2. Show the result suitable for each button |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:** Search by skill is generated with AdvancedSearch and AdvancedSearch is extended to Search  **Business Rules:** All of role can search but search results are different in some roles:   * If user is a guest, search results are jobrequests and recruitments. * If user is a staff or webmaster, search results are jobrequests and recruitments. * If user is a maid mediator, search results are recruitment. * If user is a customer, search results are jobrequests. | | | | |

##### <Authenticated user> View Notifications

Figure 8: <Authenticated user> View Notifications 

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC013 | **Use-case Version** | | 1.0 |
| **Use-case Name** | View notifications | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Staff, Customer, Maid Mediator, Webmaster  **Summary:** This use case allow to view notifications  **Goal:** User can view notifications  **Trigger:** Click on title icon notifications link  **Pre-conditions:**   * Page is loaded successfully * User login to website successful   **Post conditions:**   * Success: Login successfully * Failure:   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login to website 2. Click icon notifications link | 1. System redirect home page 2. System redirect notifications page. |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:** N/A  **Business Rules:**   * If user log in as a staff, notifications show that jobrequests or recruitments is not active or is not paid, so staff have to active those jobrequests or recruitments. * If user log in as a customer or maid mediator, notifications show that your recruitmenst or jobrequests are applied. | | | | |

##### <Webmaster> Add Staff

Figure 9: <Webmaster> Add Staff 

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC014 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Add staff | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Webmaster  **Summary:** Webmaster add a user role Staff. A new staff only have username and password.  **Goal:** Make a new user directive.  **Trigger:**Webmater click on “Thêm nhân viên”  **Pre-conditions:**   * User must login with Admin role. * Register page will be shown   **Post conditions:**   * Success: Reload this page * Failure: Show message error   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Webmaster click “Thêm nhân viên” at his profile page.  3. Webmaster fill and click “Thêm nhân viên” button. | 2. The page show 3 input username, password, re-password.  4. Page is reload.  [Exception 1] [Exception 2] |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]  1. Input “Tên đăng ký” is missing  [Exception 2]  1. Input “Mật khẩu” is missing or password not match with input “Nhập lại mật khẩu” | 2. Show error “Vui lòng nhập tên đăng nhập”  2. Show error “Mật khẩu không trùng khớp” |   **Relationships:** Add staff is generalization of manage staff  **Business Rules:**   * Only Web master can add staff. * After adding staff, new record is added to Staff table in database. | | | | |

##### <System> Suggest JobRequest

Figure 10: <System> Suggest JobRequest 

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC021 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Suggest JobRequest | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** System  **Summary:** system automatically suggest JobRequest for customer when they post a recruitment on MS-Website.  **Goal:**  The use case will help MS-Website suggest JobRequest for customer when they post a recruitment.  **Trigger:**   * Click [Đăng yêu cầu tuyển việc] button. * Fill all data. * Click [Đăng yêu cầu] button.   **Pre-conditions:**   * Post an invalid recruitment.   **Post conditions:**   * Success: Suggested JobRequests list will appear. * Failure: Nothing is displayed at suggesting field.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. User click on the [Đăng yêu cầu tuyển việc] button. | 1. Show suggested JobRequests list.   [Exception 1] |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Ation | System Response | | 1. System fail to load data | 1. Show suggested JobRequests list |   **Relationships:** N/A  **Business Rules:**   * The algorithms runs on only Recruitments with “Waiting” status and isActive is true to suggest suitable Job Requests. * Only 10 Job Requests in the same group with the Recruitment having “Waiting” status and isActive is true in database will be suggested. * Recommended list shows up 10 Job Requests and arranges them in order of pertinence (descending by distance to the center point of that group). | | | | |

##### <System> Send SMS

Figure 11: <System> Send SMS

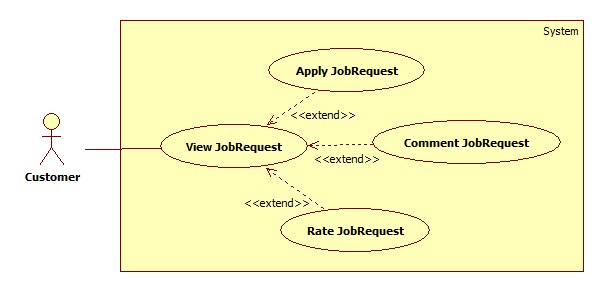
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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC022 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Send SMS | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | Normal | |
| **Actor:** System  **Summary:** Notify for Maid, Customer, Maid Mediator or Staff when Customer apply JobRequest of Maid.  **Goal:**  Send SMS for Maid, Customer, Maid Mediator or Staff when Customer apply JobRequest of Maid. System know when accept a job.  **Trigger:** Both Customer and Maid post an invalid recruitment and job request. Customer must apply successful JobRequest.  **Pre-conditions:**   * Apply success.   **Post conditions:**   * Success: Send SMS * Failure: Don’t send SMS   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Customer apply JobRequest of Maid | 1. Send SMS |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:** Send SMS is generalization of Notification  **Business Rules:**   * When a Job Request is applied by a Recruitment, the system send SMS messages to the maid, customer, posting person (Staff or Maid Mediator) to let them know. | | | | |

##### <System> Send Notifications

Figure 12: <System> Send Notifications 

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC023 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Send Notifications | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | Normal | |
| **Actor:** System  **Summary:** Notify for Maid, Customer, Maid Mediator or Staff when Customer apply JobRequest of Maid. Notify for all Staff when customer report about payment.  **Goal:**  Help user know what happen with them.  **Trigger:** Both Customer and Maid post an invalid recruitment and job request. Customer must apply successful JobRequest.  **Pre-conditions:**   * User must login into MS-Website.   **Post conditions:**   * Success: Notification show at notify page of User was send Notification. * Failure: Do not show notification.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Customer apply JobRequest of Maid | 1. Send SMS |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:** Send notificatrion is generalization of Notifier  **Business Rules:**   * When a Job Request is applied by a Recruitment, new record is created in Notify table in database. * The system sends notifications to the customer, posting person (Staff or Maid Mediator) to let them know. | | | | |

##### <Customer> View JobRequest

Figure 13: <Customer> View JobRequest 

###### <Customer> Apply JobRequest

Figure 14: <Customer> Apply JobRequest 

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC024 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Apply JobRequest | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Customer  **Summary:** Customer use a them Recruitment have status “Waiting” to Apply a JobRequest have status “Waiting” too.  **Goal:**  Apply JobRequest.  **Trigger:** Click button “Thuê"  **Pre-conditions:**   * User must login with Customer role   **Post conditions:**   * Success: Reload page. Name of Customer show at status line. * Failure: Show error “Thuê thất bại”   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Customer click a JobRequest have status “Waiting”, then click “Thuê” button.  3. Choose a Recruitment from list Radio button. Then click “Đồng ý” button | 2. Show modal “Xin chọn một đơn tuyển việc”.  4. Show status “Đã được thuê”.  [Exception1] |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | |  |  |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]  1. Customer click “Chấp nhận” from modal. | 2. Show error “Công việc đã được thuê bởi khách hàng khác” |   **Relationships:** Apply JobRequest is extend of View JobRequest  **Business Rules:**   * Only Job Request with “Waiting” status and isActive is True can be applied. * Only Recruitment with “Waiting” status and isActive is True can apply a Job Request. * When applying a random Job Request, customer must choose one of his/her posted Recruitments with “Waiting” status and isActive is true to apply. * After applying, the status of applied Job Request and chosen Recruitment change to “Applied” in database. System sends SMS and Notifications to revelant people. | | | | |

###### <Customer> Comment JobRequest

Figure 15: <Customer> Comment JobRequest 

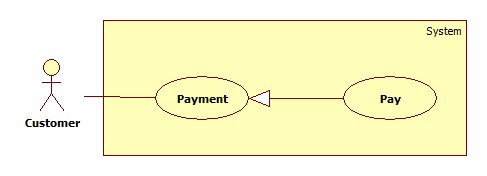
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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC025 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Comment JobRequest | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Customer  **Summary:** When customer applied a JobRequest, they can comment for this JobRequest if Maid come back and tell to staff Approved this Job.  **Goal:**  Comment JobRequest.  **Trigger:** Fill input comment.  **Pre-conditions:**   * User must login with Admin role * Status of JobRequest is Approved   **Post conditions:**   * Success: one line comment show. * Failure: No comment.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Click a jobRequest in “Đã nhận” tab. This JobRequest must have status “Đã hoàn tất”  3. Fill comment input, then click “Đăng” button. | 2. Show box “Nhận xét của người đã thuê”.  4. One line comment is show. |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:** Comment JobRequest is extend of View JobRequest  **Business Rules:**   * Only customer can comment on a Job Request. * Only Job Request with “Approved” status can be commented. | | | | |

###### <Customer> Rate JobRequest

Figure 16: <Customer> Rate JobRequest 

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC026 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Rate JobRequest | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Customer  **Summary:** When customer applied a JobRequest, they can rate for this JobRequest if Maid come back and tell to staff Approved this Job.  **Goal:**  Rate JobRequest.  **Trigger:** Click choose star. Then click “Chấm điểm” button.  **Pre-conditions:**   * User must login with Admin role * Status of JobRequest is Approved   **Post conditions:**   * Success: Star show in rating line. * Failure: No rate.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Click a jobRequest in “Đã nhận” tab. This JobRequest must have status “Đã hoàn tất”  3. Choose number star, then click “Chấm điểm” button. | 2. Show box “Nhận xét của người đã thuê”.  4. Rate of JobRequest be shown. |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:** Rate JobRequest is extend of View JobRequest  **Business Rules:**   * Only customer can rate a Job Request. * Only Job Request with “Approved” status can be rated. | | | | |

##### <Customer> Pay

Figure 17: <Customer> Pay

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC033 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Pay | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Customer  **Summary:** Customer will pay online by Paypal for their recruitment.  **Goal:**  Pay online by Paypal.  **Trigger:** Post success a recruitment.  **Pre-conditions:**   * User must login with customer role * Paypal button will be shown   **Post conditions:**   * Success: Status of recruitment change to Watting mean “Đang chờ người làm”. * Failure: Button Paypal not hide.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Click Paypal button.  3. Do pay money. | 2. System redirect to Paypal Page.  4. Button Paypal hide, status of Recruitment change to “Đang chờ người làm”.  [Exception 1] |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | [Alternative 1]  1. Customer click a Recruitment form “Hết hạn” tab in Profile page. Then Click “Gia hạn” button.  3. Click Paypal button.  5. Do pay money.  [Alternative 2]  1. Customer click title a Recruitment from “Hết hạn” tab in Profile page.  3. Click “Gia hạn” button.  5. Do pay money. | 2. System show “Gia hạn đơn tuyển việc” modal.  4. System redirect to Paypal page.  6. Button Paypal hide, status of Recruitment change to “Đang chờ người làm”.  [Exception 1]  2. System redirect to “Tin tìm người giúp việc” page.  4. System redirect to Paypal page.  6. Button Paypal hide, status of Recruitment change to “Đang chờ người làm”.  [Exception 1] |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]  1. Paypal page not return MS-Website. | 2. Paypal button not Hide. |   **Relationships:** Pay is generalization Payment  **Business Rules:**   * Only customer must pay on PayPal when posting or extending a recruitment. * The email of the account on PayPal must be the same as the email of the account in MS Website in order for Staff to check when the paying process fails. | | | | |

##### <Staff, Maid Mediator> Manage Maid

Figure 18: <Staff, Maid Mediator> Manage Maid

###### <Staff, Maid Mediator> Add Maid

Figure 19: <Staff, Maid Mediator> Add Maid

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC035 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Add maid | | | |
| **Author** | TuyenMQ | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Staff, Maid Mediator  **Summary:** This use case allow maid mediator or staff to add maid for management.  **Goal:** Maid mediator orstaff can add maid  **Trigger:** User clicks button “Thêm người giúp việc” at the top of maids list in profile page  **Pre-conditions:**   * Page is loaded successfully * User login as maid mediator or staff successful   **Post conditions:**   * Success: Add maid successfully, new maid is added to database * Failure: Show error message   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a maid mediator or staff 2. Click name link 3. Click “Thêm người giúp việc” button 4. Fill all the fields 5. Click “Hoàn tất thêm người giúp việc” button | 1. System redirects to home page 2. System redirects to personal profile page 3. System redirects to add maid page with following fields:  * Họ và tên [MaidName: textbox] * Kinh nghiệm [Experience: dropdownlist] * Số điện thoại [Phone: textbox] * Ngày sinh [BirthDate: textbox] * Giới tính [Gender: dropdownlist] * Biết tiếng [LanguageEnglish: checkbox, LanguageChina: checkbox, LanguageJapanese: checkbox, LanguageKorean: checkbox] * Nguyên quán [Hometown: dropdownlist] * Đang sống tại [Address: dropdownlist] * Kết hôn [Married: dropdownlist] * Giới thiệu bản thân [Description: textbox] * “Hoàn tất thêm người giúp việc” button.   [Exception 1]   1. System redirects to personal profile page |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]   1. “Họ và tên” is empty 2. “Số điện thoại” is empty or not a numberic value 3. “Ngày sinh” is empty | 1. Show message “Vui lòng nhập tên người giúp việc” 2. Show message “Vui lòng nhập số” 3. Show message “Vui lòng chọn ngày sinh” |   **Relationships:** Is a generalization of Manage Maid  **Business Rules:**   * Only Staff and Maid Mediator can add maid to manage. * After adding, new record is created in Maid table in database. | | | | |

##### <Staff, MaidMediator> Post JobRequest

Figure 20: <Staff, MaidMediator> Post JobRequest

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| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC043 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Post JobRequest | | | |
| **Author** | TuyenMQ | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Staff, Maid Mediator  **Summary:** This use case allow staff or maid mediator to post job request  **Goal:** Staff or maid mediator can post job request  **Trigger:** User clicks “Đăng yêu cầu tìm việc” link in personal profile page  **Pre-conditions:**   * Page is loaded successfully * User login as staff or maid mediator successful   **Post conditions:**   * Success: Post job request successfully, new job request and skill reference are added to database * Failure: Show error message   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a staff or maid mediator 2. Click the name link 3. Click “Đăng yêu cầu công việc” link 4. Fill all the fields 5. Click “Đăng yêu cầu” button | 1. System redirects to homepage 2. System redirects to personal profile page 3. System redirect post jobrequest page with following fields:  * Đăng cho [MaidName: textbox] * Tiêu đề [Title: dropdownlist] * Các kỹ năng [SkillRefId: textbox] * Thời hạn đăng [PostTime: textbox] * “Đăng yêu cầu” button   [Exception 1]   1. System redirects to new job request’s detail page |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]   1. “Đăng cho” is empty 2. “Tiêu đề” is empty 3. “Các kỹ năng” is empty | 1. Show message “Vui lòng chọn người giúp việc” 2. Show message “Vui lòng nhập tiêu đề” 3. Show message “Vui lòng chọn kĩ năng” |   **Relationships:** Is an extension of View Profile  **Business Rules:**   * Only Staff or Maid Mediator can post Job Request. * User must choose a maid who is under his/her management to post the Job Request for. * After posting, new record is created in Job Request table and SkillReference table in database, the Job Request has “Waiting” status and isActive is false. * If the Job Request is posted by Maid Mediator, the Maid Mediator or Maid must pay to Staff directly in order for Staff to activate it. After that, the Job Request’s isActive changes to True in database. | | | | |

##### <Staff> Manage JobRequest and Recruitment

Figure 21: <Staff> Manage JobRequest and Recruitment 

###### <Staff> Active JobRequest

Figure 22: <Staff> Active JobRequest 

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC044 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Active JobRequest | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Staff  **Summary:** This use case allow staff to active job request to public it on website  **Goal:** Staff can allow job request to public on website  **Trigger:** User choose a job request then click “Chấp nhận” button  **Pre-conditions:**   * Page is loaded successfully * User login as staff successful   **Post conditions:**   * Success: Login successfully, the job request will be allowed to public on website * Failure:   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a staff 2. Choose a job request, click “Kích hoạt” button 3. Click “Chấp nhận” button. | 1. System redirect to list of job request 2. System show a “Xác nhận kích hoạt” pop up. 3. Change IsActive(false) to IsActive(true) and save change to database |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. System fail to load data | 1. Show message “Hệ thống đang bảo trì” |   **Relationships:** Active JobRequest is extended to ManageJobRequest and Manage JobRequest is generated to Manage JobRequest and Recruitment.  **Business Rules:** User login as a staff. | | | | |

###### C:\Users\USER\Desktop\ApproveJR.jpg<Staff> Approve JobRequest

Figure 23: <Staff> Approve JobRequest

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC046 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Approve JobRequest | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Staff  **Summary:** This use case allow staff to active job request to public it on website  **Goal:** Staff can allow job request to public on website  **Trigger:** User choose a jobrequest then click “Kích hoạt” button  **Pre-conditions:**   * Page is loaded successfully * User login as staff successful   **Post conditions:**   * Success: Login successfully, the job request will be allowed to public on website * Failure:   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a staff 2. Click “Kích hoạt yêu cầu tìm người” link 3. Choose a recruitment, click “Kích hoạt” button 4. Click “Chấp nhận” button. | 1. System redirect to list of job request 2. System redirect to list of recruitments 3. System show a “Xác nhận kích hoạt” pop up. 4. Change IsActive(false) to IsActive(true) and save change to database |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. System fail to load data | 1. Show message “Hệ thống đang bảo trì” |   **Relationships:** Approve JobRequest is extended to Manage Applied JobRequest and Manage Applied JobRequest is generated to Manage JobRequest and Recruitment.  **Business Rules:**   * Only Job Requests with “Applied” status can be marked “Approved”. * The status of the Job Request changes to “Approved”. * After the Job Request is applied, the Maid or Maid Mediator can come back to confirm it to get some money back. Staff marks the Job Request “Approved” after returning the money. | | | | |

###### C:\Users\USER\Desktop\ManageAJR.jpg<Staff> Manage Applied JobRequest

Figure 24: <Staff> Manage Applied JobRequest

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC049 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Manage applied jobrequest | | | |
| **Author** | CongNT | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Staff  **Summary:** This use case allow staff view all applied jobrequests  **Goal:** Staff can view all applied jobrequests  **Trigger:** User click “Quản lý” link, then click “Xác nhận hoàn tất công việc” link  **Pre-conditions:**   * Page is loaded successfully * User login as staff successful   **Post conditions:**   * Success: Login successfully, the recruitments will be allowed to public on website * Failure:   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a staff 2. Click “Hoàn tất yêu cầu” link | 1. System redirect to list of job request 2. System redirect to list of applied jobrequest |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. System fail to load data | 1. Show message “Hệ thống đang bảo trì” |   **Relationships: :** Manage Applied JobRequest if generated to Manage JobRequest and Recruitment  **Business Rules:** User login as a staff. The website load all applied jobrequests. | | | | |

##### <Staff, MaidMediator> View Maid Manager Statistic

Figure 25: <Staff, MaidMediator> View Maid Manager Statistic

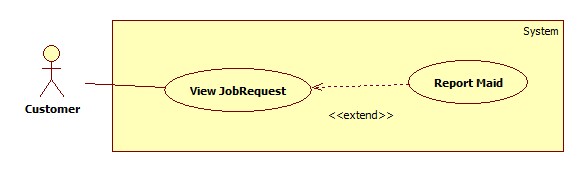
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC050 | **Use-case Version** | | 1.0 |
| **Use-case Name** | View Maid Manager Statistic | | | |
| **Author** | TuyenMQ | | | |
| **Date** | 21/09/2014 | **Priority** | High | |
| **Actor:** Staff, Maid Mediator  **Summary:** This use case allow staff or maid mediator to view personal statistic as maid mediator  **Goal:** Staff or maid mediator can view personal statistic  **Trigger:** User clicks “Thống kê” link in personal profile page  **Pre-conditions:**   * Page is loaded successfully * User login as staff or maid mediator successful   **Post conditions:**   * Success: Personal Statistic page is loaded successfully * Failure: Show error message   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a staff or maid mediator 2. Click the name link 3. Click “Thống kê” link | 1. System redirects to homepage 2. System redirects to personal profile page 3. System redirects to personal statistic page |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. User hasn’t posted any job request | 1. The statistic diagram is not displayed |   **Relationships:** Is a generalization of View Statistic  **Business Rules:** User logins as Maid Mediator or Staff. | | | | |

##### <Webmaster> Manage JobRequest Price

Figure 26: <Webmaster> Manage JobRequest Price

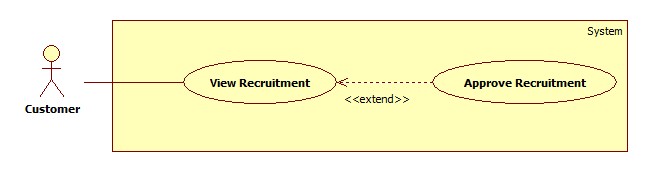
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC053 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Manage JobRequest Price | | | |
| **Author** | TuanBT | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Webmaster  **Summary:** Change price when a new JobRequest post to MS-Website.  **Goal:**  Change value.  **Trigger:** Webmaster click “Quản lý cấu hình”  **Pre-conditions:**   * User must login with Admin role * Manage config page will be shown   **Post conditions:**   * Success: Reload page and change value. * Failure: Show error.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Webmaster click “Quản lý cấu hình” menu, then fill input “Giá mới” | 2. Show notification “Cập nhập đơn giá cho yêu cầu công việc thành công.”  [Exception 1] |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | |  |  |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | [Exception 1]  1. Fill input not a digit. | 2. Show error “Phải nhập số nguyên!” |   **Relationships:** Manage JobRequest Price is extend of Manage config.  **Business Rules:** Webmaster must enter a integer number. | | | | |

##### <Customer>Report Maid

Figure 27: <Webmaster> Manage JobRequest Price

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC055 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Report Maid | | | |
| **Author** | TuyenMQ | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Customer  **Summary:** Report bad maid  **Goal:**  Report bad maid  **Trigger:** Customer click “Báo xấu” button  **Pre-conditions:**   * User must login with customer role * Manage config page will be shown   **Post conditions:**   * Success: Reload page and change value. * Failure: Show error.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a customer 2. Click name link 3. Click a job request in tab “Hoàn thành” 4. Click “Báo xấu” button | 1. System redirect home page 2. System redirect job request details page 3. System show pop ups confirm then redirects to job request page |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1.Click “Báo xấu” button  3.Click outside pop up | 2.Show pops up  4.Close pop up |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | |  |  |   **Relationships:** Report Maid is extended to View Job Request  **Business Rules:**   * Only Customer can report a maid. * Customer can only report a maid on a Job Request with “Approved” status and that Job Request must be applied by that customer before. * After reporting, the reported maid’s name will be colored red in any page of the web site. * The reportDate in Maid table in database is updated with the current date. * After one week from that day, the report is cancelled, the reportDate is set to null and the maid name’s color is set to default. | | | | |

##### <Customer>Approve Recruitment

Figure 28: <Webmaster> Manage JobRequest Price

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE SPECIFICATION** | | | | |
| **Use-case No.** | UC056 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Approve Recruitment | | | |
| **Author** | TuyenMQ | | | |
| **Date** | 24/09/2014 | **Priority** | High | |
| **Actor:** Customer  **Summary:** Approve recruitment  **Goal:**  Approve recruitment  **Trigger:** Customer click “Hoàn tất” button  **Pre-conditions:**   * User must login with customer role * Manage config page will be shown   **Post conditions:**   * Success: Reload page and change value. * Failure: Show error.   **Main Success Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1. Login as a customer 2. Click name link 3. Click a recruitment in tab “Đã nhận” 4. Click “Hoàn tất” button 5. Click “Chấp nhận” button | 1. System redirect home page 2. System redirect recruitment details page 3. Show pop up confirm 4. System redirect recruitment details page |   **Alternative Scenario:**   |  |  | | --- | --- | | Actor Action | System Response | | 1.Click “Báo xấu” button  3.Click outside pop up | 2.Show pops up  4.Close pop up |   **Exceptions:**   |  |  | | --- | --- | | Actor Action | System Response | | N/A | N/A |   **Relationships:** Report Maid is extended to View Job Request  **Business Rules:**   * Customer can only mark “Approve” his/her own Recruitments with “Applied” status. * The status of Recruitment changes to “Approve” in Recruitment table and isSaleOff is set to True in Customer table in database. * After approving a recruitment, the cost of next posting or extending a Recruitment is lowered by 10% (Only 1 time). After that, the value of isSaleOff is set to False again. | | | | |

### Non-functional Requirement

#### Usability

##### Graphic User Interface

* All the text, label and image in user page should be in Vietnamese.
* All the text, label and image in admin page should be Vietnamese.

##### Usability

* Website admin, supervisor and roundman only need more than one hour to train.

##### Installation

* The system must be easy to deploy. Customer can deploy successfully and learn to configure, maintain the system within one day of training.
* The attached manual guide must be clear. User can read and do themselves without developer’s help.

#### Reliability

* There is no requirement for system maintenance task from the user.
* Mean Time Between Failures (MTBF): more than 6 months.
* Accuracy: 100%.
* Maximum Bugs and Defect Rate: 0.3 bugs per thousand lines of code (0.3bugs/KLOC).
* Critical bugs:
* Loss of data: not any

#### Availability

* The server shall be working 24 hours per day and 7 days per week.

#### Security

* *All sensitive* information (password, etc.) must be hashed when storing in database and during transmission over networks using MD5 hash.
* Validate input data in SQL query before execute to avoid SQL Injection, XSS
* The role of user and member is clearly.

#### Maintainability

* All code shall fully document. All program files shall include comments concerning authorship and date of last change.
* The code shall be modular to permit future modifications.

#### Portability

* N/A

#### Performance

* Large tables and indexes must be partitioned data into smaller, more manageable sections by using partition in SQL Server 2008 R2

## Entity Relationship Diagram

### Diagram

Figure 29: Entity Relationship Diagram

### Data Dictionary

|  |  |
| --- | --- |
| **Entity Data dictionary: describe content of all entities** | |
| Entity Name | Description |
| Account | Describe all account of MS - Website system. |
| Staff | Describe all staff of website. |
| Customer | Describe all customer of website. |
| MaidMediator | Describe all maid mediator of website. |
| Maid | Describe all maid of website. |
| JobRequest | Describe all job request, with was posted by staff and maid mediator. |
| Recruitment | Describe all recruitment, withc was posted by customer. |
| SkillCategory | Describe all category of skill. |
| SkillInstance | Describe all instance of skill. |
| SkillReference | Describe all reference of skill of all job requests and recruitments. One job request or recruitment refers to one skill reference and that reference have all informations of that recruitment or job request. Each column of skill in skill reference is a skill instance. |

# Software Design Description

## Design Overview

* This document describes the technical and UI design of the MS Wesite. It includes the architectural design and the detailed design of common functions and business functions. It also includes the design of database model.
* The architectural design describes the overall architecture of the system, and the architecture of each main component and subsystem. It will describe the patterns being used, the role of each component and the role of the system in the working environment.
* The detailed design describes static and dynamic structure for each component and function. It includes class diagrams, class explanations, and sequence diagrams of the main use cases.UML 2.0.
* The database design describes the relationship between entities, and details of each entity.
* The user interface design describes the layout of the system, and some design for the screens.

## System Architectural Design

In MVC pattern, the functions of model, view, and controller are defined as in following figure.

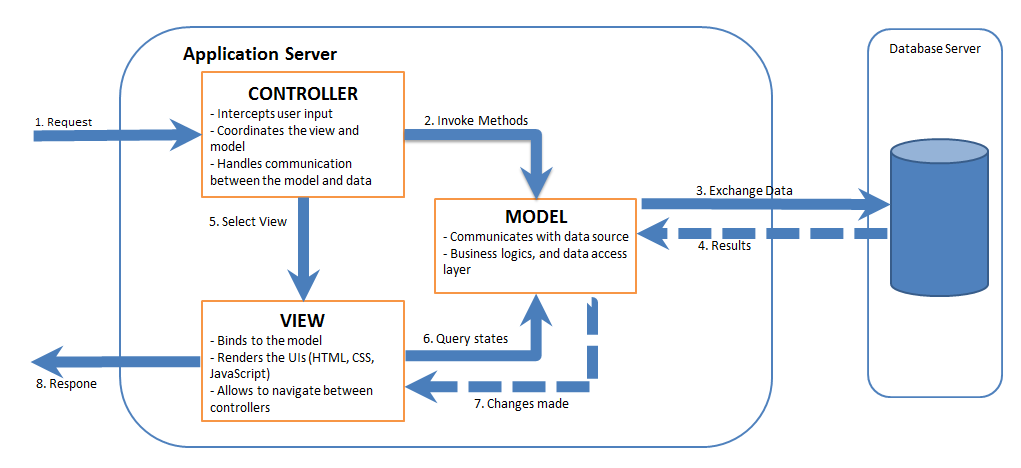


Figure 30: MVC Pattern

## Component Diagram

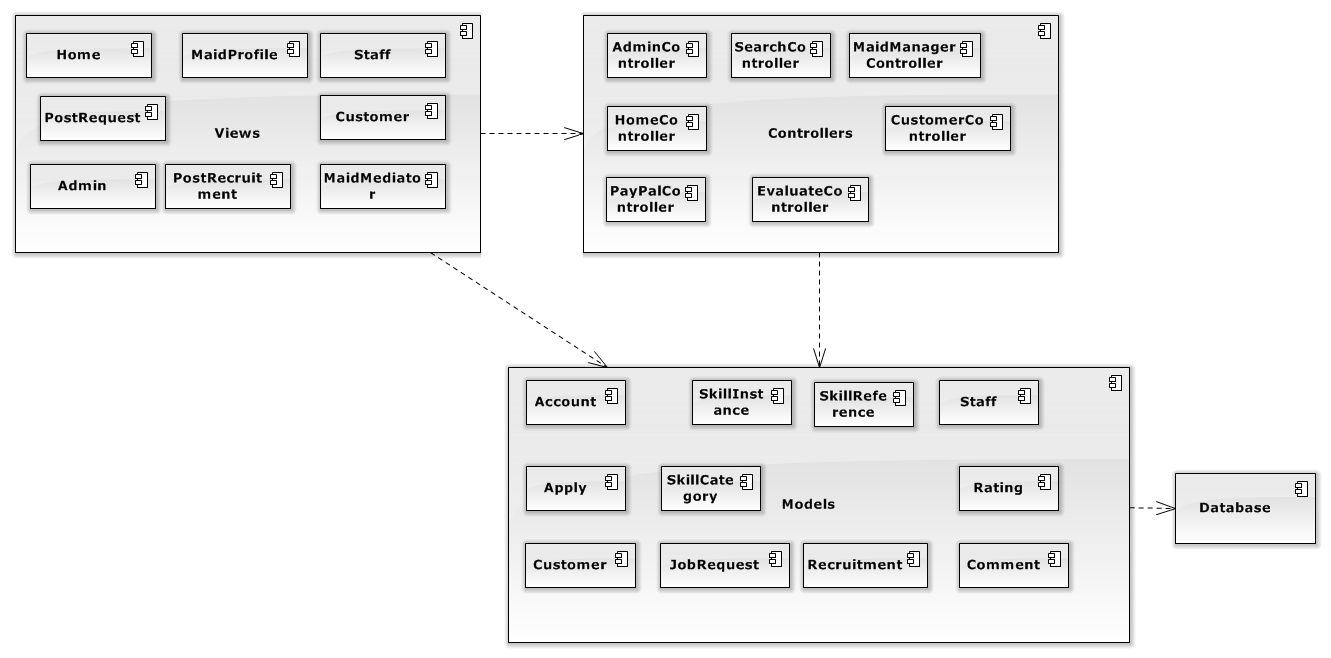


Figure 31: Component Diagram

## Detailed Description of Components

### Class Diagram

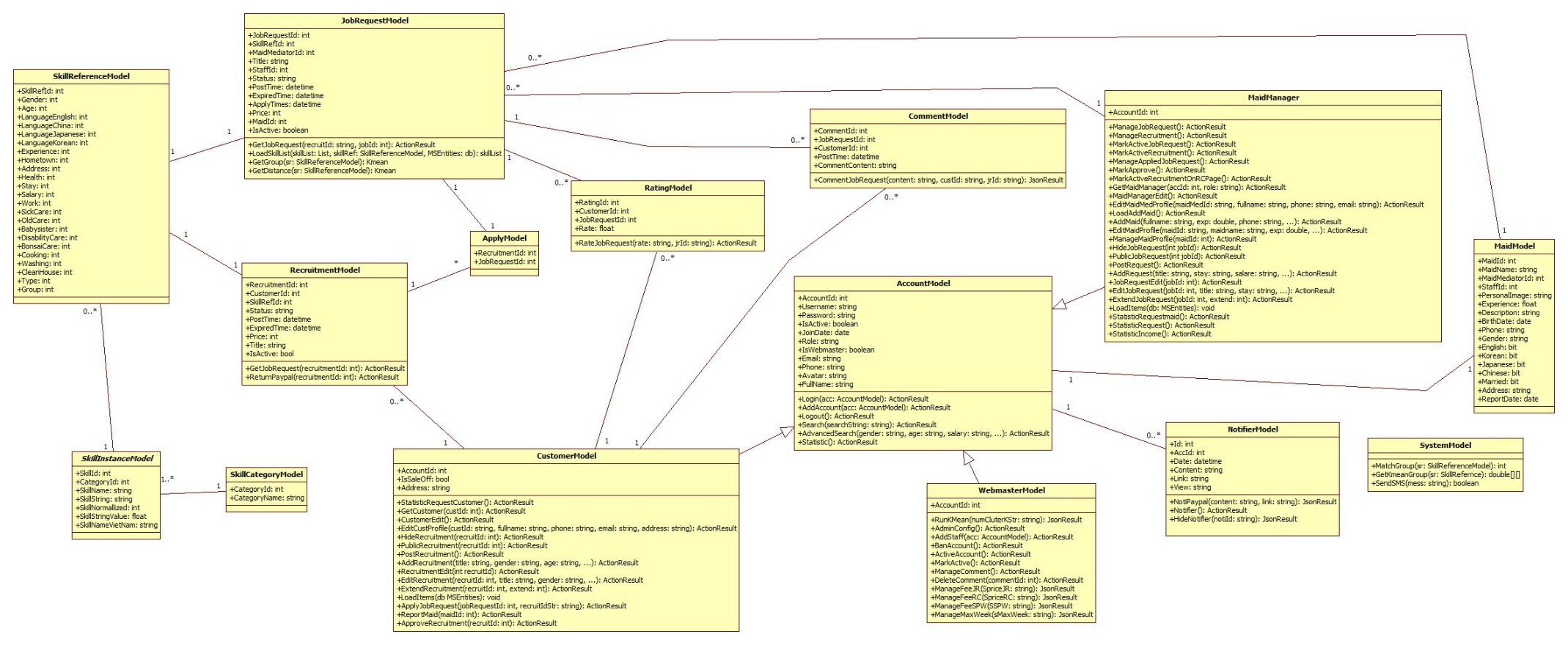


Figure 32: Class Diagram

#### Class Diagram – Entity Framework Model

##### AccountModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| AccountId | Integer | Public | Id of Account |
| Username | String | Public | Username of user |
| Password | String | Public | Password of user |
| IsActive | Boolean | Public | Check account is active |
| JoinDate | Date | Public | Date that user create an account |
| Role | String | Public | Role of User |
| IsWebmaster | Boolean | Public | Check account is an admin |
| Avatar | String | Public | Image of user |
| Email | String | Public | Email of user |
| Phone | String | Public | Phone of user |
| FullName | String | Public | Fullname of user |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| Login(Account acc) | ActionResult | Public | Login to website |
| Register(Account acc) | ActionResult | Public | Create an account |
| Log out() | ActionResult | Public | Log out account |
| Search(string searchString) | ActionResult | Public | Search skills |
| AdvancedSearch(string gender, string age, string salary, string sickCare, string oldCare, string babySister, string disabilityCare, string BonsaiCare, string cooking, string washing, string cleanHouse, string time) | ActionResult | Public | Advance search skills |
| Statistic() | ActionResult | Public | Statistic |

##### ApplyModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| RecruitmentId | Integer | Public | Id of recruitment |
| JobRequestId | Integer | Public | Id of job request |

* **Methods** None

##### CommentModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| CommentId | Integer | Public | Id of comment |
| CustomerId | Integer | Public | Id of customer |
| JobRequestId | Integer | Public | Id of job request |
| PostTime | Datetime | Public | Time that comment was posted |
| CommentContent | String | Public | Content of comment |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| CommentJobRequest() | JsonResult | Public | Comment jobrequest |

##### CustomerModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| AccountId | Integer | Public | Id of field |
| Address | String | Public | Address of customer |
| IsSaleOff | Bool | Public | Sale off |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| StatisticRequestCustomer() | ActionResult | Public | Statistic requests of customer |
| GetCustomer(int custId) | ActionResult | Public | Get information of customer |
| EditCustProfile(string CustId, string fullname, string phone, string email, string address) | ActionResult | Public | Edit customer profile |
| HideRecruitment(int recruitId) | ActionResult | Public | Hide recruitment |
| PublicRecruitment(int recruitId) | ActionResult | Public | Public recruitment |
| PostRecruitment() | ActionResult | Public | Post recruitment |
| AddRecruitment(string title, string gender, string age, string LanguageEnglish, string LanguageChinese, string LanguageJapanese, string LanguageKorean, string exp, string hometown, string addr, string married, string stay, string salary, string work, string sickCare, string oldCare, string babySister, string disabilityCare, string bonsaiCare, string cooking, string washing, string cleanHouse, string time) | ActionResult | Public | Add recruitment |
| RecruitmentEdit(int recruitId) | ActionResult | Public | Load recruitment information |
| EditRecruitment(int recruitId, string title, string gender, string age, string LanguageEnglish, string LanguageChinese, string LanguageJapanese, string LanguageKorean, string exp, string hometown, string addr, string married, string stay, string salary, string work, string sickCare, string oldCare, string babySister, string disabilityCare, string bonsaiCare, string cooking, string washing, string cleanHouse, string time) | ActionResult | Public | Edit recruitment |
| ExtendRecruitment(int recruitId, int extend) | ActionResult | Public | Extend recruitment |
| LoadItems(MSEntities db) | Void | Public | Load items |
| ApplyJobRequest(int jobRequestId, string recruitIdStr) | ActionResult | Public | Apply jobrequest |
| ReportMaid(int maidId) | ActionResult | Public | Report bad maid |
| ApproveRecruitment(int recruitId) | ActionResult | Public | Approve recruitment |

##### JobRequestModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| JobRequestId | Integer | Public | Id of job request |
| SkillRefId | Integer | Public | Id of skill reference |
| MaidMediatorId | Integer | Public | Id of maid mediator |
| StaffId | Integer | Public | Id of staff |
| Status | String | Public | Status of job request |
| PostTime | Datetime | Public | Time that job request was post |
| ExpiredTime | Datetime | Public | Time that job request was expired |
| ApplyTime | Datetime | Public | Time that job request was applied |
| MaidId | Integer | Public | Id of maid |
| IsActive | Boolean | Public | Check that job request is active |
| Price | Integer | Public | Price of jobrequest |
| Title | String | Public | Name of jobrequest |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| GetJobRquest(string recruitId, int jobId) | ActionResult | Public | Get jobrequest |
| LoadSkillList(List<skillList>, SkillReference skillRef, MSEntities db) | skillList | Public | Load all skill list |
| GetGroup(SkillReference sr) | Kmean | Public | Choose group for jobrequest |
| GetDistance(SkillReference sr) | Kmean | Public | Check distance from jobrequest to mean |

##### MaidModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| MaidId | Integer | Public | Id of maid |
| MaidName | String | Public | Name of maid |
| MaidMediatorId | Integer | Public | Id of maid mediator |
| StaffId | Integer | Public | Id of staff |
| PersonalImage | String | Public | Image of maid |
| Experience | Float | Public | Experience of maid |
| Description | String | Public | Description of maid |
| BirthDate | Date | Public | Birthdate of maid |
| Phone | String | Public | Phone of maid |
| Gender | String | Public | Gender of maid |
| English | Bit | Public | English |
| Korean | Bit | Public | Korean |
| Japanese | Bit | Public | Japanese |
| Chinese | Bit | Public | Chinese |
| Married | Bit | Public | Married |
| Address | String | Public | Address of maid |
| ReportDate | Date | Public | Date report |

* **Methods** None

##### MaidManagerModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| AccountId | Integer | Public | Id of maid manager |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| ManageJobRequest() | ActionResult | Public | Manage jobrequests is not active |
| ManageRecruitment() | ActionResult | Public | Manage recruitments is not active |
| ManageAppliedJobRequest() | ActionResult | Public | Manage applied jobrequests |
| MarkActiveJobRequest() | ActionResult | Public | Active jobrequest |
| MarkActiveRecruitment() | ActionResult | Public | Active recruitment |
| ApproveJobRequest() | ActionResult | Public | Change jobrequest’s status(“Applied”) to jobrequest’s status(“Approved”) |
| MarkActiveRecruitmentOnRCPage() | ActionResult | Public | Active recruitment on recruitment page |
| GetMaidManager(int accId, string role) | ActionResult | Public | Get maid manager information |
| MaidManagerEdit() | ActionResult | Public | Load information of maid manager |
| EditMaidMedProfile(string maidMedId, string fullname, string phone, string email) | ActionResult | Public | Edit maid manager profile |
| LoadAddMaid() | ActionResult | Public | Load maids |
| AddMaid(string fullname, Nullable<double> exp, string phone, string birthdate, bool gender,  string english, string jap, string chinese, string korean, string hometown, string addr, bool married, string desc, string avatar) | ActionResult | Public | Add maid |
| EditMaidProfile(string maidId, string fullname, double exp, string phone, string birthdate, bool gender, string english, string jap, string chinese, string korean, string hometown, string addr, bool married, string desc) | ActionResult | Public | Edit maid profile |
| ManageMaidProfile(int maidId) | ActionResult | Public | Get maid |
| HideJobRequest(int jobId) | ActionResult | Public | Hide jobrequest |
| PublicJobRequest(int jobId) | ActionResult | Public | Publicjobrequest |
| PostRequest() | ActionResult | Public | Post jobrequest |
| AddRequest(string title, string stay, string salary, string work, string SickCare, string oldCare,  string babySister, string disabilityCare, string bonsaiCare, string cooking, string washing, string cleanHouse, string time, int maidId) | ActionResult | Public | Add jobrequest |
| JobRequestEdit(int jobId) | ActionResult | Public | Get jobrequest information |
| EditJobRequest(int jobId, string title, string stay, string salary, string work, string sickCare, string oldCare, string babySister, string disabilityCare, string bonsaiCare, string cooking, string washing, string cleanHouse, int maidId) | ActionResult | Public | Edit jobrequest |
| ExtendJobRequest(int jobId, int extend) | ActionResult | Public | Extend jobrequest |
| LoadItems(MSEntities db) | Void | Public | Load information |
| StatisticRequestMaid() | ActionResult | Public | Statistic personal requests |
| StatisticRequest() | ActionResult | Public | Statistic requests |
| StatisticIncome() | ActionResult | Public | Statistic income |

##### NotifierModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Id of notifier |
| AccId | Integer | Public | Id of account |
| Date | Datetime | Public | Date of notifier |
| Content | String | Public | Content of notifier |
| Link | String | Public | Link notify |
| View | Bool | Public | Confirm that view yet |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| NotiPaypal(string content, string link) | JsonResult | Public | Notify paypal |
| Notifier() | ActionResult | Public | Save information to database |
| HideNotifier(string notiId) | JsonResult | Public | Hide notification |

##### RatingModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| RatingId | Integer | Public | Id of rating |
| CustomerId | Integer | Public | Id of customer |
| JobRequestId | Integer | Public | Id of job request |
| Rate | String | Public | Rate |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| RatingJobRequest(string rate, string jrId) | ActionResult | Public | Rate jobrequest |

##### RecruitmentModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| RecruitmentId | Integer | Public | Id of recruitment |
| SkillRefId | Integer | Public | Id of skill reference |
| CustomerId | Integer | Public | Id of customer |
| Status | String | Public | Status of recruitment |
| PostTime | Datetime | Public | Time that recruitment was posted |
| ExpiredTime | Datetime | Public | Time that recruitment was expired |
| Title | String | Public | Name of recruitment |
| Price | Int | Public | Price of recruitment |
| IsActive | Bool | Public | Check recruitment is active yet |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| GetRecruitment(int recruitmentId) | ActionResult | Public | Get recruitment |
| ReturnPaypal(int recruitmentId) | ActionResult | Public | Return paypal |

##### SkillCategoryModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| CategoryId | Integer | Public | Id of category |
| CategoryName | String | Public | Name of category |

* **Methods** None

##### SkillInstance

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| SkillId | Integer | Public | Id of skill |
| CategoryId | Integer | Public | Id of category |
| SkillName | String | Public | Name of skill |
| SkillString | String | Public | The charater value of skill |
| SkillNormallied | Int | Public | The range value of skill |
| SkillStringValue | Float | Public | The number value of skill name |
| SkillNameVietNam | String | Public | The name of skill in Vietnamese |

* **Methods** None

##### SkillReferenceModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| SkillRefId | Integer | Public | Id of Skill reference |
| Gender | Integer | Public | The value gender of skill |
| Age | Integer | Public | The value age of skill |
| LaguageEnglish | Integer | Public | The value language english of skill |
| LanguageChina | Integer | Public | The value language china of skill |
| LanguageJapanese | Integer | Public | The value language japanese of skill |
| LanguageKorean | Integer | Public | The value language korean of skill |
| Experience | Integer | Public | The value experience of skill |
| Hometown | Integer | Public | The value hometown of skill |
| Address | Integer | Public | The value address of skill |
| Health | Integer | Public | The value health of skill |
| Stay | Integer | Public | The value stay of skill |
| Salary | Integer | Public | The value salary of skill |
| Work | Integer | Public | The value work of skill |
| SickCare | Integer | Public | The value sickcare of skill |
| OldCare | Integer | Public | The value oldcare of skill |
| BabySister | Integer | Public | The value babysister of skill |
| DisabilityCare | Integer | Public | The value disabilitycare of skill |
| BonsaiCare | Integer | Public | The value bonsaicare of skill |
| Cooking | Integer | Public | The value cooking of skill |
| Washing | Integer | Public | The value washing of skill |
| Cleanhouse | Integer | Public | The value cleanhouse of skill |
| Type | Integer | Public | Skill of job request or skill of recruitment |
| Group | Integer | Public | Divide group in algorithm |

* **Methods** None

##### SystemModel

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| MatchGroup | All atributes of SkillReference | Boolean | Match job request group with recruitment group |
| GetKmeanGroup | All atributes of SkillReferencr | Double [][] | Choose the best couple group to suggest |
| SendSMS | N/A | Boolean | Send SMS |

##### WebMasterModel

* **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Visibility** | **Description** |
| AccountId | Integer | Public | Id of account |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Return Type** | **Visibility** | **Description** |
| RunKMean(string numCluterKStr) | JsonResult | Public | Run Kmean algorithm |
| AdminConfig() | ActionResult | Public | Configuration of website |
| AddStaff(Account acc) | ActionResult | Public | Add staff |
| BanAccount() | ActionResult | Public | List of all accounts |
| ActiveAccount() | ActionResult | Public | Active banned account |
| MarkActive() | ActionResult | Public | Ban account |
| ManageComment() | ActionResult | Public | List of all comments |
| DeleteComment(int commentId) | ActionResult | Public | Delete comment |
| ManageFeeJR(string SpriceJR) | JsonResult | Public | Manage jobrequest fee |
| ManageFeeRC(string SpriceRC) | JsonResult | Public | Manage recruitment fee |
| ManageFeeSPW(string SSPW) | JsonResult | Public | Manage fee subtract per week |
| ManageMaxWeek(string sMaxWeek) | JsonResult | Public | Manage max week to payment |

### Sequence Diagram

#### All User Sequence Diagram

##### <All User> View Job Request

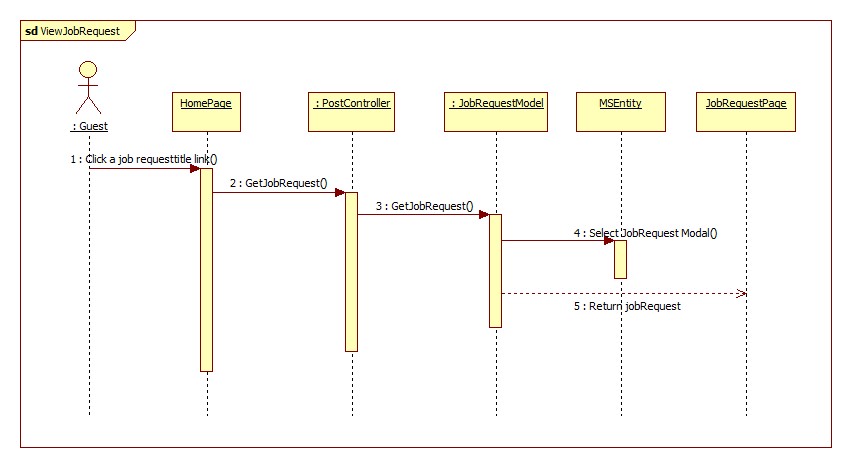


Figure 33: <All User> View Job Request

##### <All User> Search

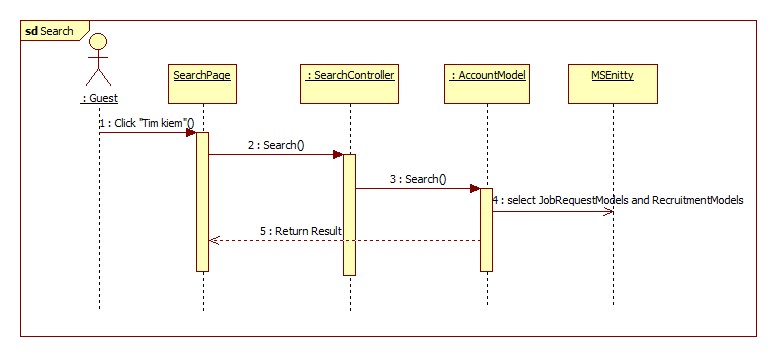


Figure 34: <All User> Search

#### Customer Sequence Diagram

##### <Customer> Apply Job Request

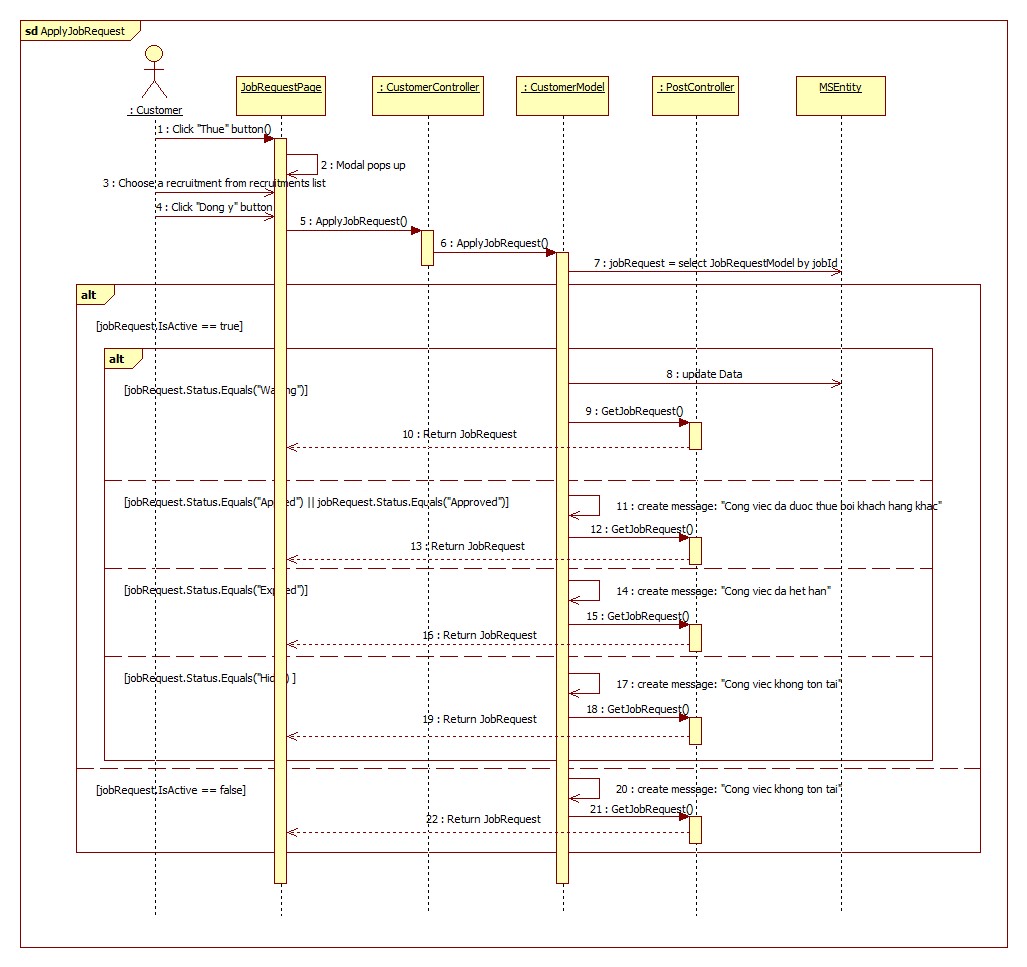


Figure 35: <Customer> Apply Job Request

##### <Customer> Comment Job Request

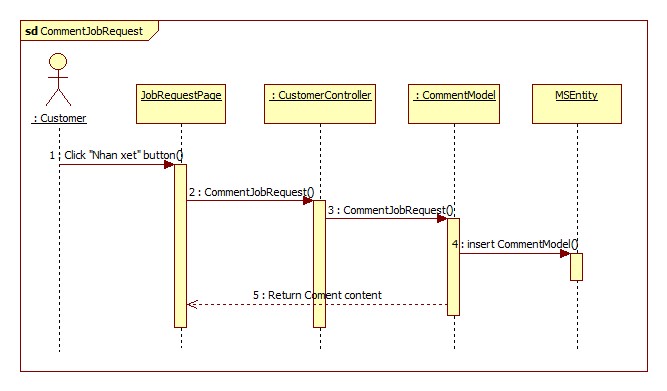


Figure 36: <Customer> Comment Job Request

##### <Customer> Extend Recruitment

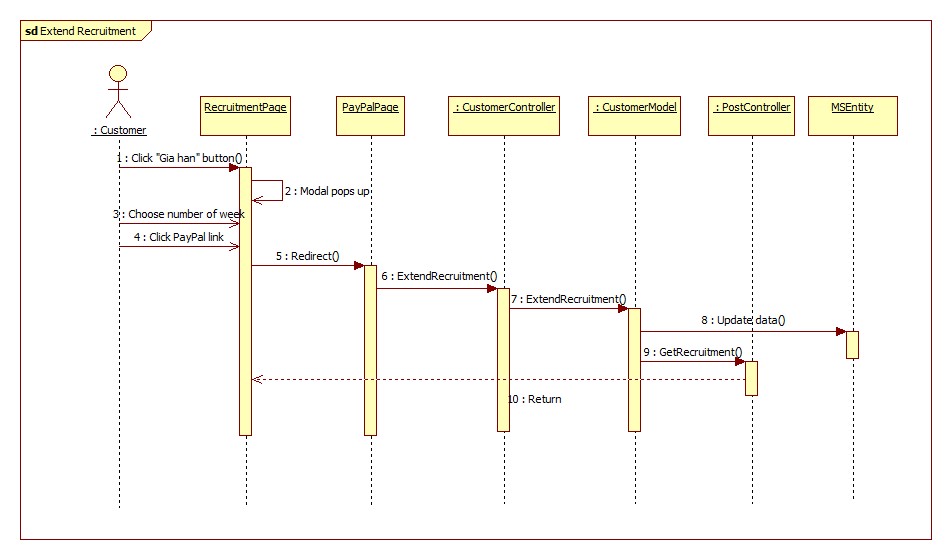


Figure 37: <Customer> Extend Recruitment

##### <Customer> Post Recruitment

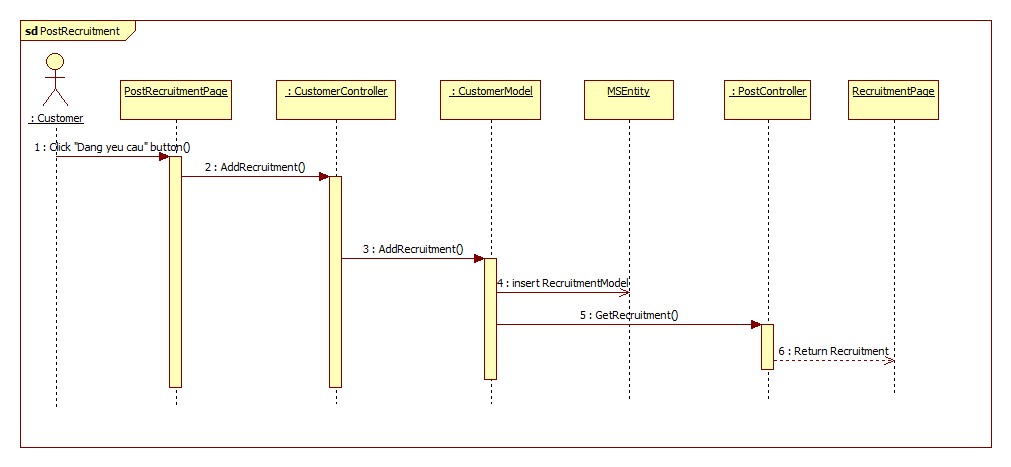


Figure 38: <Customer> Post Recruitment

##### <Customer> Rate Job Request

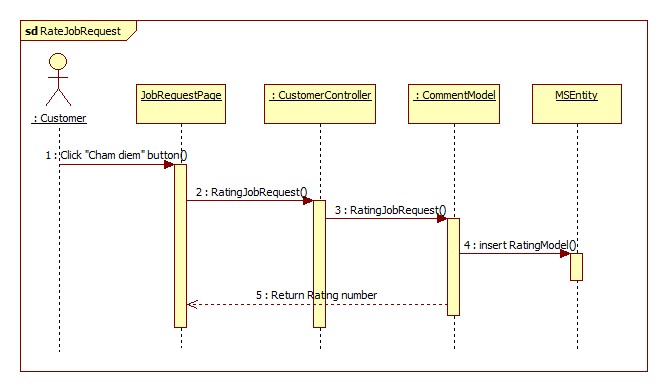


Figure 39: <Customer> Rate Job Request

##### <Customer> Report Maid

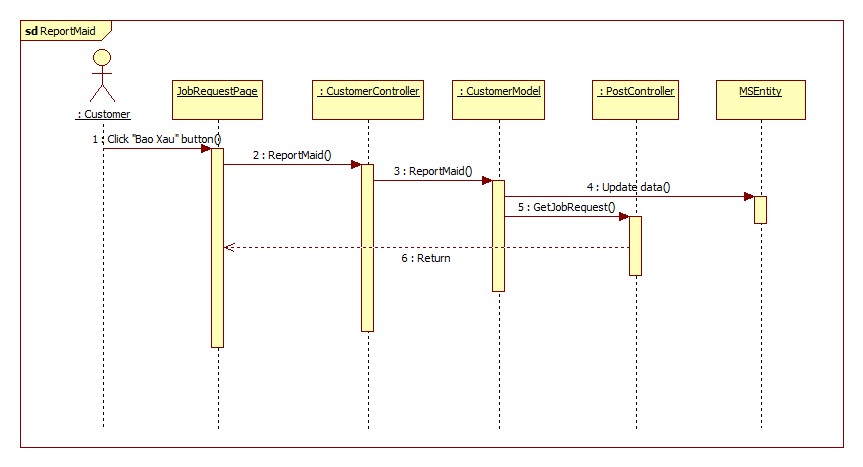


Figure 40: <Customer> Rate Job Request

##### <Customer> Approve Recruitment

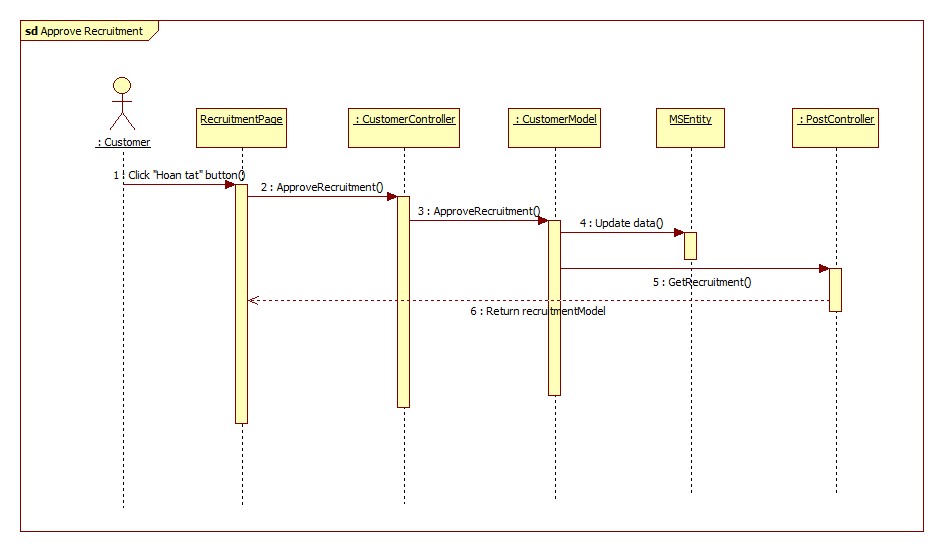


Figure 41: <Customer> Rate Job Request

#### Staff Sequence Diagram

##### <Staff> Mark Approved Job Request

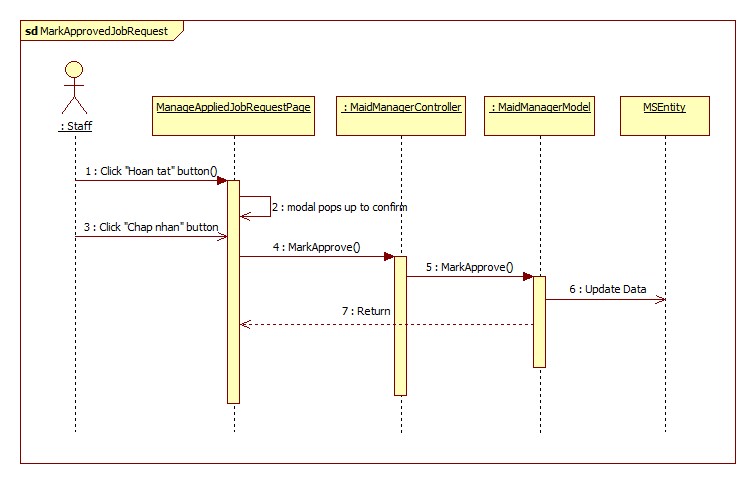


Figure 42: <Staff> Mark Approved Job Request

#### Staff, Maid Mediator Sequence Diagram

##### <Staff, Maid Mediator> Add Maid

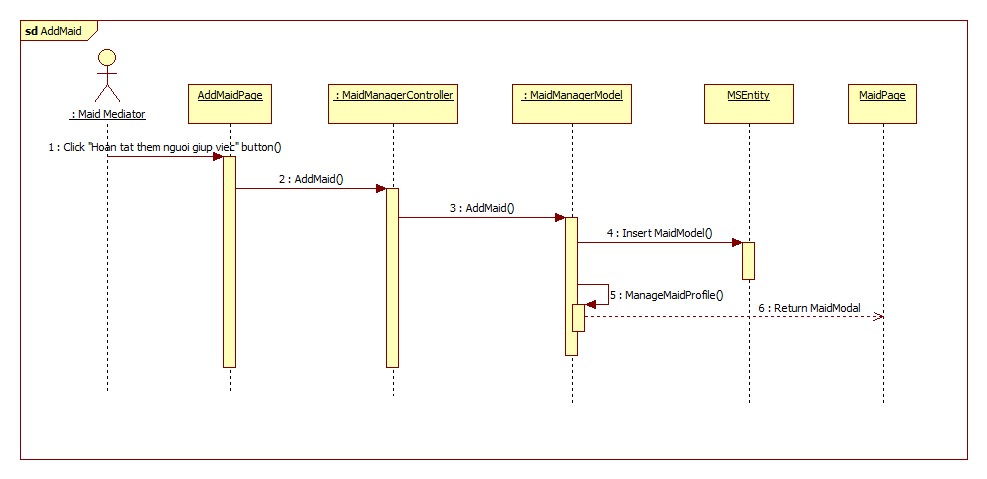


Figure 43: <Staff, Maid Mediator> Add Maid

##### <Staff, Maid Mediator> Extend Job Request

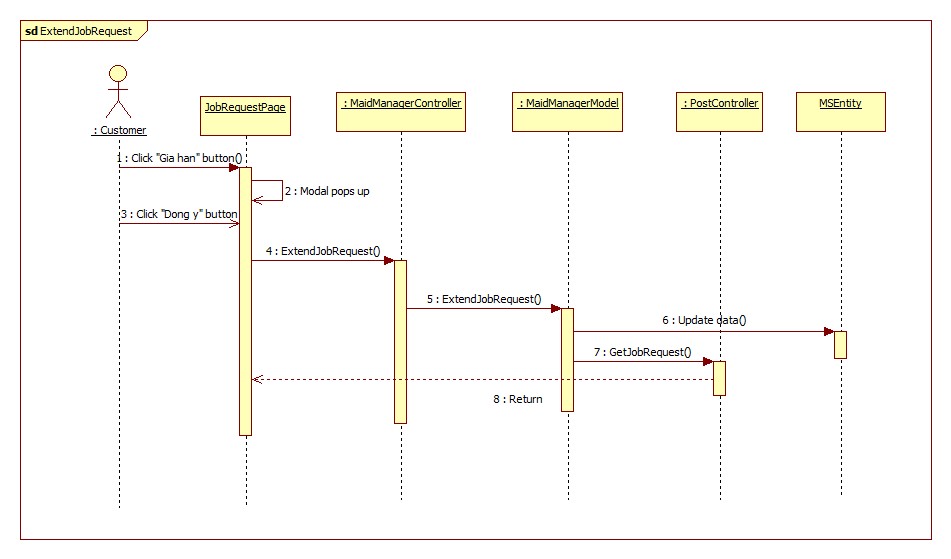


Figure 44: <Staff, Maid Mediator> Extend Job Request

##### <Staff, Maid Mediator> Post Job Request

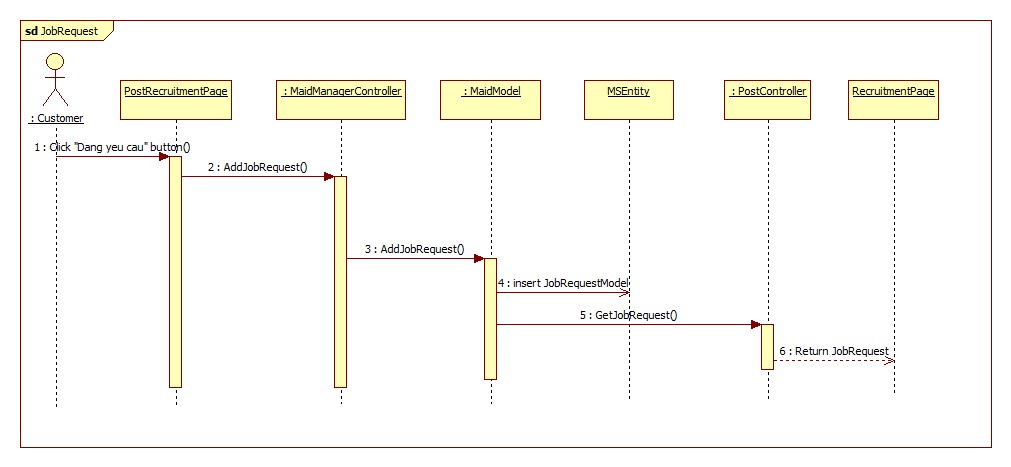


Figure 45: <Staff, Maid Mediator> Post Job Request

## 

## Database Design

### Physical Database Design

Figure 46: Physcial Database Diagram

### Data Dictionary

|  |  |  |
| --- | --- | --- |
| **No.** | **Table name** | **Description** |
| 1 | Account | Describe about users in system |
| 2 | Apply | Describe Apply |
| 3 | Comment | Describe all comment |
| 5 | Customer | Describe all customers informations |
| 6 | JobRequest | Describe all job requests |
| 5 | MaidMediator | Describe all maid mediators information |
| 7 | Maid | Describe all maids information |
| 8 | Rating | Describe all rating |
| 9 | Recruitment | Describe all recruitments |
| 10 | SkillCategory | Describe all SkillCategory |
| 11 | SkillIntance | Describe all SkillIntance |
| 12 | SkillReference | Describe all SkillReference |
| 13 | Staff | Describe all staffs information |
| 14 | Notifier | Describe all notifications |

Table 2: Data Dictionary

#### Acount

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| AccountId | int |  | PK |  | The index of this account |
| Username | nvarchar(50) |  |  |  | The username of the account |
| Password | nvarchar(50) |  |  |  | The password of the password |
| IsActive | bit |  |  |  | Admin can ban account |
| JoinDate | date |  |  |  | The date when this user join |
| Role | nvarchar(50) |  |  |  | The role of the user |
| IsWebmaster | bit |  |  |  | Check acount is admin |
| Avatar | nvarchar(50) | Yes |  |  | The link refers to an image, present for a user |
| Email | nvarchar(50) | Yes |  |  | The email of user |
| Phone | nvarchar(50) | Yes |  |  | Phone of user |
| Fullname | nvarchar(50) | Yes |  |  | The fullname of user |
| Unique: Username, Email, Avatar | | | | | |

#### Apply

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| RecruitmentId | int |  | PK |  | The index of this recruitment |
| JobRequestId | Int |  | PK |  | The index of this job request |

#### Comment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| CommentId | int |  | PK |  | The index of this comment |
| CustomerId | int |  | FK |  | The index of customer which contain this comment |
| JobRequestId | int |  | FK |  | The index of job request which is contain this comment |
| PostTime | datetime |  |  |  | The time when the comment posted |
| CommentContent | nvarchar(500) |  |  |  | The content of the comment |
| FK: CustomerId REF Customer (CustomerId), JobRequestId REF JobRequest(JobRequestId) | | | | | |

#### Customer

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| AccountId | int |  | PK |  | The index of user |
| Address | nvarchar(100) |  |  |  | The address of customer |

#### JobRequest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| JobRequestId | int |  | PK |  | The index of this job request |
| SkillRefId | int |  | FK |  | The SkillRef of this job request |
| MaidMediatorId | int | Yes | FK |  | The maid mediator of this job request |
| StaffId | int | Yes | FK |  | The staff of this job request |
| Status | nvarchar(50) |  |  |  | The status of this job request |
| PostTime | datetime |  |  |  | The time that this job request is posted |
| ExpiredTime | datetime |  |  |  | The time that this job request is expired |
| ApplyTimes | datetime |  |  |  | The time that this job request is applied |
| MaidId | int |  | FK |  | The maid of this job request |
| IsActive | bit |  |  |  | Check that this job request has payment |
| Title | nvarchar(100) |  |  |  | Name of jobrequest |
| Price | int |  |  |  | Price of jobrequest |
| FK: SkillRefId REF SkillReference(SkillRefId)  MaidMediatorId REF MaidMediator(MaidMediatorId)  StaffId REF Staff(StaffId) | | | | | |

#### Maid

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| MaidId | int |  | PK |  | The index of maid |
| MaidName | nvarchar(50) |  |  |  | The name of maid |
| MaidMediatorId | int |  | FK |  | The maid mediator of maid |
| StaffId | Int |  | FK |  | The staff mediator of maid |
| PersonalImage | nvarchar(50) |  |  |  | The image of maid |
| Experience | float |  |  |  | The years experience of maid |
| Description | nvarchar(500) |  |  |  | The description of maid |
| Birthdate | date |  |  |  | Birthdate of maid |
| Phone | nvarchar(50) |  |  |  | The phone of maid |
| Gender | nvarchar(10) |  |  |  | The gender of maid |
| English | bit |  |  |  | Skill english of maid |
| Korean | bit |  |  |  | Skill korean of maid |
| Chinese | bit |  |  |  | Skill chinese of maid |
| Japanese | bit |  |  |  | Skill japanese of maid |
| Married | bit |  |  |  | Marital status of maid |
| Address | nvarchar(100) |  |  |  | Address of maid |
| FK: MaidMediatorId REF MaidMediator(MaidMediatorId)  StaffId REF Staff(StaffId) | | | | | |

#### MaidMediator

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| AccountId | int |  | PK |  | The index of this maid mediator |

#### Notifier

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| Id | int |  | PK |  | The index of notification |
| AccId | int |  |  |  | The index of account which has notification |
| Date | datetime |  |  |  | Date of notification |
| Content | nvarchar(500) |  |  |  | Content of notification |
| Link | nvarchar(100) | Yes |  |  | Link notify |
| View | bit |  |  |  | Confirm that view yet |

#### Rating

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| RatingId | int |  | PK |  | The index of this rating |
| CustomerId | int |  | FK |  | The customer who rate |
| JobRequestId | int |  | FK |  | The job request which is rated |
| Rate | float |  |  |  | The value of this rate |
| FK: CustomerId REF Customer(CustomerId)  JobRequestId REF JobRequest(JobRequestId) | | | | | |

#### Recruitment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| RecruitmentId | int |  | PK |  | The index of this recruitment |
| SkillRefId | int |  | FK |  | The index of skill which contains in this recruitment |
| CustomerId | int |  | FK |  | The customer who posts this recruitment |
| Status | nvarchar(50) |  |  |  | The status of the recruitment |
| PostTime | datetime |  |  |  | The time when the recruitment is posted |
| ExpiredTime | datetime |  |  |  | The time when the recruitment is expired |
| Price | int |  |  |  | Price of recruitment |
| Title | nvarchar(100) |  |  |  | Name of recruitment |
| IsActive | bit |  |  |  | Check that this recruitment has payment |
| FK: CustomerId REF Customer(CustomerId)  SkillRefId REF SkillReference(SkillRefId) | | | | | |

#### SkillCategory

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| CategoryId | int |  | PK |  | The index of this category |
| CategoryName | nvarchar(50) |  |  |  | The name of category |

#### SkillInstance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| SkillId | int |  | PK |  | The index of this skill |
| CategoryId | int |  | FK |  | The category which contains this skill |
| SkillName | nvarchar(50) |  |  |  | The name of skill |
| SkillString | nvarchar(50) | Yes |  |  | The character value of skill name |
| SkillNormallized | int |  |  |  | The range value of skill |
| SkillStringValue | float |  |  |  | The number value of skill name |
| SkillNameVietnam | nvarchar(50) |  |  |  | The name of skill in Vietnamese |
| FK: CategoryId REF SkillCategory(CategoryId) | | | | | |

#### SkillReference

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| SkillRefId | int |  | PK |  | The index of this skill reference |
| Gender | int | Yes |  |  | The value gender of skill |
| Age | int | Yes |  |  | The value age of skill |
| LaguageEnglish | int | Yes |  |  | The value language english of skill |
| LanguageChina | int | Yes |  |  | The value language china of skill |
| LanguageJapanese | int | Yes |  |  | The value language japanese of skill |
| LanguageKorean | int | Yes |  |  | The value language korean of skill |
| Experience | int | Yes |  |  | The value experience of skill |
| Hometown | int | Yes |  |  | The value hometown of skill |
| Address | int | Yes |  |  | The value address of skill |
| Health | int | Yes |  |  | The value health of skill |
| Stay | int | Yes |  |  | The value stay of skill |
| Salary | int | Yes |  |  | The value salary of skill |
| Work | int | Yes |  |  | The value work of skill |
| SickCare | int | Yes |  |  | The value sickcare of skill |
| OldCare | int | Yes |  |  | The value oldcare of skill |
| BabySister | int | Yes |  |  | The value babysister of skill |
| DisabilityCare | int | Yes |  |  | The value disabilitycare of skill |
| BonsaiCare | int | Yes |  |  | The value bonsaicare of skill |
| Cooking | int | Yes |  |  | The value cooking of skill |
| Washing | int | Yes |  |  | The value washing of skill |
| Cleanhouse | int | Yes |  |  | The value cleanhouse of skill |
| Type | int |  |  |  | Skill of job request or skill of recruitment |
| Group | int | Yes |  |  | Divide group in algorithm |

#### Staff

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Null** | **P/F key** | **Default** | **Description** |
| AccountId | int |  | PK |  | The index of this staff |

## Algorithms

### Overview

* k-means clustering is a method of vector quantization, originally from signal processing, that is popular for cluster analysis in data mining. k-means clustering aims to partition n observations into k clusters in which each observation belongs to the cluster with the nearest mean, serving as a prototype of the cluster. This results in a partitioning of the data space into Voronoi cells.
* The problem is computationally difficult (NP-hard); however, there are efficient heuristic algorithms that are commonly employed and converge quickly to a local optimum. These are usually similar to the expectation-maximization algorithm for mixtures of Gaussian distributions via an iterative refinement approach employed by both algorithms. Additionally, they both use cluster centers to model the data; however, k-means clustering tends to find clusters of comparable spatial extent, while the expectation-maximization mechanism allows clusters to have different shapes.
* This is automatically function, help system classify each job request and recruitment from maid and customer. Function give all request become n-group. From there, system can be suggest for user about: Job requests same RecruitmentApply.

#### K-Mean

* System feel need create new group for Job request and recruitment. Because each group should have maximum 10 element.
* When web master click run classify, all job request and recruitment has been calculate by algorithm, and make new group.
* New group based on similar of value from column Normalize of data.
* A file contain k mean, with k is number of group. This file will be save on server of website.
* After run algorithm, in database, all SkillReferent job request and recruitment is “Watting” status will be divided into k group.

#### KNN

* User login with customer role.
* They post a recruitment or job request on website.
* System automatic analysis and choose group for this recruitment or job request.
* From there, system can suggest for customer all job request same group with this recruitment.

### Detail

#### K-Mean

* Normalize value. This step help return value same distant.
* Random group for value.
* Choose a number k. In MS-Website, system suggest each group at job request and recruitment should have 10 element. Therefore, if job request have 100 rows we should choose k equal 10. Choose random k mean.
* Calculate the distance between the objects (objects) to K center (usually Euclidean distance).
* Group objects to the nearest group.
* Define the new mean for the group.
* Repeat until no change in any group of objects.
* Write mean to file and save this file in server.

#### KNN

* With input value, system calculate distance from this to k mean of mean file on sever.
* Find minimum distance from this point to means. This value will belong minimum mean group.

Start

Number of cluster K

Centroid

Distance object to centroids

Grouping based on minimum distance

No object move group?

End