|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | |  | | **MINISTRY OF EDUCATION AND TRAINING** | | | **FPT UNIVERSITY** | | |
| Capstone Project Document |
| Website for maid service |
| |  | | --- | |  |  |  |  | | --- | --- | | **Group 6** | | | **Group member** | Bùi Tiến Tuân – Leader – SE60824  Mạnh Quang Tuyến– Member – SE60890  Trương Hải Đăng – Member – SE60635  Nguyễn Tấn Công – Member – SE60920 | | **Supervisor** | Nguyễn Trọng Tài | | **Ext. Supervisor** | N/A | | **Capstone Project code** | MS-Website | |
| * Ho Chi Minh City, May 2014 – |

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## Report 4.System Design Description (SDD)

### 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. The detailed design uses notations of .NET framework 4.5 and C#, as they are the framework and language for developing this system.
* The database design describes the relationship between entities, and details of each entity. It uses notations of SQL Server 2008 R2 as it is the database server for developing the system.
* The user interface design describes the layout of the system, and some design for the screens

### System Architectural Design

#### Choice of System Architecture

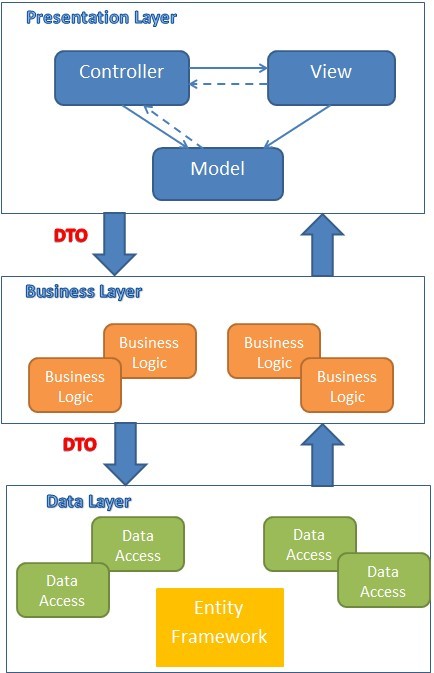
****

Figure 36: MVC implemented in a three-layer architecture

The above diagram is explained as the following:

**Model**: Used to prepare data for view

**View**: The view displays the data and also takes input form user. It renders the model data into a form, such as graphics, buttons, and tables, and so on to display to the user.

**Controller:** The controller handles all requests coming from the view or user interface. The data flows to whole application are controlled by controller.

**Business Logic:** This layer coordinates the application, processes commands, makes logical decisions and evaluations, and performs calculations. It also moves and processes data between the two surrounding layers.

**Data Access:** Here information is stored and retrieved from a database or file system. The information is then passed back to the logic tier for processing, and then eventually back to the user.

#### Discussion of Alternative Designs

N/A

#### Description of System Interface

N/A

### Component Diagram

Figure 37: Component Diagram

### Detailed Description of Components

#### Class Diagram

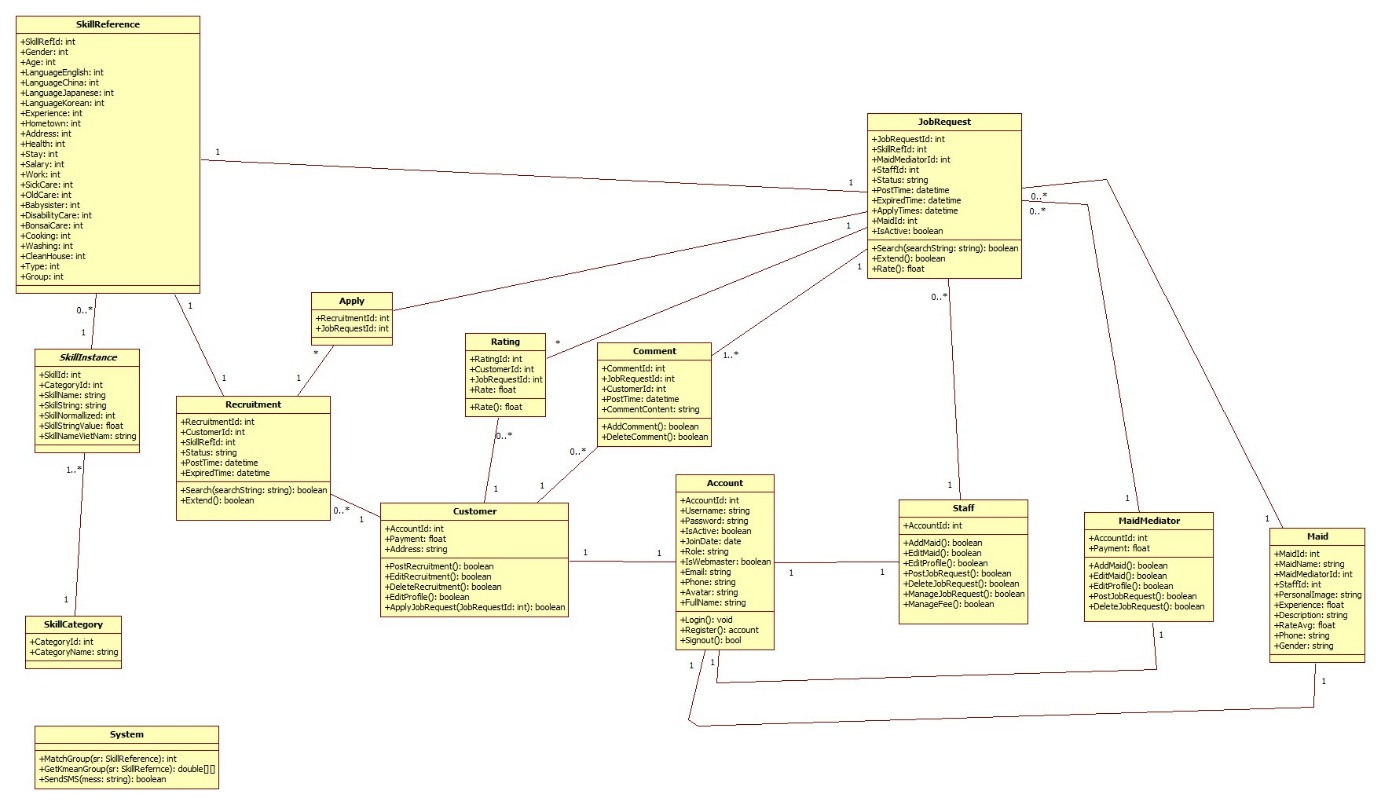


Figure 38: General Class Diagram

#### Class Diagram Explanation

##### Account

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Account | Initialize a role with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |
| Login | - Username  - Password | Void | Login to website |
| Register | All params of class Account | Account | Create an account |
| Signout | N/A | Boolean | Log out account |

##### Apply

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Account | Initialize an account with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |

##### Comment

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Stadium | Initialize an Stadium with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |
| AddComment | All attributes of class Comment | Boolean | Create a comment and save it to database |
| DeleteComment |  | Boolean | Delete a comment out of database |

##### Customer

* **Attributes**

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| AccountId | Integer | Id of field |
| Payment | Float | Payment of customer |
| Address | String | Address of customer |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Field | Initialize an Field with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |
| PostRecruitment | - AccountId  - RecruitmentId | Boolean | Create and post a recruitment to website and save it to database |
| EditRecruitment | - AccountId  - RecruitmentId | Boolean | Edit a recruitment and save it to database |
| DeleteRecruitment | - AccountId | Boolean | Delete a recruitment out of database |
| EditProfile | All attributes of class Customer | Boolean | Edit profile of customer and save it to database |
| ApplyJobRequest | - AccountId  - JobRequestId | Boolean | Apply job request |

##### JobRequest

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | FieldPrice | Initialize an FieldPrice with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |
| Search | - SkillRefId  - searchString  - JobRequestId | List<SkillReference> | Search skill |
| Extend | - JobRequestId  - ExpiredTime | Boolean | Extend time to post job request |
| Rate | - SkillRefId  - JobRequestId  - MaidId | Integer | Rate the job request |

##### Maid

* **Attributes**

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| MaidId | Integer | Id of maid |
| MaidName | String | Name of maid |
| MaidMediatorId | Integer | Id of maid mediator |
| StaffId | Integer | Id of staff |
| PersonalImage | String | Image of maid |
| Experience | Float | Experience of maid |
| Description | String | Description of maid |
| RateAvg | Float | Average rate of maid |
| Phone | String | Phone of maid |
| Gender | String | Gender of maid |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | PriceTable | Initialize an price table with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |

##### MaidMediator

* **Attributes**

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| AccountId | Integer | Id of maid mediator |
| Payment | Float | Payment of maid mediator |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Promotion | Initialize an Promotion with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |
| AddMaid | - AccountId  - All attributes of class maid | Boolean | Create a maid and save it to database |
| EditMaid | All attributes of class maid except MaidId | Boolean | Update information of an existing maid in database |
| EditProfile | All atrributes of class maidmediator | Boolean | Update information of an existing maid mediator in database |
| PostJobRequest | - SkillRefId  - MaidId  - MaidMediatorId  - JobRequestId  - PostTime | Boolean | Create and post a job request to website and save it to database |
| DeleteJobRequest | - SkillRefId  - MaidId  - MaidMediatorId  - JobRequestId | Boolean | Delete job request out of database |

##### Rating

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Promotion | Initialize an Promotion with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |
| Rate | All attributes of class rating | Boolean | Rate job request |

##### Recruitment

* **Attributes**

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| RecruitmentId | Integer | Id of recruitment |
| SkillRefId | Integer | Id of skill reference |
| CustomerId | Integer | Id of customer |
| Status | String | Status of recruitment |
| PostTime | Datetime | Time that recruitment was posted |
| ExpiredTime | Datetime | Time that recruitment was expired |

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Promotion | Initialize an Promotion with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |
| Search | - SkillRefId  - searchString  - RecruitmentId | List<SkillReference> | Search skill |
| Extend | - RecruitmentId  - ExpiredTime | Boolean | Extend time to post recruitment |

##### SkillCategory

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | StadiumRating | Initialize an StadiumRating with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |

##### SkillInstance

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | StadiumRating | Initialize an StadiumRating with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |

##### SkillReference

* **Attributes**

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

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| Constructors | Optional | Reservation | Initialize an Reservation with value (optional) |
| Getters | N/A | Type of attribute | Get value of an attribute corresponding with getter of attribute |
| Setters | Value of attribute | Void | Set value for an attribute corresponding with setter of attribute |

##### System

* **Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Parameter** | **Return Type** | **Description** |
| MatchGroup | All atributes of SkillReference | Integer | 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 |

### Sequence Diagram

#### Create Stadium



Figure 39: Create Stadium

#### Suggest Stadium

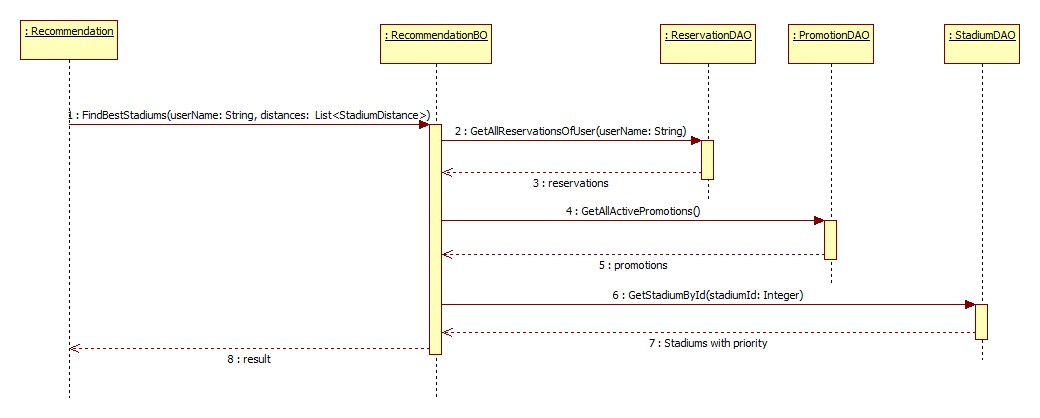


Figure 40: Suggest Stadium

#### Delete Member Rank

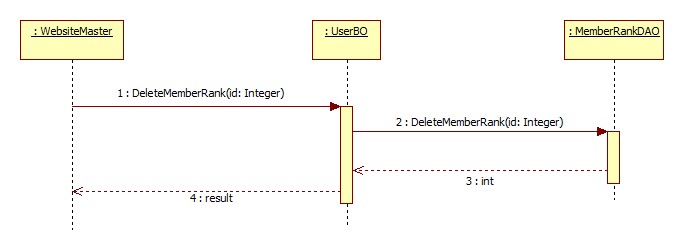


Figure 41: Delete Member Rank

#### Create Price Table

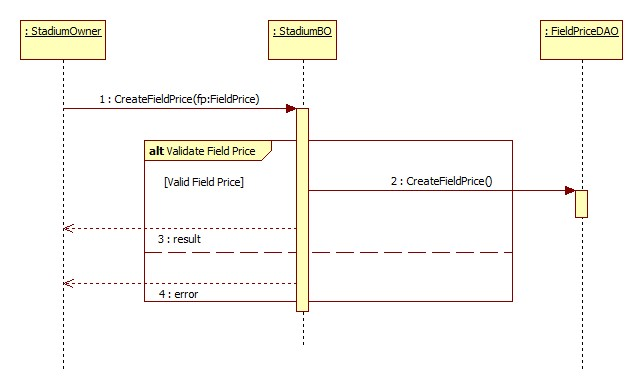


Figure 42: Create Price Table

#### Create Reservation

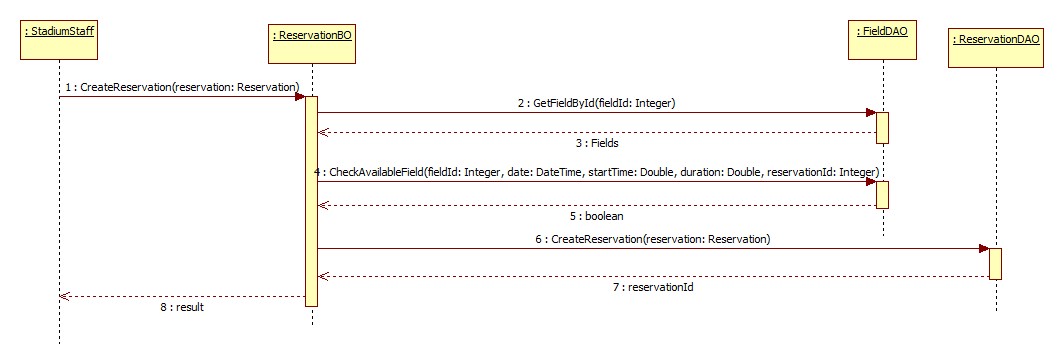


Figure 43: Create Reservation

#### Update Reservation

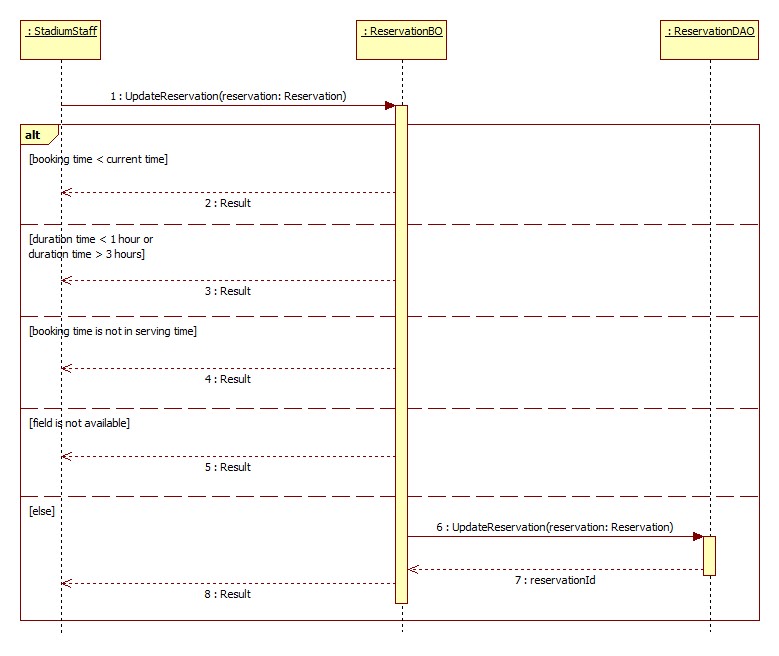


Figure 44: Update Reservation

#### Find Available Stadium

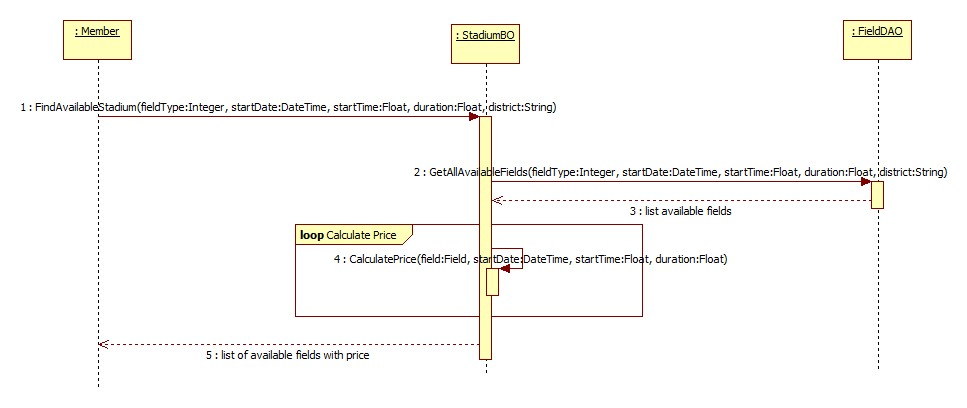


Figure 45: Find Available Stadium

#### Create Promotion

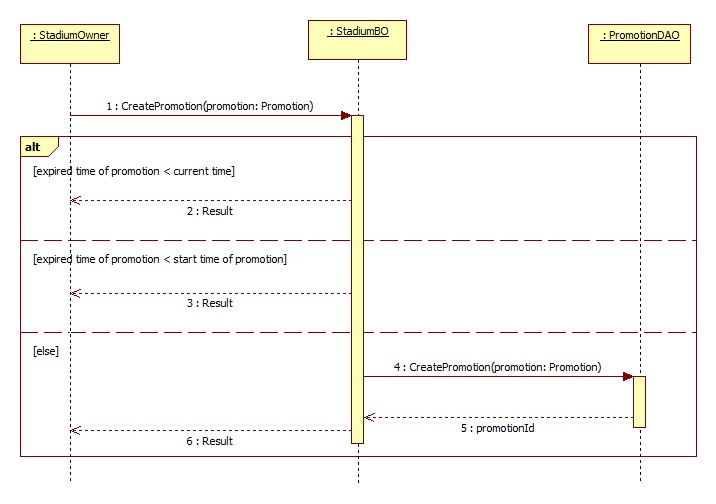


Figure 46: Create Promotion

#### Book Field

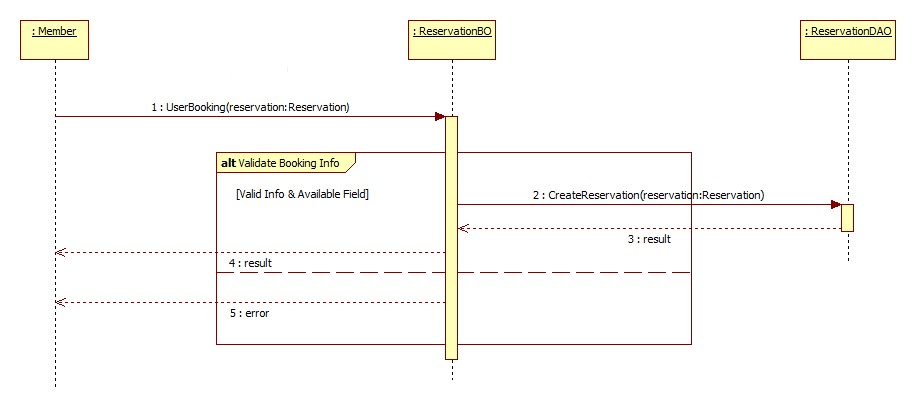


Figure 47: Book Field

#### Cancel Reservation

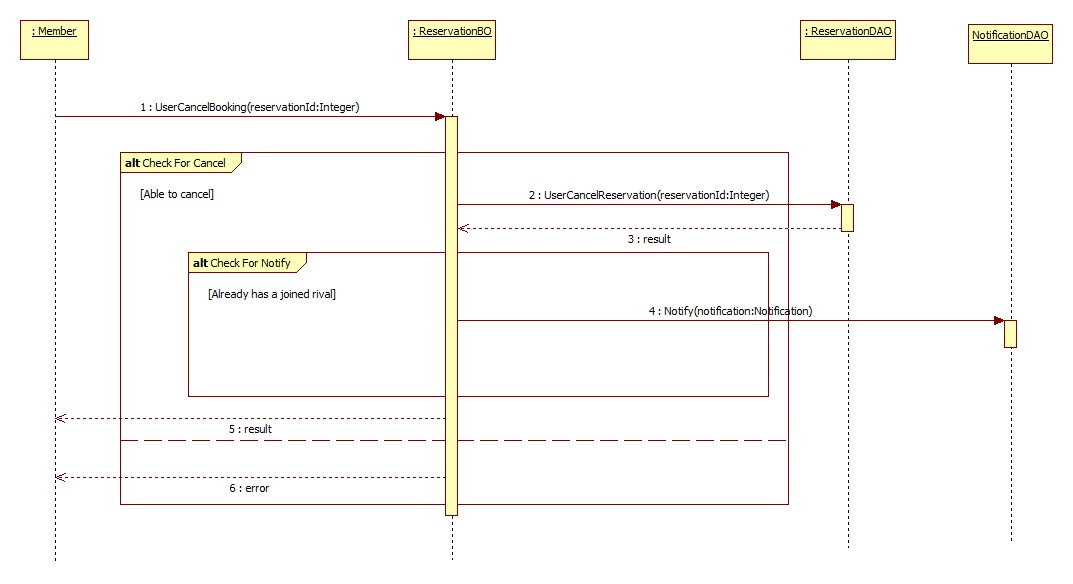


Figure 48: Cancel Reservaion

#### Find Rival

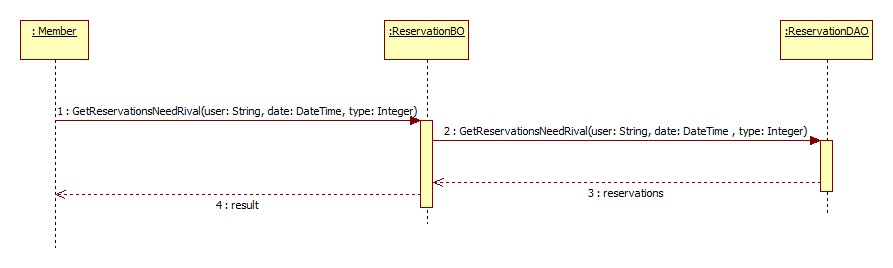


Figure 49: Find Rival

#### Join Match

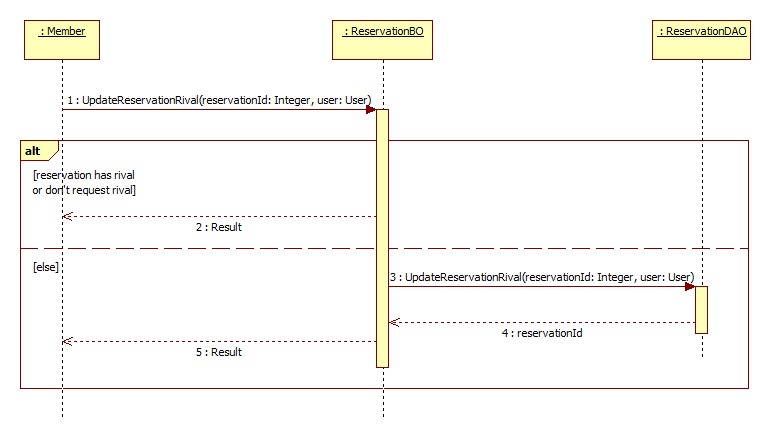


Figure 50: Join Match

#### Reference Sequence Diagrams

The following sequences diagram is referenced to: [CD\reports\Report4.docx](file:///C:\Users\PhuongND\AppData\Roaming\Microsoft\Word\reports\Report4.docx)

* View Booking History
* Rate Stadium
* Review Stadium
* Update Account Profile
* Feedback Website
* Request Join System
* Update Stadium
* Update Configuration
* Suggest Rival
* View Stadiums
* Create Member Rank
* Update Member Rank
* View Member Ranks
* Create Advertising
* Update Advertising
* Delete Advertising
* View Advertisings
* Punish User
* Update User
* View Users
* Update Stadium Profile
* Update Field
* View Fields
* Approve Reservation
* Decline Reservation
* View Reservations
* Update Promotion
* View Promotions
* Find Stadium
* View Stadium Detail

### User Interface Design/ Hardware Interface Design (if any)

Update Later

### Database Design

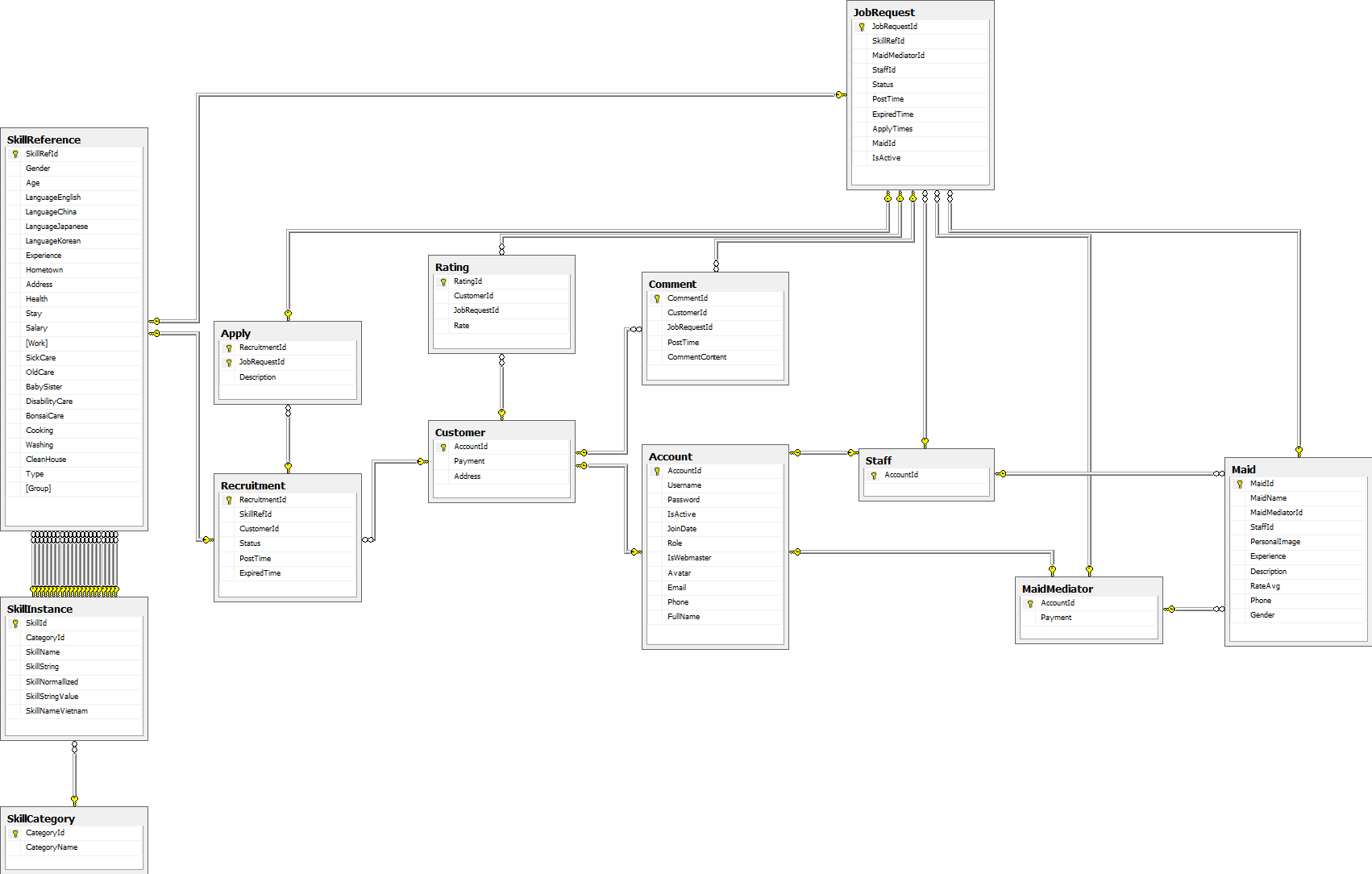


Figure 51: Database Diagram

#### Tables description

|  |  |  |
| --- | --- | --- |
| 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 |

#### Acount

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | 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 |

#### Apply

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | P/F key | Default | Description |
| RecruitmentId | int |  |  | PK |  | The index of this recruitment |
| JobRequestId | Int |  |  | PK |  | The index of this job request |
| Description | nvarchar(50) |  |  |  |  | N/A |

#### Comment

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | 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 |

#### Customer

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

#### JobRequest

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | 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 |

#### Maid

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | P/F key | Default | Description |
| MaidId | int |  |  | PK |  | The index of maid |
| MaidName | nvarchar(50) |  |  |  |  | The name of maid |
| MaidMediator | 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 |
| RateAvg | float |  |  |  |  | The average rating of maid |
| Phone | nvarchar(50) |  |  |  |  | The phone of maid |
| Gender | nvarchar(10) |  |  |  |  | The gender of maid |

#### MaidMediator

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

#### Rating

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | 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 |

#### Recruitment

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | 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 |

#### SkillCategory

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field name | Type | Null | Unique | 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 | Unique | 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 |

#### SkillReference

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

### Business Intelligence Agent: Suggestion Method

#### Overview:

This automatic function helps system to suggest suitable maid to customer. It makes the website becomes more friendly and convenience for user. Therefore we use three norms to recommend the stadium for user:

* Most booked stadium
* The nearest stadium
* Stadium which is discounted

#### Implement:

* User logins system
* System gets the reservation history of this user, all the available promoted stadiums and the distance from user to each stadium.
* Each recommended stadium is calculated by three norms: the stadium which is most booked, the stadium which is nearest to user’s address and the most discount stadium.
* System calculates the priority of each norms and combines it into final priority to decide the order of stadium which is displayed on Homepage.
* Homepage has 4 categories of stadium: The best stadium (balance rate of priority), most booked stadium(highest priority rate for the most booked stadium), most nearest stadium (highest priority rate for the nearest stadium), and most discount stadium (highest priority rate for the most discounted stadium).
* The best stadium, most booked stadium, most nearest stadium, and most discount stadium have the same method to be suggested but they have the difference value of priority rate.
* For example, Most Booked Stadium is suggested by: the highest priority rate for most booked stadium (60 percent), the lower priority rate for near stadium (20 percent) and discounted stadium (20 percent).
* In addition, the value of priority rate is able to be changed. It depend on taste of customer. If they interest more about near stadium, website master can raise the rate of nearest stadium priority, and decrease the others dow.

Beside that we apply the same way to suggest rival for player who wants to find competitors or have not enough players for a match.

Suggest Stadium

The Best Stadium

The Nearest Stadium

The Most

Booked Stadium

The Most

Discounted Stadium

Nearest priority

Most booked

priority

Most discounted

priority

Nearest priority

Most booked

priority

Most discounted

priority

Nearest priority

Most booked

priority

Most discounted

priority

Nearest priority

Most booked

priority

Most discounted

priority

Figure 52: Stadium Suggestion

#### Algorithm

**Most Booked Stadium Point (MBSP):**

* Get all reservation, we assume number of stadiums were booked
* Reduced Point = 10 / number of stadiums were booked
* Stadium with max reservation: set 10 mark
* Next Stadium mark =

10 – [(Max reservation number – Next reservation number) x Reduced Point]

* Calculate to the end of booked stadiums list
* We have mark of each booked stadium

**Most Discounted Stadium Point(MDSP):**

* Get all available promoted stadium, assume number of stadium are being discounted
* Reduced Point = 10 / number of stadium are being discounted.
* Stadium with the highest discount: set 10 mark
* Next Stadium mark =

10 – [(highest discount amount – next discount amount) x Reduced Point]

* Calculate to the end of the discounted stadiums list.
* We have mark of each promoted satdium

**Nearest Priority Stadium Point(NPSP):**

* Distance from user’s address to stadium < 2km: set 10 mark
* Distance from user’s address to stadium < 4km: set 9 mark
* Distance from user’s address to stadium < 8km: set 8 mark
* ….
* Distance from user’s address to stadium out of 20 km: 0 mark

We have mark of each stadium near user’s address

**Summarise:**

* Most booked priority: **MostBooked**
* Most discount priority: **MostPromoted**
* Distance priority: **Nearest**

Final priority of each stadium =

(**MostBooked** x **MBSP) + (MostPromoted** x **MDSP)** + (**Nearest** x **NPSP)**

Note: Value of MostBooked, MostPromoted and Nearest is store in Tbl.Configuration. It’s able to change.

Result: The stadium with the highest priority is display firstly in each category on Home page.