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| Software Design Specification |
|  |
|  |
| **Rental House Finding System Team | FPT University** |
| **Hanoi, 4th Mar 2013** |

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# Design Overview

This document describes the technical and UI design of the Rental House Finding system. It includes the architectural design and the detailed design of common functions and business functions. It also includes the design of database model, and overall design of user interface.

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.

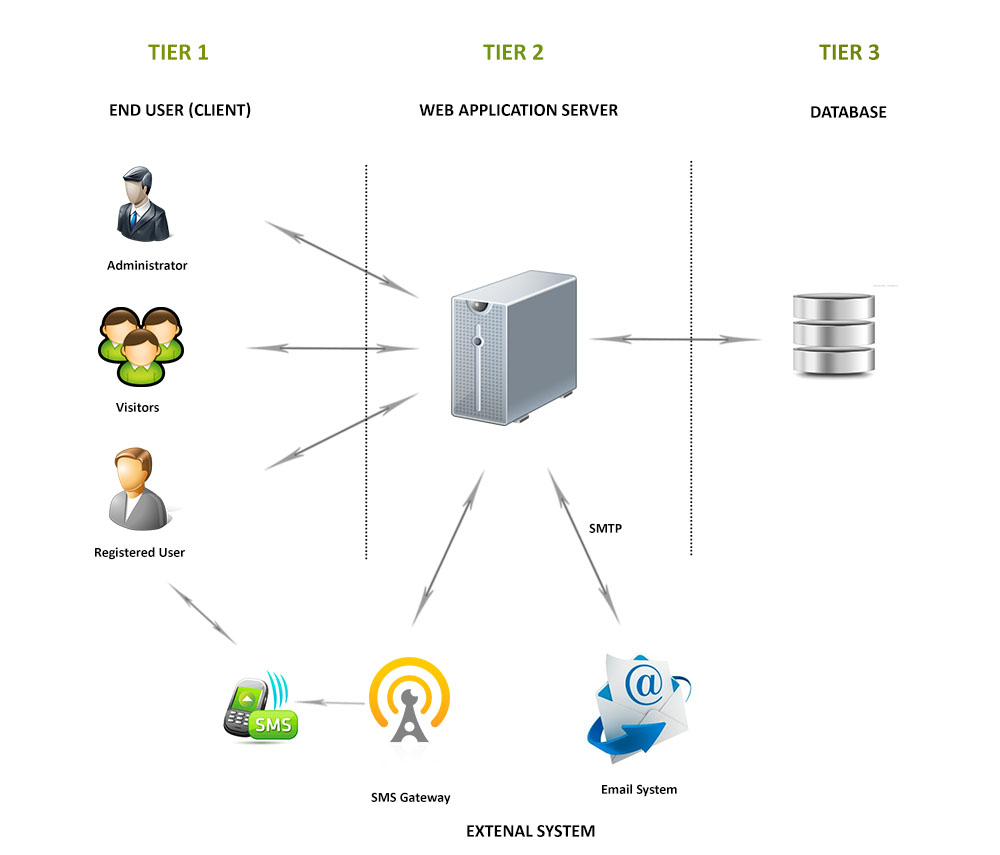
The detailed design describes static and dynamic structure for each component and function. It includes class diagrams, class explanations, and sequence diagrams of the main use cases. The detailed design uses notations of .NET framework 4.0 and C# 4.0 as they are the framework and language for developing the system.

The database design describes the relationship between entities, and details of each entity. It uses notations of SQL Server 2008 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

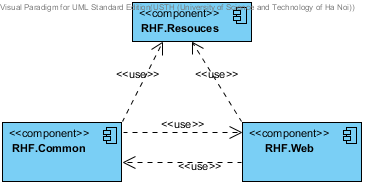
## Overall System Architecture



|  |  |
| --- | --- |
| User/Module/System | Description |
| End User | Users access the web application via Internet connection. |
| Web Application Server | Automatically intercepts any user request, coordinates application, makes logic decision and evaluation. |
| Database | Where information is stored and retrieved from. |
| SMS Gateway | Get data from Database and then interact with user through SMS and then send user’s feedback to system |
| Email System | Get data from Database and then send Email to users automatically |

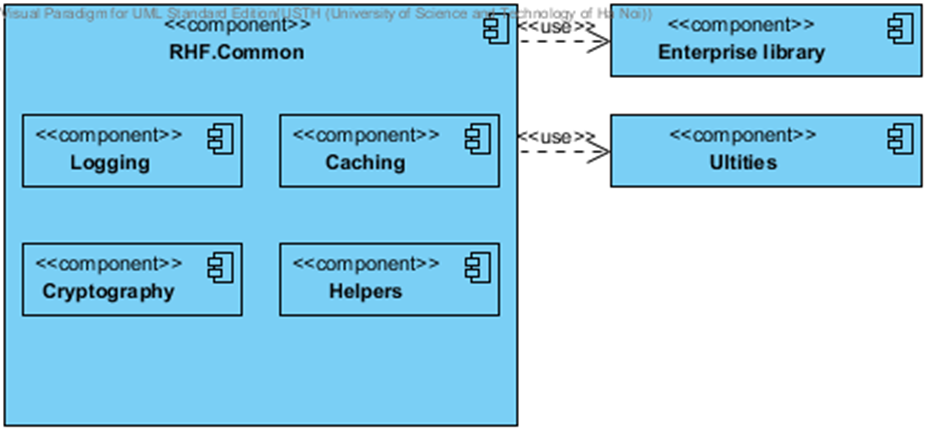
## Web Application Architecture

The architecture for the RHF web application will be depicted as the following diagram:



### Common Component

This component contains common logic that can be used throughout the application. It includes for example mechanism for logging, caching, cryptography, and other utilities.



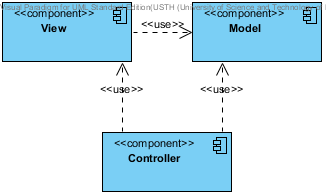
### Resources Component

This component contains static resources for the system. It includes localized strings and messages.

### Web Component

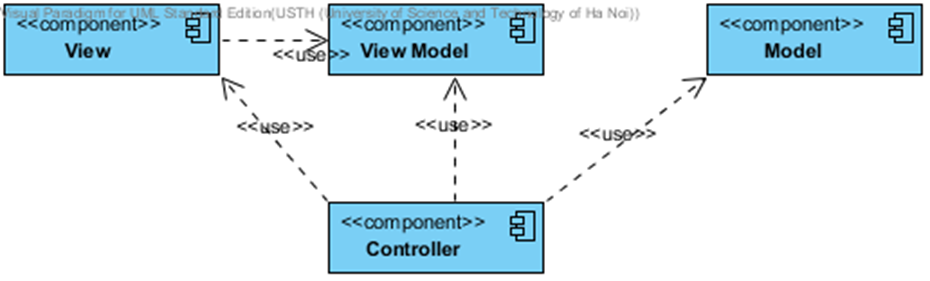
This component is responsible for delivering the front end to the users and accepting their inputs. This component also contains all business logic for the system. It includes ORM classes, business classes, data access layer, business interface…

It will be developed using ASP.NET MVC 3 framework. An MVC Application is designed and implemented using the following three attributes:

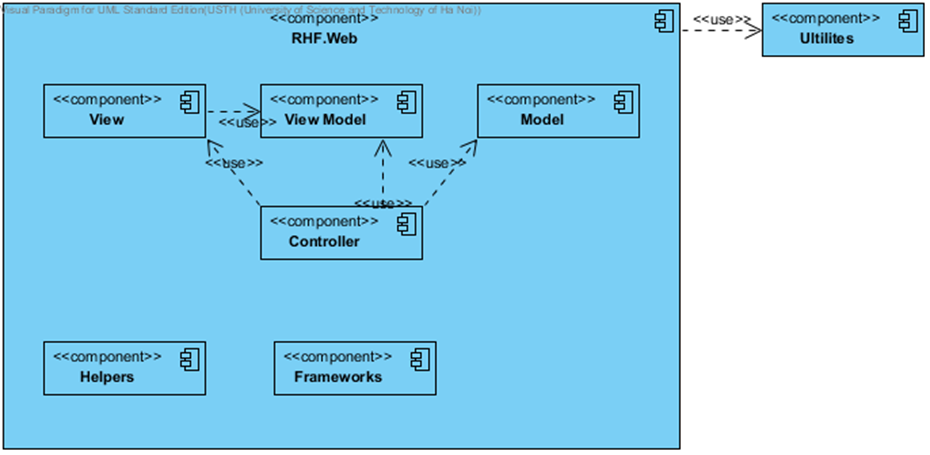


* **Model:** The model contains the core information for an application. This includes the data and validation rules as well as data access and aggregation logic.
* **View:** The view encapsulates the presentation of the application, and in ASP.NET this is typically the HTML markup.
* **Controller:** The controller contains the control-flow logic. It interacts with the Model and Views to control the flow of information and execution of the application.

The **RHF** application will make use another attribute: **View Model**. The view model encapsulates all the data properties that the view needs or provides. It is the view model that the view depends directly on, not the model. The model will be also implemented in this component.



The overall architecture of RHF.Web component will be depicted as the following diagram:



* **Helpers:** These are utilities classes specific for this component
* **Framework:** Contain the core framework to build web application

# Detailed Design

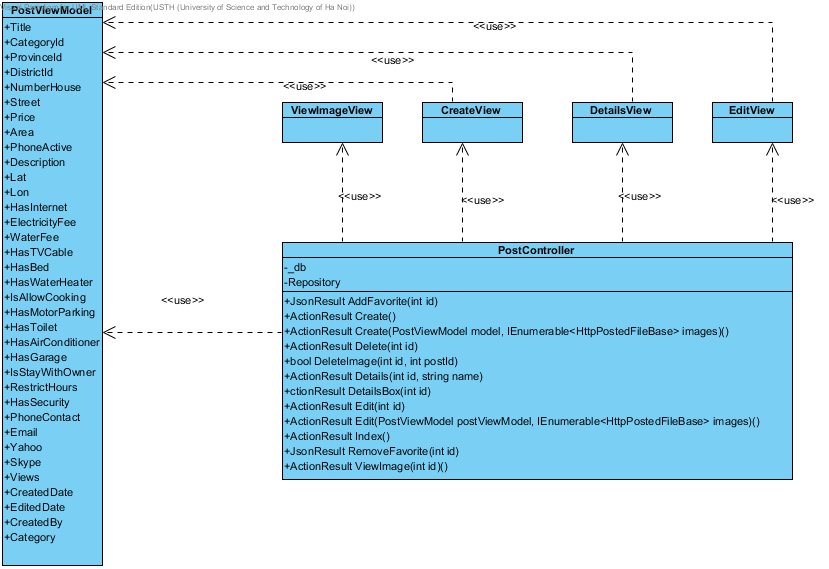
# Class Diagram

## Post

This part is the detailed design for the following use cases:

* Add Post
* Edit Post
* Delete Post
* View detail of post
* Add post to favorite
* Delete post from favorite

### Class Diagram



### Class Explanations

#### PostController class

##### **Attributes**

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Type | Visibility | Description |
| \_db | RentalHouseFindingEntities | Private |  |

##### **Operations**

###### ActionResult AddFavorite(int id)

Add post to favorite

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Post’s Id |
|  | ActionResult | Return action result |

###### ActionResult Create()

Render Create post screen

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(PostViewModel model, IEnumerable<HttpPostedFileBase> images)

Create a post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| model | PostViewModel | PostViewModel Object |
| Images | IEnumerable<HttpPostedFileBase> | Image File upload |
|  | ActionResult | Return action result |

###### ActionResult Delete(int id)

Delete a post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Post’s Id |
|  | ActionResult | Return action result |

###### ActionResult DeleteImage(int id, int postId)

Delete image of post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Image’s Id |
| postId | Int | Post’s Id |
|  | ActionResult | Return action result |

###### ActionResult Details(int id, string name)

Display details page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Post’s Id |
| name | string | Rewriting URL |
|  | ActionResult | Return action result |

###### ActionResult DetailsBox(int id)

Display details popup

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| Id | Int | Post’s Id |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Render Edit post page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| Id | Int | Post’s Id |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id, IEnumerable<HttpPostedFileBase> images)

Edit post page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Post’s Id |
| images | IEnumerable<HttpPostedFileBase> | Image’s Id |
|  | ActionResult | Return action result |

###### ActionResult RemoveFavorite(int id)

Delete favotite post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Post’s Id |
|  | ActionResult | Return action result |

#### DetailsView class

Contain HTML markup and .NET code to render View screen

#### CreateView class

Contain HTML markup and .NET code to render View screen

#### ViewImageView class

Contain HTML markup and .NET code to render View screen

#### EditView class

Contain HTML markup and .NET code to render View screen

#### PostViewModel class

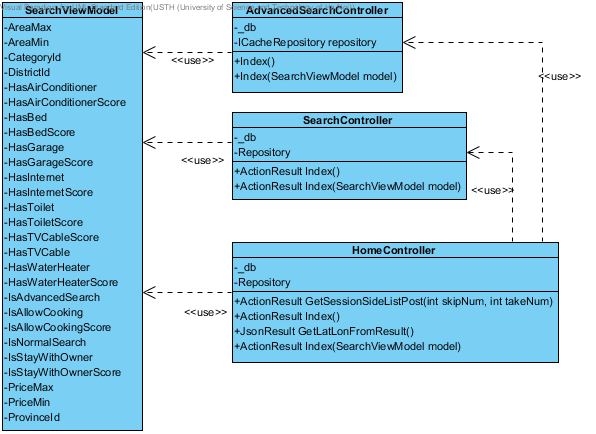
Model type of CreateView, DetailsView and EditView

## Search Post

This part is the detailed design for the following use cases:

* Search
* Advance Search

### Class Diagram



### Class Explanations

#### SearchController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |
| Repository | ICacheRepository |  |

##### **Operations**

###### ActionResult Index()

Render Search page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Index(SearchViewModel model)

Search

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| model | SearchViewModel | SearchViewModel Object |
|  | ActionResult | Return action result |

#### HomeController class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |
| Repository | ICacheRepository |  |

##### **Operations**

*JsonResult GetLatLonFromResult()*

Get Latitude and Longitude of Result.

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | JsonResult | Return Json result |

*ActionResult GetSectionSideListPost(int skipNum, int takeNum)*

Get list post result

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| skipNum | Int | Number skip post |
| takeNum | Int | Number take Posts result |
|  | ActionResult | Return action result |

*ActionResult Index()*

Display result page.

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Index(SearchViewModel model)

Search

**Parameters and Return**

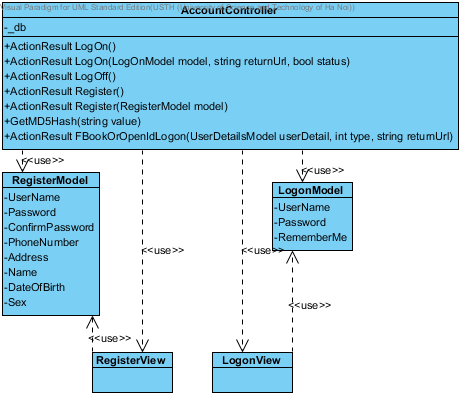
|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| model | SeachViewModel | SearchViewModel Object |
|  | ActionResult | Return action result |

## LogOn\_Register\_LogOut

This part is the detailed design for the following use cases:

* Login
* Register
* Logout

### Class Diagram



### Class Explanations

#### AccountController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult LogOn()

Render Login page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult LogOn(LogOnModel model, string returnUr)

Login.

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| model | LogOnModel | LogOnModel Object |
| returnUrl | string | URL return after logon |
|  | ActionResult | Return action result |

###### ActionResult Register()

Render Register page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Register(RegisterModel model)

Register new account.

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| model | RegisterModel | RegisterModel Object |
|  | ActionResult | Return action result |

*ActionResult FaceBookOrOpendIdLogOn(UserDetailModel model, int type, string returnUrl)*

Login by using Facebook or OpenId

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| model | UserDetailModel | UserDetailModel Object |
| type | Int | Logging by Facebook or OpenId |
| returnUrl | string | URL return after login |
|  | ActionResult | Return action result |

###### ActionResult LogOff()

Log out.

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### LogOnView class

Contain HTML markup and .NET code to render LogOn screen

#### RegisterView class

Contain HTML markup and .NET code to render Register screen

#### LogOnModel class

Model type of LogOnView

#### RegisterModel class

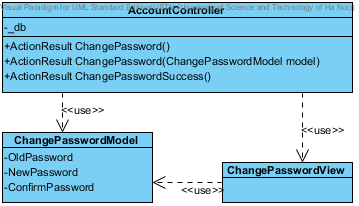
Model type of RegisterView

## Change PassWord

This part is the detailed design for the following use cases:

* ChangePassword

### Class Diagram



### Class Explanations

#### AccountController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult ChangePassword()

Render change password page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult ChangePassword(ChangePasswordModel model)

Change password

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| model | ChangePasswordModel | ChangePasswordModel Object |
|  | ActionResult | Return action result |

#### ChangePasswordView class

Contain HTML markup and .NET code to render Change password screen

#### ChangePasswordViewModel class

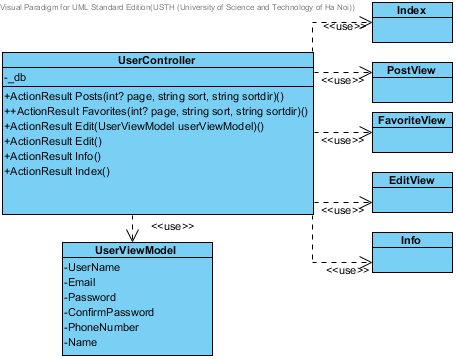
Model type of ChangePasswordView

## 6. User Control Panel

This part is the detailed design for the following use cases:

* Manage post
* Manage payment
* Manage favorite
* View User Info
* Edit User Info

### Class Diagram



### Class Explanations

#### UserController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Edit()

Render Edit User Info page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Edit(UserViewModel userViewModel)

Edit User Info

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| userViewModel | UserViewModel | UserViewMdel Object |
|  | ActionResult | Return action result |

###### ActionResult Posts(int? page, string sort, string sortdir)

Render User Manage Post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| page | Int? | Page of WebGridView |
| sort | string | Sort by field |
| sortdir | string | ASC or DESC |
|  | ActionResult | Return action result |

###### ActionResult Favorite(int? page, string sort, string sortdir)

Render User Manage Favorite

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| page | Int? | Page of WebGridView |
| sort | string | Sort by field |
| sortdir | string | ASC or DESC |
|  | ActionResult | Return action result |

###### ActionResult Payments(int? page, string sort, string sortdir)

Render User Manage Post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| page | Int? | Page of WebGridView |
| sort | string | Sort by field |
| sortdir | string | ASC or DESC |
|  | ActionResult | Return action result |

###### ActionResult Index()

Render User Control Panel page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Info()

Render User Manage Post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### PostView class

Contain HTML markup and .NET code to render Post list screen

#### EditView class

Contain HTML markup and .NET code to render Edit User info screen

#### InfoView class

Contain HTML markup and .NET code to render Info screen

#### FavoriteView class

Contain HTML markup and .NET code to render Favorite List screen

#### InxdexView class

Contain HTML markup and .NET code to render User Control Panel screen

#### UserViewModel class

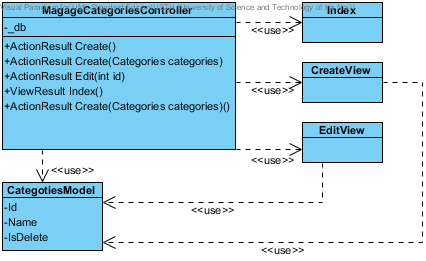
Model type of EditView and InfoView

## Manage Categories

This part is the detailed design for the following use cases:

* View Categories list
* Create a new category
* Edit category
* Delete category

### Class Diagram



### Class Explanations

#### ManageCategoriesController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Create()

Render Create category page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(Categories categories)

Insert a new category

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| categories | Categories | Categories Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(Categories categories)

Edit category

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| categories | Categories | Categories Object |
|  | ActionResult | Return action result |

###### ActionResult Edit()

Render Edit page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### IndexView class

Contain HTML markup and .NET code to render Manage Categories screen

#### CreateView class

Contain HTML markup and .NET code to render Insert a new Category screen

#### EditView class

Contain HTML markup and .NET code to render Edit Category screen

#### CategoryModel class

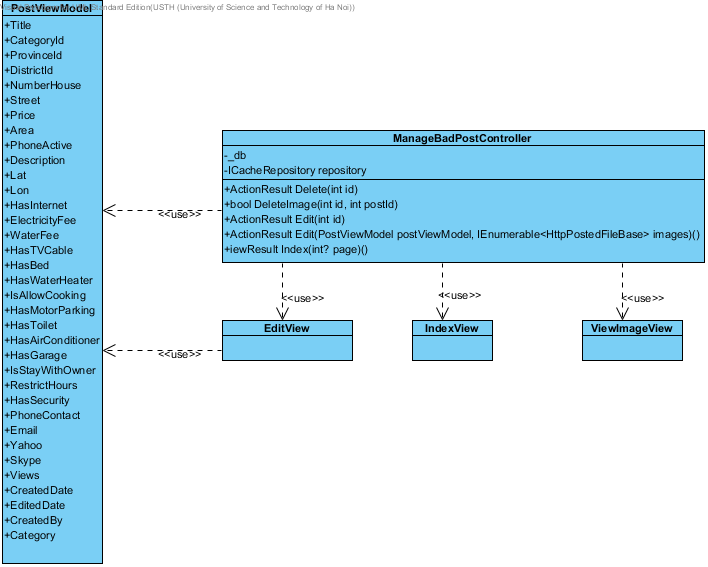
Model type of CreateView and EditView

## Admin Manage Bad Post

This part is the detailed design for the following use cases:

* Manage bad post

### Class Diagram



### Class Explanations

#### IPlaceRepository interface

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Delete(int id)

Delete bad post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Id of bad post |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Get the reported details of place

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Id of bad post |
|  | ActionResult | Return action result |

###### ActionResult Index(int? page)

Display list bad post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| page | Int? | Page number of GridView |
|  | ActionResult | Return action result |

###### ActionResult Edit(PostViewModel postViewModel, IEnumerable<HttpPostedFileBase> images)

Edit post and accept post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| postViewModel | PostViewModel | PostViewModel Object |
| images | IEnumerable<HttpPostedFileBase> | Image’s post |
|  | ActionResult | Return action result |

#### EditView class

Contain HTML markup and .NET code to render Edit bad post screen

#### Index

Contain HTML markup and .NET code to render List bad post screen

#### PostViewModel class

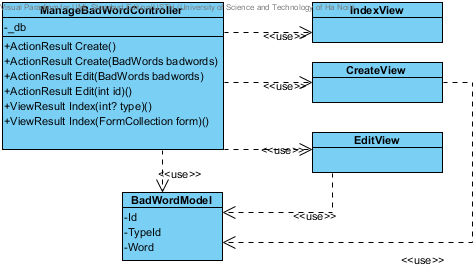
Model type of EditView

## Admin Manage Bad Words

This part is the detailed design for the following use cases:

* Manage bad words
* Add bad word
* Edit bad word
* Delete bad word

### Class Diagram



### Class Explanations

#### ManageBadWordsController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Create()

Render Create page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(BadWords badword)

Create new Bad Word

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| badword | BadWords | BadWords Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Render Edit page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | BadWord’s Id |
|  | ActionResult | Return action result |

###### ActionResult Edit(BadWords badword)

Edit bad word

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| badword | BadWords | BadWords Object |
|  | ActionResult | Return action result |

###### ActionResult Index()

Display list bad words

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### CreateView class

Contain HTML markup and .NET code to render Create new Bad word screen

#### EditView class

Contain HTML markup and .NET code to render Edit Bad word screen

#### Index class

Contain HTML markup and .NET code to render List Bad words screen

#### BadWordsModel class

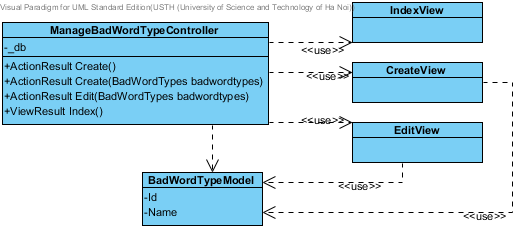
Model type of CreateView and EditView

## Admin Manage Bad Word Type

This part is the detailed design for the following use cases:

* Manage bad word type
* Add bad word type
* Edit bad word type
* Delete bad word type

### Class Diagram



### Class Explanations

#### 10.2.1 ManageBadWordTypesController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Create()

Render Create page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(BadWordTypes badwordType)

Create new Bad Word Type

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| badwordType | BadWordTypes | BadWordTypes Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Render Edit page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | BadWordType’s Id |
|  | ActionResult | Return action result |

###### ActionResult Edit(BadWordTypes badwordType)

Edit bad word type

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| badwordType | BadWordTypes | BadWordTypes Object |
|  | ActionResult | Return action result |

###### ActionResult Index()

Display list bad words type

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### CreateView class

Contain HTML markup and .NET code to render Create new Bad word type screen

#### EditView class

Contain HTML markup and .NET code to render Edit Bad word type screen

#### Index class

Contain HTML markup and .NET code to render List Bad words type screen

#### BadWordTypesModel class

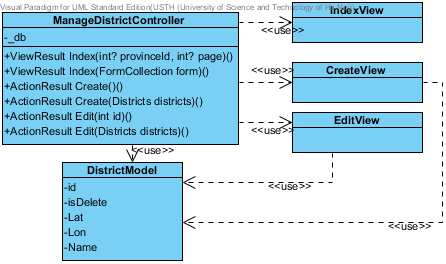
Model type of CreateView and EditView

## Admin Manage District

This part is the detailed design for the following use cases:

* Manage District
* Add District
* Edit District
* Delete District

### Class Diagram



### Class Explanations

#### 11.2.1 ManageDistictController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Create()

Render Create page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(Districts district)

Create new district

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| district | Districts | Districts Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Render Edit page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | District’s Id |
|  | ActionResult | Return action result |

###### ActionResult Edit(Districts district)

Edit District

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| district | Districts | Districts Object |
|  | ActionResult | Return action result |

###### ActionResult Index()

Display list districts

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### CreateView class

Contain HTML markup and .NET code to render Create new District screen

#### 11.2.3 EditView class

Contain HTML markup and .NET code to render Edit District screen

#### Index class

Contain HTML markup and .NET code to render List Districts screen

#### DistrictsModel class

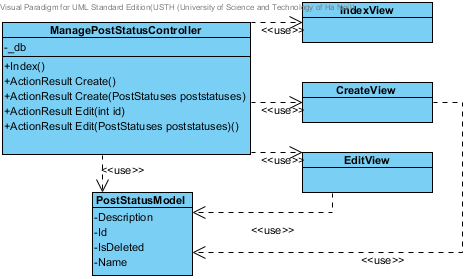
Model type of CreateView and EditView

## Admin Manage Post Status

This part is the detailed design for the following use cases:

* Manage Post Status
* Add Status
* Edit Status
* Delete Status

### Class Diagram



### Class Explanations

#### 12.2.1 ManagePostStatusController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Create()

Render Create page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(PostStatuses status)

Create new status

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| status | PostStatuses | PostStatuses Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Render Edit page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | PostStatus Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(PostStatuses status)

Edit status

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| status | PostStatuses | PostStatuses Object |
|  | ActionResult | Return action result |

###### ActionResult Index()

Display list status

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### 12.2.2 CreateView class

Contain HTML markup and .NET code to render Create new status screen

#### 12.2.3 EditView class

Contain HTML markup and .NET code to render Edit status screen

#### 12.2.4 Index class

Contain HTML markup and .NET code to render List status screen

#### PostStatusesModel class

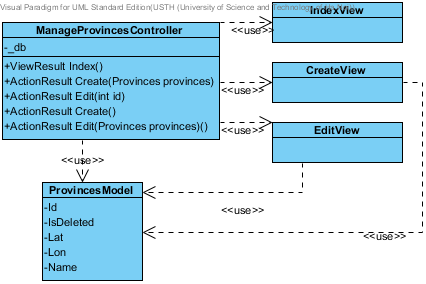
Model type of CreateView and EditView

## Admin Manage Provinces

This part is the detailed design for the following use cases:

* Manage Provinces
* Add Province
* Edit Province
* Delete Province

### Class Diagram



### Class Explanations

#### 13.2.1 ManageProvincesController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Create()

Render Create page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(Provinces province)

Create new province

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| province | Provinces | Provinces Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Render Edit province page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Province’s id |
|  | ActionResult | Return action result |

###### ActionResult Edit(Provinces province)

Edit province

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| province | Provinces | Provinces Object |
|  | ActionResult | Return action result |

###### ActionResult Index()

Display list province

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### 13.2.2 CreateView class

Contain HTML markup and .NET code to render Create new province screen

#### 13.2.3 EditView class

Contain HTML markup and .NET code to render Edit province screen

#### 13.2.4 Index class

Contain HTML markup and .NET code to render List province screen

#### ProvincesModel class

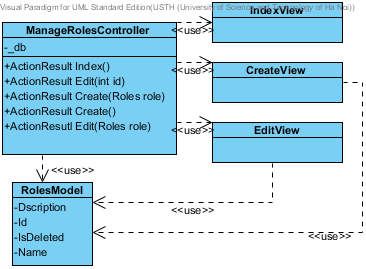
Model type of CreateView and EditView

## Admin Manage Roles

This part is the detailed design for the following use cases:

* Manage Roles
* Add role
* Edit role
* Delete role

### Class Diagram



### Class Explanations

#### 14.2.1 ManageRolesController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Create()

Render Create page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

###### ActionResult Create(Roles role)

Create new role

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| role | Roles | Roles Object |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id)

Render Edit page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Role’s id |
|  | ActionResult | Return action result |

###### ActionResult Edit(Roles role)

Edit role

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| role | Roles | Roles Object |
|  | ActionResult | Return action result |

###### ActionResult Index()

Display list role

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### 14.2.2 CreateView class

Contain HTML markup and .NET code to render Create new role screen

#### 14.2.3 EditView class

Contain HTML markup and .NET code to render Edit role screen

#### 14.2.4 Index class

Contain HTML markup and .NET code to render List role screen

#### RolesModel class

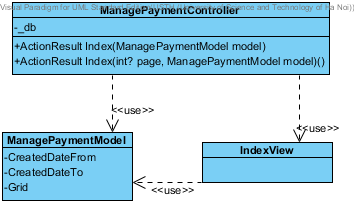
Model type of CreateView and EditView

## Admin Manage Payments

This part is the detailed design for the following use cases:

* Manage Payment

### Class Diagram



### Class Explanations

#### 15.2.1 ManagePaymentController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Index(int? page, string sort, string sortdir, ManagePaymentModel model)

Display list payment

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| page | Int? | Page number of grid view |
| sort | string | Sort by field |
| sortdir | string | ASC or DESC |
| model | ManagePaymentModel | ManagePaymentModel Object |
|  | ActionResult | Return action result |

#### 15.2.2 Index class

Contain HTML markup and .NET code to render List payment screen

#### 15.2.3 ManagePaymenModel class

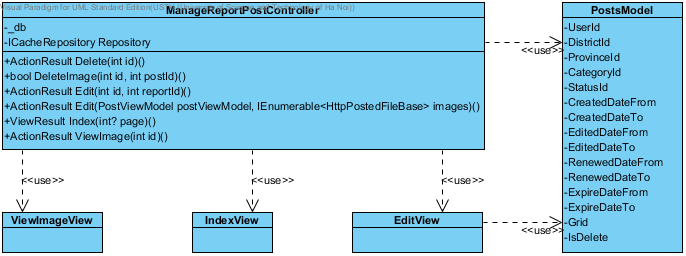
Model type of IndexView

## Admin Manage Report Post Status

This part is the detailed design for the following use cases:

* Manage Report Post

### Class Diagram



### Class Explanations

#### 16.2.1 ManageReportPostController Class

##### **Attributes**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| \_db | RentalHouseFindingEntities |  |

##### **Operations**

###### ActionResult Delete(int id)

Delete post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Post’s Id |
|  | ActionResult | Return action result |

###### ActionResult DeleteImage(int id, int postId)

Create new status

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Image’s id |
| postId | Int | Post’s id |
|  | ActionResult | Return action result |

###### ActionResult Edit(int id, int repostId)

Render Edit page

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| id | Int | Post’s id |
| repostId | Int | Id of reposted post |
|  | ActionResult | Return action result |

###### ActionResult Edit(PostViewModel postViewModel, IEnumerable<HttpPostedFileBase> images)

Edit Post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
| postViewModel | PostViewModel | PostViewModel Object |
| images | IEnumerable<HttpPostedFileBase> | ManagePaymentModel Object |
|  | ActionResult | Return action result |

###### ActionResult Index()

Display list reported post

**Parameters and Return**

|  |  |  |
| --- | --- | --- |
| Parameter | Type | Description |
|  | ActionResult | Return action result |

#### 16.2.2 ViewImageView class

Contain HTML markup and .NET code to render view image screen

#### 16.2.3 EditView class

Contain HTML markup and .NET code to render Edit post screen

#### 16.2.4 Index class

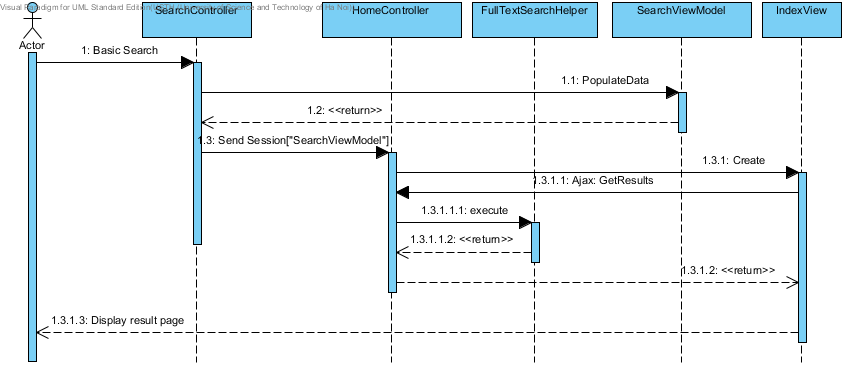
Contain HTML markup and .NET code to render List status screen

#### PostsModel class

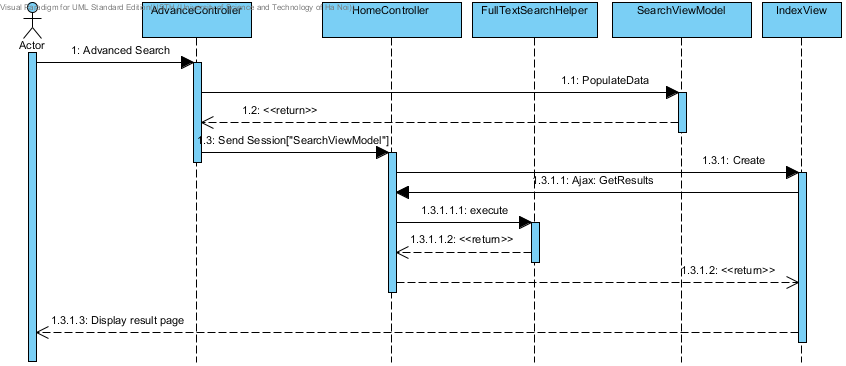
Model type of EditView

# Sequence Diagram

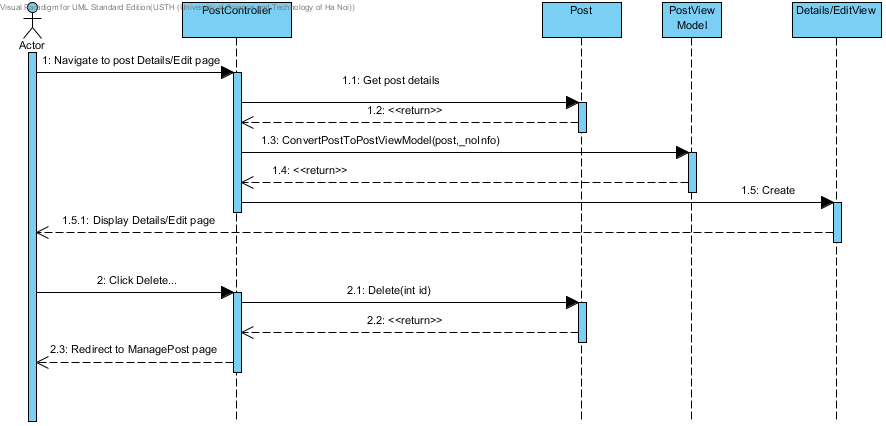
### Search



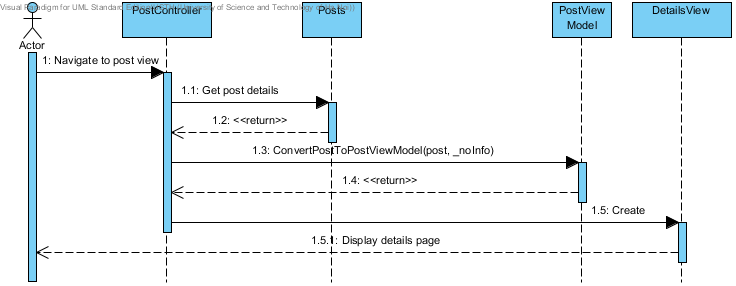
### Advanced Search



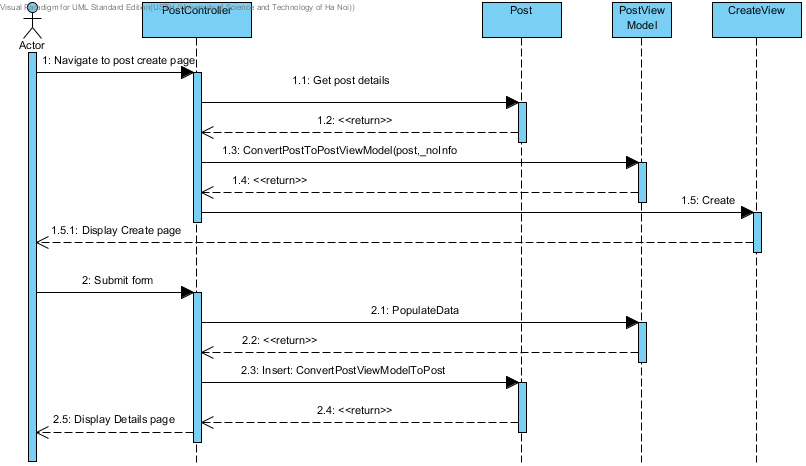
### Delete Post



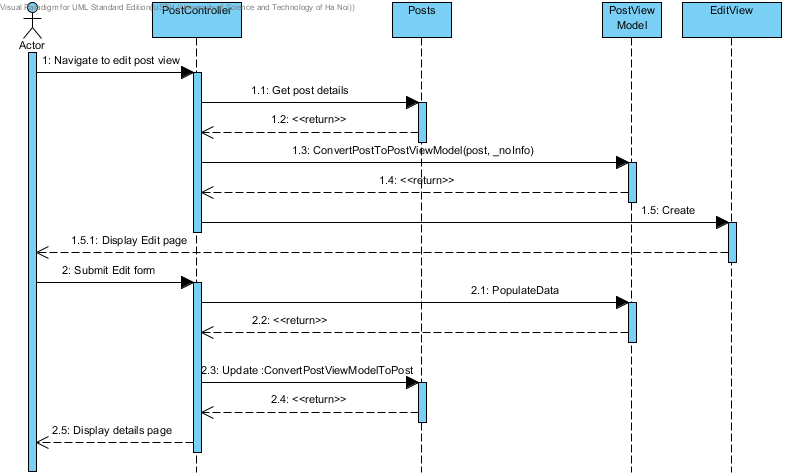
### View Post



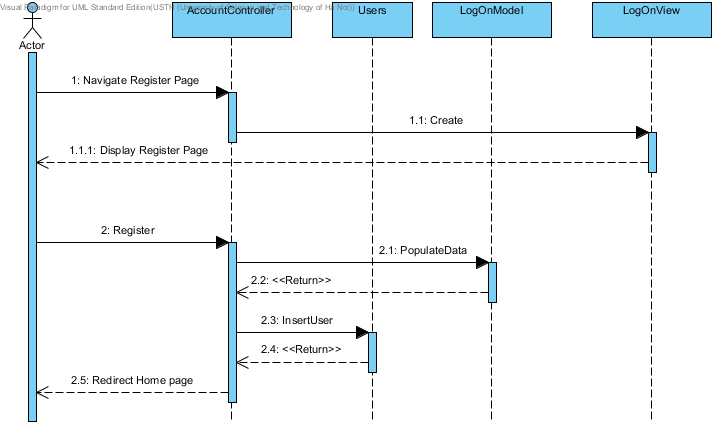
### Create Post



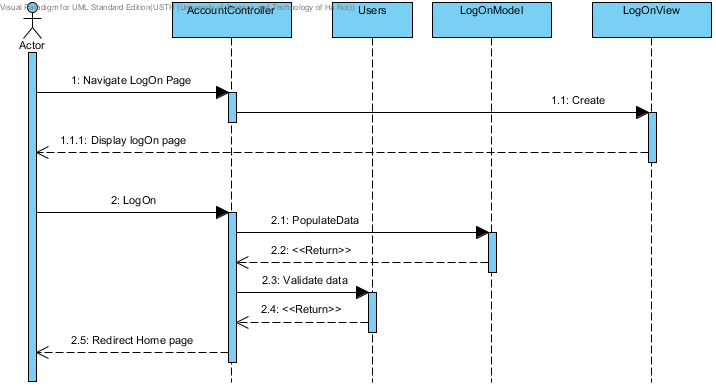
### Edit Post



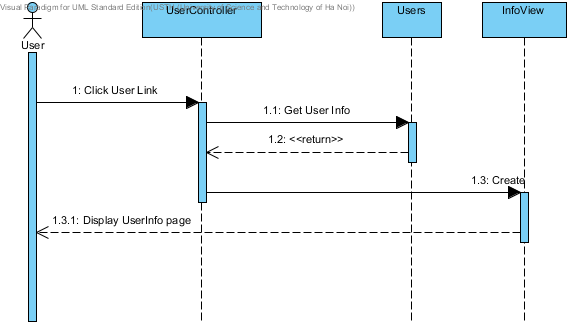
### Register



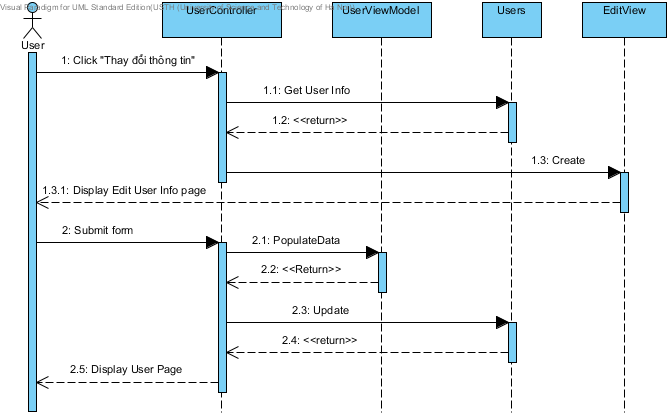
### Login



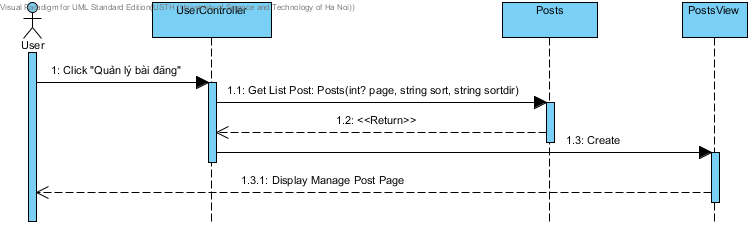
### View User Profile



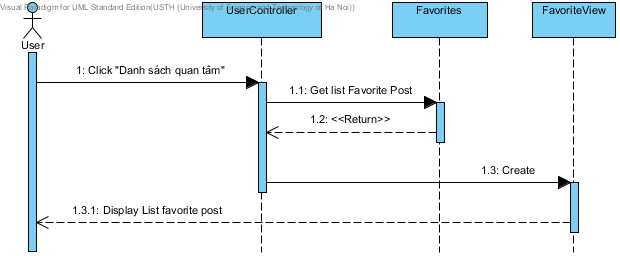
### Edit User Profile



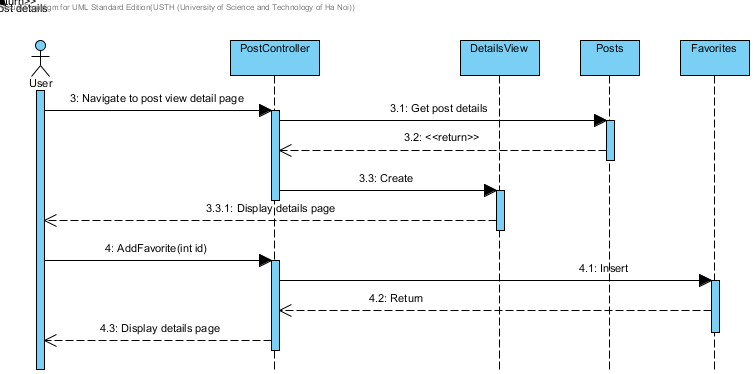
### Manage Post



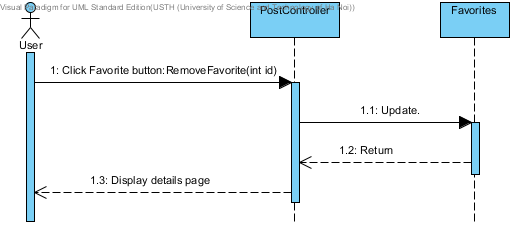
### Manage Favorites



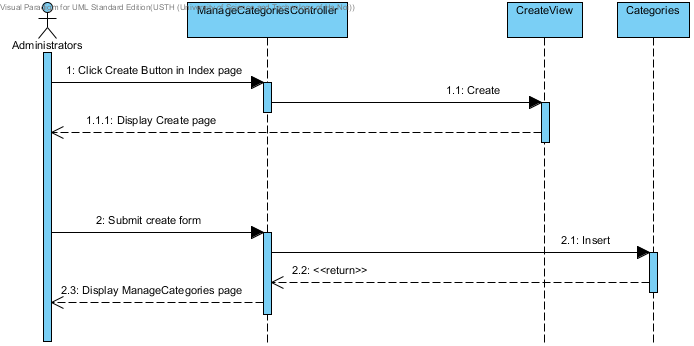
### Add Post to Favorite



### Remove Post from Favorite



### Add new Categories



# Database Design

## ERDs

Refer to attached ERD design

1. **Tables**

|  |  |
| --- | --- |
| Table Name | Description |
| AdvanceSearchScore | Store all score for advance search |
| Answer | Stores all answer |
| Badwords | Stores all badwords |
| BadWordTypes | Stores types of badwords |
| Categories | Store all categories |
| ConfigurationRHFs | Stores all configurations setting |
| Contacts | Stores all contacts information of post |
| Districts | Stores all districts |
| EmailTemplates | Stores all email templates |
| Facilities | Stores facilities information of post |
| FacilityTemplates | Store facilities template for advanced search algorithm |
| Favorites | Store all favorites |
| Locations | Stores locations for nearby place |
| Payments | Stores all payments information |
| PostImages | Store images of a post |
| PostLocations | Store relationship of post and location |
| Posts | Store information of post |
| PostStatus | Store status of post |
| Provinces | Store information of province |
| Questions | Store information of questions |
| ReportedPosts | Store information of reported post |
| Roles | Store roles of user |
| UserLogs | Store user log for messaging |
| Users | Store information of user |

## AdvanceSearchScore

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of AdvanceSearchScore |
| Name | nvarchar(MAX) |  |  |  |  | Name of Score |
| Score | int |  |  |  |  | Score of Title |

## Answer

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of Answer |
| Content | nvarchar(MAX) |  |  |  |  | Content of Answer |
| CreatedDate | datetime |  |  |  |  | Created date |
| IsDeleted | bit |  |  |  |  | Is deleted |
| QuestionId | int |  |  | FK |  | Id of questions  FK to Questions.Id |
| IsRead | bit |  |  |  | False | Is receiver read this answer |

## Badwords

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of badwords |
| Word | nvarchar(100) |  |  |  |  | Content of word |
| TypeId | int |  |  | FK |  | Id of badwordtype  FK to BadWordTypes.Id |

## BadWordTypes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of bad words type |
| Name | nvarchar(50) |  |  |  |  | Name of bad word types |

## Categories

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of category |
| Name | nvarchar(50) |  |  |  |  | Name of category |
| Description | nvarchar(MAX) | x |  |  |  | Description of category |
| IsDeleted | bit |  |  |  | False | Is it deleted |

## ConfigurationRHFs

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of configuration |
| Name | nvarchar(100) |  |  |  |  | Name of configuration |
| Value | nvarchar(100) |  |  |  |  | Value of configuration |

## Contacts

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Phone | nvarchar(20) |  |  |  |  | Phone to contact |
| Email | nvarchar(100) | x |  |  |  | Email to contact |
| Yahoo | nvarchar(50) | x |  |  |  | Yahoo to contact |
| Skype | nvarchar(50) | x |  |  |  | Skype to contact |
| PostIdContacts | int |  |  | PK |  | ID of Posts.Id |
| NameContact | nvarchar(50) |  |  |  |  | Name to contact |

## Districts

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of district |
| Name | nvarchar(MAX) |  |  |  |  | Name of district |
| Lat | float |  |  |  |  | Latitude of district |
| Lon | float |  |  |  |  | Longitude of district |
| ProvinceId | int |  |  | FK |  | Id of province  FK to Provinces.Id |
| IsDeleted | bit |  |  |  | False | Is it deleted |

## EmailTemplates

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of EmailTemplate |
| Name | nvarchar(MAX) |  |  |  |  | Name of template |
| Template | nvarchar(MAX) |  |  |  |  | Template of email |

## Facilities

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| HasInternet | bit |  |  |  |  | Has internet |
| ElectricityFee | float |  |  |  |  | Fee of electricity |
| WaterFee | float |  |  |  |  | Fee of water |
| HasTVCable | bit |  |  |  |  | Has TV cable |
| HasBed | bit |  |  |  |  | Has bed |
| HasWaterHeater | bit |  |  |  |  | Has water heater |
| IsAllowCooking | bit |  |  |  |  | Allow cooking or not |
| HasMotorParkingLot | bit |  |  |  |  | Has motor parking lot |
| HasToilet | bit |  |  |  |  | Has toilet |
| HasAirConditioner | bit |  |  |  |  | Has Airconditioner |
| HasGarage | bit |  |  |  |  | Has Garage |
| IsStayWithOwner | bit |  |  |  |  | Stay with owner or not |
| RestrictHours | nvarchar(50) | x |  |  |  | Restrict hours |
| HasSecurity | bit |  |  |  |  | Has security |
| PostIdFacilities | int |  |  | PK |  | Id of post |
| FacilityTemplateId | int |  |  | FK |  | Id of facility template  FK to FacilityTemplates.Id |

## FacilityTemplates

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of facility templates |
| HasAirConditioner | bit |  |  |  |  | For advance search algorithm |
| HasBed | bit |  |  |  |  | For advance search algorithm |
| HasGarage | bit |  |  |  |  | For advance search algorithm |
| HasInternet | bit |  |  |  |  | For advance search algorithm |
| HasMotorParking | bit |  |  |  |  | For advance search algorithm |
| HasSecurity | bit |  |  |  |  | For advance search algorithm |
| HasToilet | bit |  |  |  |  | For advance search algorithm |
| HasTVCable | bit |  |  |  |  | For advance search algorithm |
| HasWaterHeater | bit |  |  |  |  | For advance search algorithm |
| IsAllowCooking | bit |  |  |  |  | For advance search algorithm |
| IsStayWithOwner | bit |  |  |  |  | For advance search algorithm |

## Favorites

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of favorites |
| UserId | int |  |  | FK |  | User who own favorite  FK to Users.Id |
| PostId | int |  |  | FK |  | Post of favorites  FK to Posts.Id |
| AddedDate | datetime |  |  |  |  | Day created |
| IsDeleted | bit |  |  |  | False | Is it deleted |

## Locations

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of locations |
| Name | nvarchar(MAX) |  |  |  |  | Name of locations |
| DistrictId | int |  |  | FK |  | District id of location  FK to Districts.Id |
| IsCreatedByUser | bit |  |  |  |  | Is created by user |

## Payments

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of payments |
| PhoneNumber | nvarchar(20) |  |  |  |  | Phone number pay |
| CreatedDate | datetime |  |  |  |  | Created date |
| PostsId | int |  |  | FK |  | Post id to pay  FK to Posts.Id |

## Postimages

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of post image |
| PostId | int |  |  | FK |  | Post id of images  FK to Posts.Id |
| Path | nvarchar(MAX) |  |  |  |  | Path of images |
| IsDeleted | bit |  |  |  | False | Is it deleted |

## PostLocations

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of postlocation |
| PostId | int |  |  | FK |  | Id of Post  FK to Posts.Id |
| LocationId | int |  |  | FK |  | Id of Location  FK to Locations.Id |

## Posts

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of Post |
| Title | nvarchar(MAX) |  |  |  |  | Title of post |
| CategoryId | int |  |  | FK |  | Category id of post  FK to Categories.Id |
| StatusId | int |  |  | FK |  | Status id of post  FK to PostStatus.Id |
| IsDeleted | bit |  |  |  | False | Is it deleted |
| CreatedDate | datetime |  |  |  |  | Created date |
| EditedDate | datetime | x |  |  |  | Edited date |
| RenewDate | datetime | x |  |  |  | Renew data ( latest date when user renew the post ) |
| DistrictId | int |  |  | FK |  | District Id of post  FK to Districts.Id |
| NumberAddress | nvarchar(MAX) |  |  |  |  | Detail address |
| Price | float |  |  |  |  | Price |
| Area | float |  |  |  |  | Area |
| PhoneActive | nvarchar(20) |  |  |  |  | Phone number use to active |
| Description | nvarchar(MAX) | x |  |  |  | Description of post |
| Lat | float |  |  |  |  | Latitude of post |
| Lon | float |  |  |  |  | Longitude of post |
| UserId | int | x |  | FK |  | User id who create post  FK to Users.Id |
| Street | nvarchar(50) |  |  |  |  | Street name of post |
| NearbyPlace | nvarchar(MAX) | x |  |  |  | List of nearby place |
| ExpiredDate | datetime |  |  |  |  | Expired date |
| Code | nvarchar(MAX) |  |  |  |  | Code use for pay or edit post |

## PostStatus

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of post status |
| Name | nvarchar(MAX) | x |  |  |  | Name of post status |
| Description | nvarchar(MAX) | x |  |  |  | Description of post status |
| IsDeleted | bit |  |  |  | False | Is deleted |

## Provinces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of province |
| Name | nvarchar(MAX) |  |  |  |  | Name of province |
| Lat | float |  |  |  |  | Latitude of province |
| Lon | float |  |  |  |  | Longitude of province |
| IsDeleted | bit |  |  |  | False | Is deleted |

## Questions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of question |
| Content | nvarchar(MAX) |  |  |  |  | Content of question |
| SenderId | int | x |  | FK |  | Id of sender  FK to User.Id |
| CreatedDate | datetime |  |  |  |  | Created date |
| IsRead | bit |  |  |  |  | Is receiver read |
| IsDeleted | bit |  |  |  |  | Is deleted |
| PostId | int |  |  | FK |  | Post id of questions  FK to Posts.Id |
| Title | nvarchar(MAX) |  |  |  |  | Title of question |
| SenderEmail | nvarchar(50) |  |  |  |  | Email of sender ( in case not a user) |

## ReportedPosts

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of reported posts |
| PostId | int |  |  | FK |  | Post id of report  FK to Posts.Id |
| ReportedBy | int |  |  | FK |  | Reported by which user  FK to Users.Id |
| ReportedDate | datetime |  |  |  |  | Date when report submitted |
| Reason | nvarchar(MAX) |  |  |  |  | Reason to report |
| IsIgnored | bit |  |  |  | False | Admin approved or not |

## Roles

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of role |
| Name | nvarchar(20) |  |  |  |  | Name of role |
| Description | nvarchar(MAX) | x |  |  |  | Description of role |
| IsDeleted | bit |  |  |  |  | Is it deleted |

## UserLogs

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of userlogs |
| Message | nvarchar(MAX) |  |  |  |  | Content of message user log |
| UserId | int |  |  | FK |  | User id  FK to Users.Id |
| IsRead | bit |  |  |  |  | Is read by user |
| CreatedDate | datetime |  |  |  |  | Created date |

## Users

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Type | Null | Unique | P/F Key | Default | Description |
| Id | int |  |  | PK |  | Id of User |
| Username | nvarchar(50) |  |  |  |  | Username |
| Password | nvarchar(MAX) | x |  |  |  | Password |
| Email | nvarchar(50) | x |  |  |  | Email of user |
| PhoneNumber | nvarchar(15) | x |  |  |  | Phone number |
| Name | nvarchar(MAX) | x |  |  |  | Real name |
| CreatedDate | datetime |  |  |  |  | Created date |
| LastUpdate | datetime |  |  |  |  | Last update |
| IsDeleted | bit |  |  |  | False | Is deleted |
| OpenIdURL | nvarchar(MAX) | x |  |  |  | Open id URL |
| RoleId | int |  |  | FK |  | Role of user  FK to Roles.Id |

# References

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<http://msdn.microsoft.com/en-us/library/dd409416.aspx>

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