**MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

Capstone Project Document

Smart Buy

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| **Group 13** | |
| **Group members** | Pham Hong Sang – Team Leader – SE60601  Huynh Thanh Viet – Team Member - SE60666  Tran Tan Len – Team Member - SE60623  Ha Chi Danh – Team Member - 60431 |
| **Supervisor** | Mr. Kieu Trong Khanh |
| **Ext. Supervisor** | N/A |
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-Ho Chi Minh City, 06/2014-

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# Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| CPS | Computer Product Suggestion |

# Report No.4 Software Design Description

## Design Overview

* This document describes the technical and user interface design CPS System using web. It includes the architectural design, the detailed design of common functions and business functions and the design of database model.
* The architectural design describes the overall architecture of the system and the architecture of each main component and subsystem.
* The detailed design describes static and dynamic structure for each component and functions. It includes class diagrams, class explanations and sequence diagrams for each use cases.
* The database design describes the relationships between entities and details of each entity.
* Document overview:
* Section 2: gives an overall description of the system architecture design.
* Section 3: gives component diagrams that describe the connection and integration of the system.
* Section 4: gives the detail design description which includes class diagram, class explanation, and sequence diagram to details the application functions.
* Section 5: describe an ERD with logical diagram.

## System Architectural Design

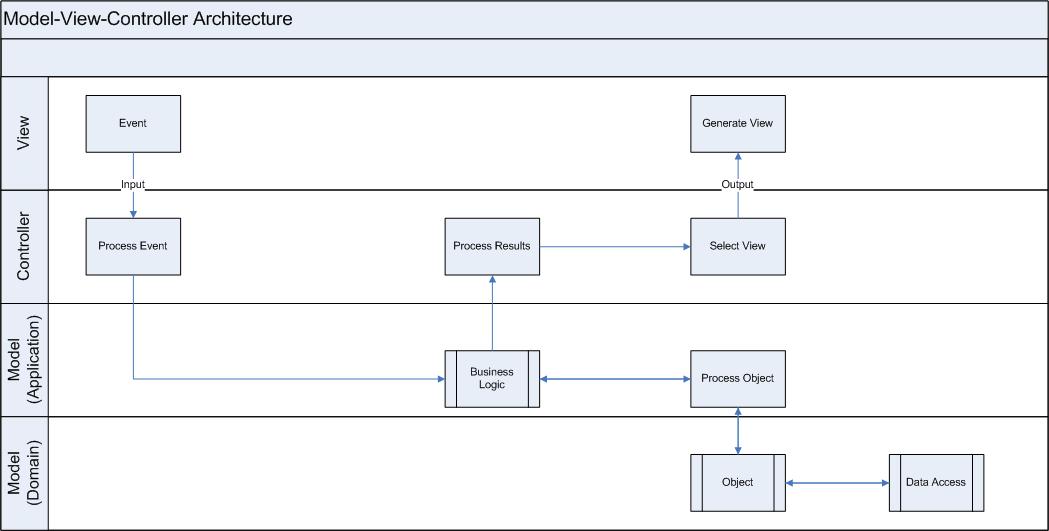


Figure 1: MVC Architecture

**(http://www.w3schools.com/aspnet/mvc\_intro.asp)**

**The Model** is the part of the application that handles the logic for the application data.  
Often model objects retrieve data (and store data) from a database.

**The View** is the parts of the application that handles the display of the data.  
Most often the views are created from the model data.

**The Controller** is the part of the application that handles user interaction.  
Typically controllers read data from a view, control user input, and send input data to the model.

## Component Diagram

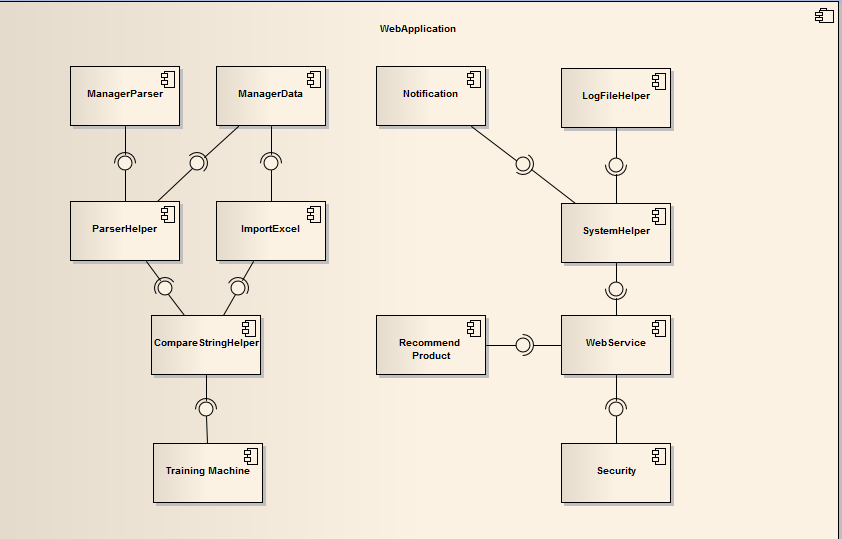


Figure 2: Component Diagram

## Detailed Description of Components

### Class Diagram

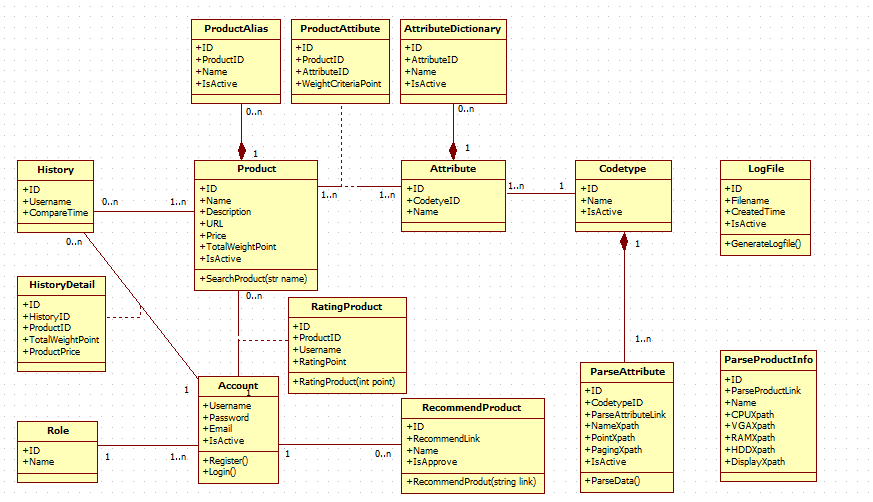


Figure 3: Class Diagram

### Class Diagram Explanation

#### Codetype

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each code type |
| Name | String | Public | Name of code type |
| IsActive | Boolean | Public | Status of code type |

#### ParseAttribute

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each item |
| CodetypeID | String | Public | Id of codetype |
| ParseAttributeLink | String | Public | Link used to parse |
| NameXpath | String | Public | Xpath to get the name of attribute |
| PointXpath | String | Public | Xpath to get the point of attribute |
| PagingXpath | String | Public | Xpath to get the paging |
| IsActive | Boolean | Public | Status of attribute |

Method

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Return type** | **Visibility** | **Description** |
| ParseData | Void | Public | Run parser to get data |

#### Attribute

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each item |
| CodetypeId | Integer | Public | Id of codetype |
| Name | String | Public | Name of attribute |

#### AttributeDictionary

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each product |
| AttributeID | Integer | Public | Id of attribute |
| Name | String | Public | Name of attribute |
| IsActive | Boolean | Public | Status of AttributeDictionnary |

#### Product

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each item |
| Name | String | Public | Name of product |
| Description | String | Public | Description of this product |
| URL | String | Public | URL of this product |
| Price | Double | Public | Price of product |
| TotalWeightPoint | Double | Public | Point of this product |
| IsActive | Boolean | Public | Status of product |

Method

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Return type** | **Visibility** | **Description** |
| Search Product | Product | Public | Search product in system |

#### Product Attribute

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each item |
| ProductID | Int | Public | Id of product |
| AttributeID | Int | Public | Id of attribute |
| WeightCriteriaPoint | Double | Public | Point of product |

#### ProductAlias

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| ID | Int | Public | Unique identifier of each item |
| ProductID | Int | Public | Id of product |
| Name | String | Public | Product name |
| IsActive | Boolean | Public | Status of this productalias |

Method

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Return type** | **Visibility** | **Description** |
| Register | Void | Public | For new user to register |
| Login | Boolean | Public | Used to log in the system |

#### History

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each history |
| Username | String | Public | Owner of this history |
| CompareTime | DateTime | Public | The time when owner compare product |

#### History Detail

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each item |
| HistoryId | Integer | Public | Id of history |
| ProductId | Integer | Public | Id of product |
| WeightCriteriaPoint | Integer | Public | Point of product |
| Price | Double | Public | Price of product |

#### Role

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each role |
| Name | String | Public | Role name |

#### Log File

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique identifier of each file |
| FileName | String | Public | File name |
| CreatedTime | DateTime | Public | The time when this file is created |
| IsActive | Boolean | Public | Status of this file |

Method

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Return type** | **Visibility** | **Description** |
| GenerateLogFile | Boolean | Public | Generate log file for each time system runs the parser |

#### Rating Product

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique id of each item |
| Username | String | Public | The name of the user |
| ProductId | Integer | Public | The identifier of that product |
| Point | Integer | Public | Rating point of each product |

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Return type** | **Visibility** | **Description** |
| RatingProduct | Void | Public | rating price for the system |

#### Recommend Product

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique id of each item |
| Username | String | Public | The name of the user |
| RecommendLink | String | Public | Link that user recommend |
| RecommendTime | Datetime | Public | Time that user recommend |
| IsApprove | Boolean | Public | Status of recommend product |

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Return type** | **Visibility** | **Description** |
| RecommendProduct | Void | Public | Recommend product for system |

#### Parse Product Info

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Id | Integer | Public | Unique id of each item |
| ParseProductLink | String | Public | Link to get parser |
| Name | String | Public | Name of this parser product info |
| CPUXpath | String | Public | Xpath to get the CPU |
| HDDXpath | String | Public | Xpath to get the HDD |
| VGAXpath | String | Public | Xpath to get the VGA |
| RAMXpath | String | Public | Xpath to get the RAM |
| DisplayXpath | String | Public | Xpath to get the Display |
| IsActive | String | Public | Status of parser |

#### Account

Attribute

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| Username | String | Public | Unique username of each user |
| Password | String | Public | Password of user |
| Email | String | Public | Email of User |
| IsActive | String | Public | Status of account |

Method

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Return type** | **Visibility** | **Description** |
| Register | Boolean | Public | Register a new account in system |
| Login | Boolean | Public | Check if is existed account in system |

### Sequence Diagram

#### Parse Data

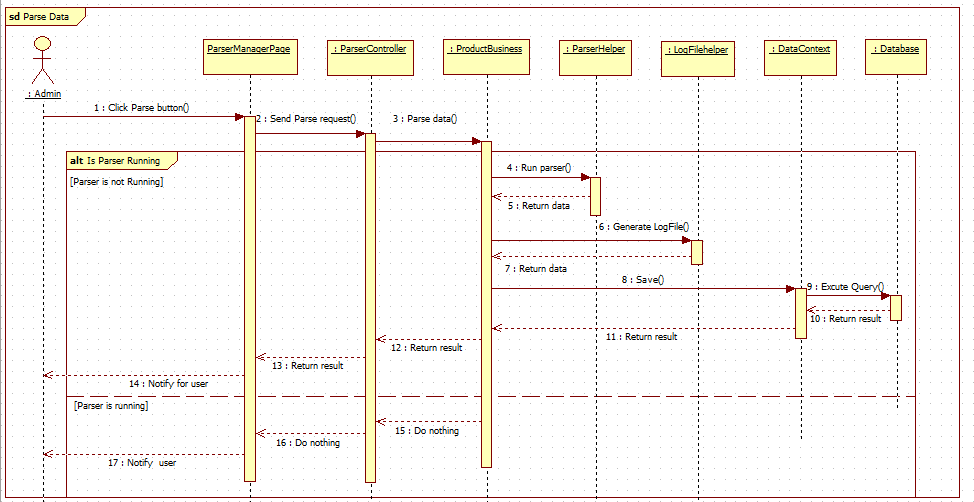


Figure 4: Parse Data Sequence Diagram

#### Import Excel

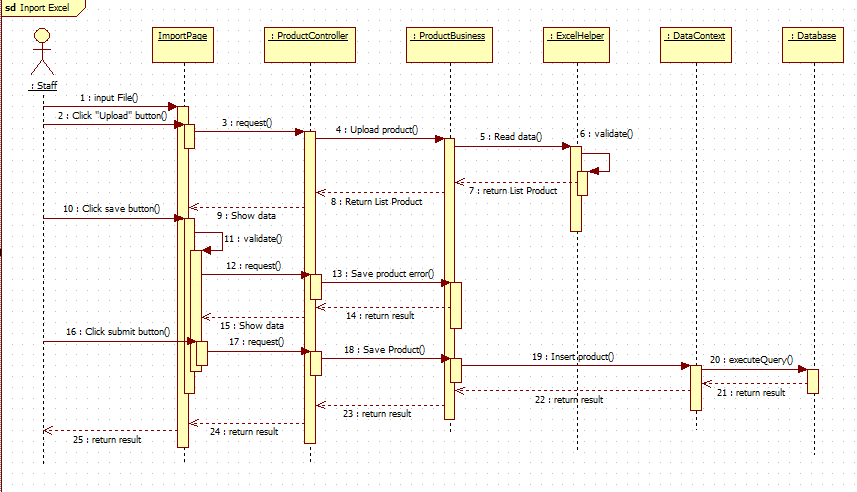


Figure 5: Import Excel Sequence Diagram

#### Recommend Product

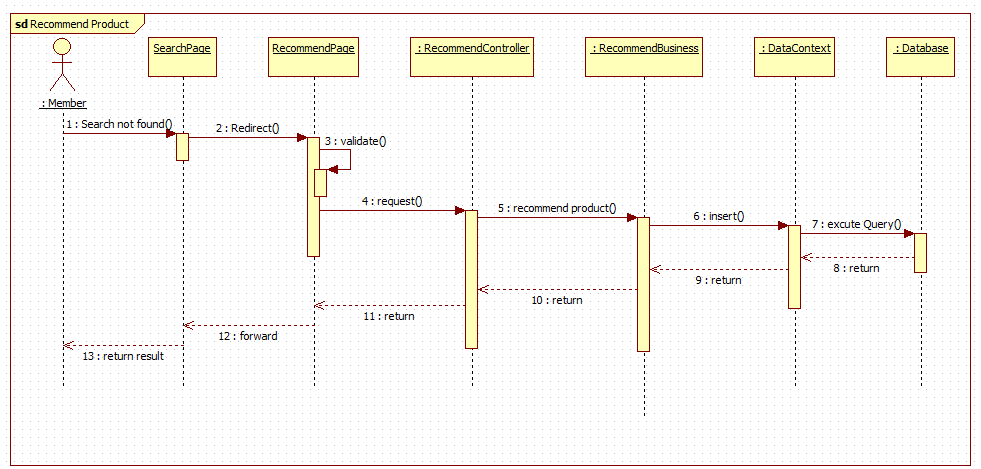


Figure 6: Propose Price Sequence Diagram

#### Save Product History

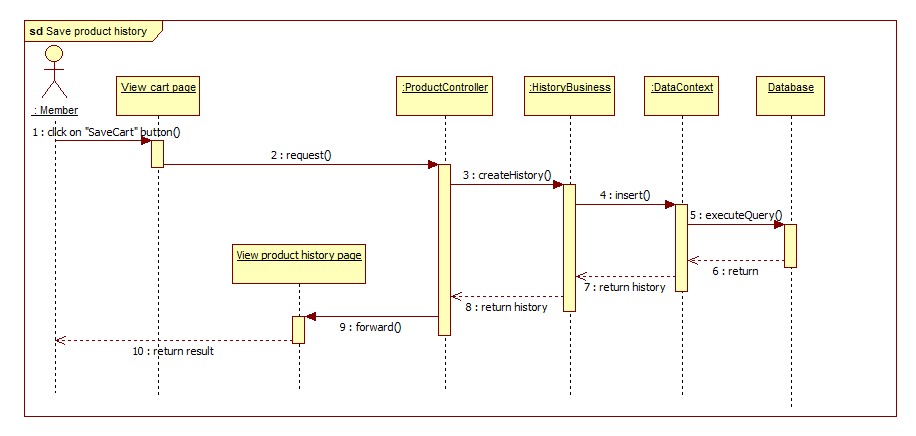


Figure 7: Save Product History Sequence Diagram

#### View Product History

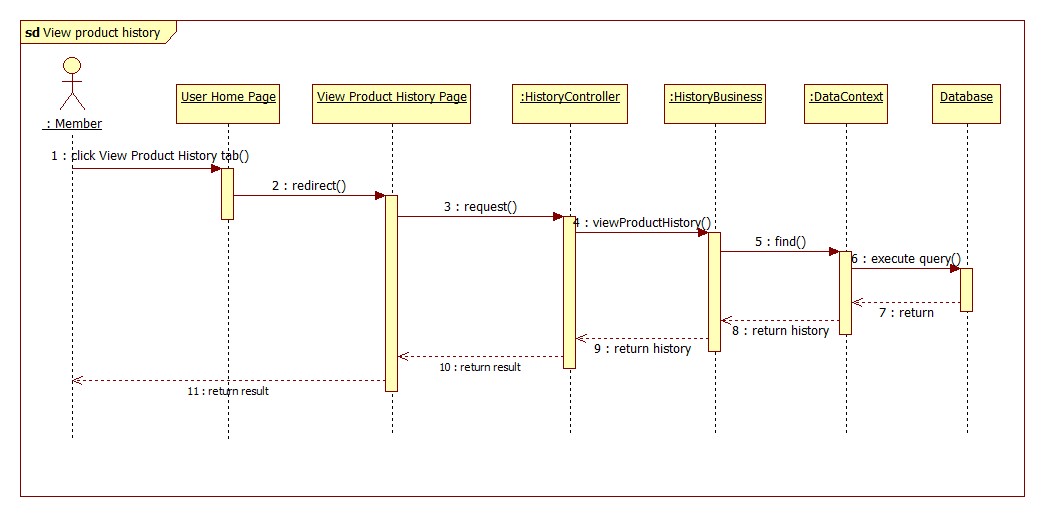


Figure 8: View Product History Sequence Diagram

#### View History Detail

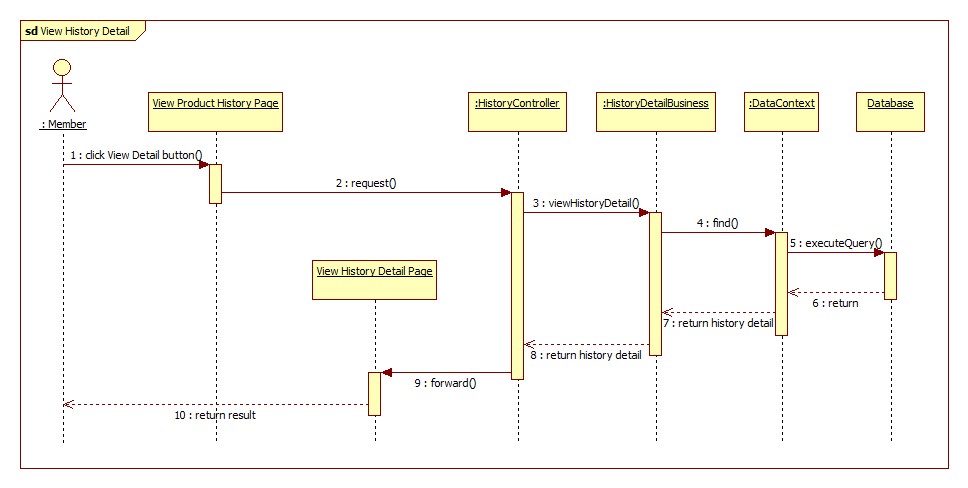


Figure 9: View History Detail Sequence Diagram

#### Configure System

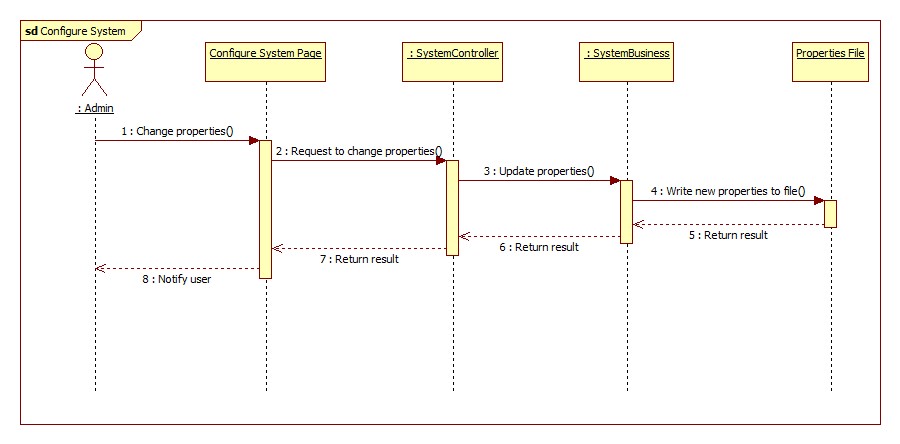


Figure 10: Configure System Sequence Diagram

## Database Design

### Logical Diagram

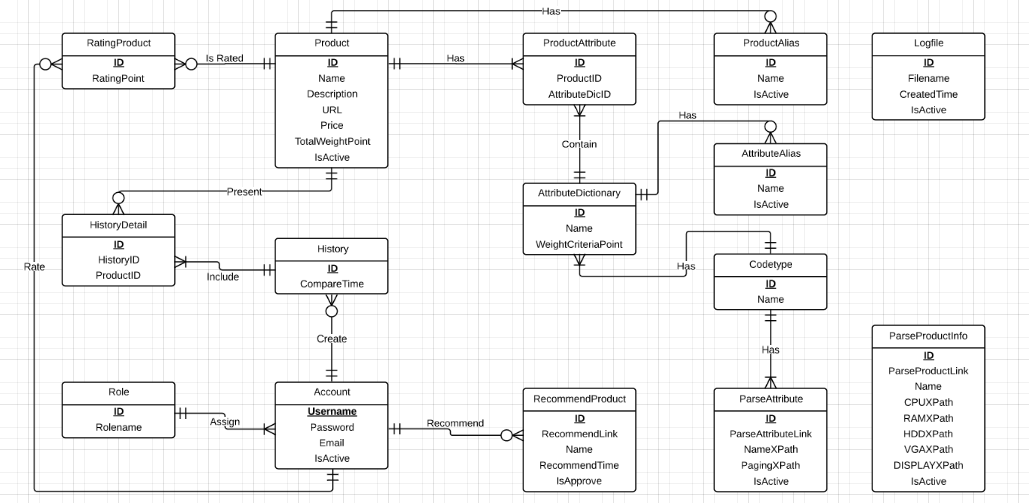


Figure 11: Logical Diagram

### Data Dictionary

|  |  |
| --- | --- |
| **Entity Data dictionary: describe content of all entities** | |
| **Entity Name** | **Description** |
| Codetype | Describe all codetype in the system. |
| ParseProductInfo | Describe all data needed to parse 1 specified product |
| Attribute | Describe all attributes of a product. |
| Product | Describe all products in the system. |
| ProductAttribute | Describe relationship between Attribute and Product. |
| ProductAlias | Describe all alias name of product in the system. |
| AttributeDictionary | Describe all possible Attribute names in the system. |
| Account | Describe all accounts in the system. Account includes: admin, staff, member, guest… |
| RecommendProduct | Describe the product that user recommend for system. |
| History | Describe all compare histories of user in the system. |
| HistoryDetail | Describe details of any history in the system. |
| Role | Describe all roles in the system. One user has only one role. |
| LogFile | Describe all log files of the system. |
| ParserAttribute | Describe all data needed to parse 1 websites to get attribute |
| RatingProduct | Describe relationship between Attribute and Product. |

Table 1: Entity Data Dictionary

Table 2: Attribute Data Dictionary

## Algorithms