

I-SHOPPING ONLINE SYSTEM

Database Design Document

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SIGNATURE PAGE

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# Introduction

The first section of this document provides an introduction, general overview of “I-Online system”.

## 1.1 Purpose

This document will show feature descriptions about system: overall description, functional requirements, and non-functional requirements.

## 1.2 Scope

This document describes requirements of ISHOPPINGONLINE (e-commerce website) system based on prototype. This system is used to receive orders from customers. Details of the system requirements will be documented in this document.

## 1.3 Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| Acronyms and Abbreviations | Definitions |
| ISO | I SHOPPING ONLINE |

## 1.4 References

|  |  |
| --- | --- |
| DOCUMENTS | AUTHORS |
| AD Slides | Mr. Tai |
| Fsoft-SRS Template |  |
|  |  |

## 1.5 Overview

The structure of this document:

-INTRODUCTION

-DATABASE DESIGN

- USE CASE DIAGRAM

-ENTITY RELATIONSHIP MODEL

-SEQUENCE DIAGRAM

-CLASS DIAGRAM

-ACTIVITY DIAGRAM

## 1.6 System overview:

ISO is a the system allows people can read new information about high-technology, find the information and buy the mobile phone on the internet with the following functions:

+ Phone information management: Each phone has the information and will be manage with the name, price, category, quantity, overview, producer … and summary contain of film.

+ News management: Information about the new high-technology or new product includes date, overview, estimate and view of user…. is managed.

+ Product order management: Customer can view information of product and order it.

+ User management: User when login into the system, using the order online function and search function if you can find faster and correctly.

## 1.7 Product prescription:

The software describe in this document consist of application manage, staff, patron for manage ISO.

## 1.8 Product functions:

Nowadays, people just stay at home and do everything through the internet and ISO allow customer can view the information and order product online easier and more convenient with functions:

Login

View news information

View product information

View comment

Order product online

Pay by credit or debit card

## 1.9 User characteristics:

The system users here are the customer and staff who manage the product ordered are assumed have the following characteristics:

+ No special knowledge or skills shall be assumed on the part of the users.

+ Users shall not be expected to learn a set of commands in order to start using the application.

+ Users shall not be expected to remember a list of commands while using the software – these shall be provided via menus, tool palettes, or help screens.

+ Users shall be protected from data loss, such as closing a logging out without saving changed information first.

## 1.10 Assumptions and dependencies:

No other special assumptions or dependencies have been identified.

# Database Design

## 2.1 Use Case Diagram

This Use Case Model defines all behaviors of the system form user’s perspective.

## 2.1.1 The Actors

An Actor is someone outside that communicates directly with the database.

This table will show main functions of actors.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Main Functions | Admin | Customers |
| 1 | Log in | 🗸 | 🗸 |
| 2 | Manage Users | 🗸 |  |
| 3 | Manage Products | 🗸 |  |
| 4 | Manage Inventory | 🗸 |  |
| 5 | Manage Orders | 🗸 |  |
| 6 | Manage News | 🗸 |  |
| 7 | View Product Detail | 🗸 | 🗸 |
| 8 | Comment Products | 🗸 | 🗸 |
| 9 | View News Detail | 🗸 | 🗸 |
| 10 | Order Product |  | 🗸 |

## 2.1.2 List Use Case Model

|  |  |  |
| --- | --- | --- |
| System Functions | Main Use Cases | Use Case # |
| Log in | | |
|  | Log in Use Case | UC\_1.1 |
| Manage Users | | |
|  | Add new Role Use Case | UC\_2.1 |
|  | Update an Role Use Case | UC\_2.2 |
|  | Remove an Role Use Case | UC\_2.3 |
|  | Add new User Use Case | UC\_2.4 |
|  | Update an User Use Case | UC\_2.5 |
|  | Remove an User Use Case | UC\_2.6 |
| Manage Products | | |
|  | Add new Product Line Use Case | UC\_3.1 |
|  | Update a Product Line Use Case | UC\_3.2 |
|  | Remove a Product Line Use Case | UC\_3.3 |
|  | Add new Product Use Case | UC\_3.4 |
|  | Update a Product Use Case | UC\_3.5 |
|  | Remove a Product Use Case | UC\_3.6 |
| Manage Inventory | | |
|  | Add new Inventory Use Case | UC\_4.1 |
|  | Update an Inventory Use Case | UC\_4.2 |
|  | Remove an Inventory Use Case | UC\_4.3 |
|  | Manage Orders |  |
|  | View monthly Reports Use Case | UC\_5.1 |
| Manage News | | |
|  | Add new News Use Case | UC\_6.1 |
|  | Update a News Use Case | UC\_6.2 |
|  | Remove a News Use Case | UC\_6.3 |
| View Product Detail | | |
|  | View Product Detail Use Case | UC\_7.1 |
|  | Comment Products |  |
|  | Add new Comment Use Case | UC\_8.1 |
|  | Update a Comment Use Case | UC\_8.2 |
|  | Remove a Comment Use Case | UC\_8.3 |
|  | View News Detail |  |
|  | View News Detail Use Case | UC\_9.1 |
|  | Order Product |  |
|  | Add new Product to Cart Use Case | UC\_10.1 |
|  | Remove a product to Cart Use Case | UC\_10.2 |

## 2.1.3 User case overview



## 2.1.4 System Use Cases

2.1.4.1 Log in



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_1.1 | |
| Name | Log in Use Case | |
| Goal | Want to know who are using this system to grant them a permission to do corresponding actions. | |
| Actors | Admin, customers | |
| Pre-conditions | User must have Username and Password registered by Admin | |
| Post-conditions |  | |
| Main Flow | 1. Enter the homepage of the system.  3. Enter Username and Password. Press Enter or click on “Login” button. | 2. Display log in form with two input field.  4. Validate input information.  5. Redirect to the corresponding page with user role. |
| Exception | 4: if Username and Password are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

2.1.4.2 Manage Users

* Add new role



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_2.1 | |
| Name | Add new role Use Case | |
| Goal | Want to create a role | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | New role must be added. | |
| Main Flow | 1. Click “Add Role” button.  3. Enter new role details:  RoleID, RoleName, Description.  Then click “Add Role” button. | 2. Display addrole.jsp and request to  enter details of the role.  4. Validate new conference’s details.  5. Go back to page show all role. |
| Exception | 3: if new role details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Update a role



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_2.2 | |
| Name | Update a role Use Case | |
| Goal | Want to update a role | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | Role’s details must be updated. | |
| Main Flow | 1. Click AdminCP -> Roles on menu bar.  3. Click “UpdateRole” button beside role want to update.  5. Edit role’s details: RoleID, RoleName, Description. Then click “Update” button. | 2. Display manage role page  4. Show details of selected role.  6. Validate edited role’s details. |
| Exception | 6: if role’s details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Remove a role



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_2.3 | |
| Name | Remove a role Use Case | |
| Goal | Want to remove a role | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | The removed role must be deleted | |
| Main Flow | 1. Click AdminCP -> Roles on menu bar.  3. Click “DeleteRole” button next to the role that will be removed. | 2. Display manage role page  4. Delete the removed role. Remove that role in role list. |
| Exception |  | |
| Open Issues | N/A | |

* Add new user



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_2.4 | |
| Name | Add new user Use Case | |
| Goal | Want to create a user | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | New user must be added. | |
| Main Flow | 1. Click “Add User” button.  3. Enter new book details: Username, Password, FullName, Email.... Then click “Add User” button. | 2. Display adduser.jsp and request to enter details of the user.  4. Validate new conference’s details.  5. Go back to page show all users. |
| Exception | 3A: if new user details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Update an user



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_2.5 | |
| Name | Update an user Use Case | |
| Goal | Want to update a user | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | User’s details must be updated. | |
| Main Flow | 1. Click AdminCP -> Users on menu bar.  3. Click “UpdateUser” button beside user admin want to update.  5. Edit user’s details: Password, FullName, Email... Then click “Update” button. | 2. Display manage user page  4. Show details of selected user.  6. Validate edited user’s details. |
| Exception | 6: if user’s details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Remove an user



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_2.6 | |
| Name | Remove an user Use Case | |
| Goal | Want to remove a user | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | The removed user must be deleted | |
| Main Flow | 1. Click AdminCP -> Users on menu bar.  3. Click “DeleteUser” button next to the user who will be removed. | 2. Display manage user page  4. Delete the removed user. Remove that user in user list. |
| Exception |  | |
| Open Issues | N/A | |

2.1.4.3 Manage Products

* Add new product line



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_3.1 | |
| Name | Add new product line Use Case | |
| Goal | Want to create a product line | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | New product line must be added. | |
| Main Flow | 1. Click “Add Product Line” button.  3. Enter new product line details: ProductLineID, ProductLineName. Then click “Add ProductLine” button. | 2. Display addproductline.jsp and request to enter details of the movie.  4. Validate new product line’s details.  5. Go back to page show all product line. |
| Exception | 3: if new product line details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Update a product line



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_3.2 | |
| Name | Update a product line Use Case | |
| Goal | Want to update a product line | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | Product line’s details must be updated. | |
| Main Flow | 1. Click “Update Product Line” button next to the product line which will be updated.  3. Edit product line details: ProductLineName. Then click “Update” button. | 2. Display updateProductLine.jsp and  request to enter new details of the movie.  4. Validate edited product line’s details.  5. Go back to page show all product line. |
| Exception | 3: if product line details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Remove product line



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_3.3 | |
| Name | Remove a product line Use Case | |
| Goal | Want to remove a product line | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | The removed product line must be deleted | |
| Main Flow | 1. Click “Delete Product Line” button next to the product line that will be removed. | 2. Delete the removed product line. Remove that product line in product line list. |
| Exception |  | |
| Open Issues | N/A | |

* Add new product



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_3.4 | |
| Name | Add new product Use Case | |
| Goal | Want to create a product | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | New product must be added. | |
| Main Flow | 1. Click “Add Product” button.  3. Enter new product details: ProductID, ProductName, Price, Image... Then click “Add Product” button. | 2. Display addproduct.jsp and request to enter details of the product.  4. Validate new product’s details.  5. Go back to page show all products. |
| Exception | 3: if new product details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Update a product



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_3.5 | |
| Name | Update a product Use Case | |
| Goal | Want to update a product | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | Product’s details must be updated. | |
| Main Flow | 1. Click “Update Product” button next to the product which will be updated.  3. Edit product details: ProductLineID, ProductName, Price, Image…Then click “Update” button. | 2. Display updateproduct.jsp and request to enter new details of the product.  4. Validate edited product’s details.  5. Go back to page show all products. |
| Exception | 3: if product details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Remove a product



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_3.6 | |
| Name | Remove a product Use Case | |
| Goal | Want to remove a product | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | The removed product must be deleted | |
| Main Flow | 1. Click “Delete Product” button next to the product that will be removed. | 2. Delete the removed product. Remove that product in product list. |
| Exception |  | |
| Open Issues | N/A | |

2.1.4.4 Manage Inventory

* Add new Inventory



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_4.1 | |
| Name | Add new inventory Use Case | |
| Goal | Want to add an inventory | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | New inventory must be added. | |
| Main Flow | 1. Click “Add Inventory” button.  3. Enter new inventory details: InventoryName, Address. Then click “Add Inventory” button. | 2. Display addInventory.jsp and request to enter details of the inventory.  4. Validate new inventory’s details.  5. Go back to page show all inventory. |
| Exception | 3: if new inventory details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Update an inventory



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_4.2 | |
| Name | Update an Inventory Use Case | |
| Goal | Want to update an inventory | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | Inventory’s details must be updated. | |
| Main Flow | 1. Click “Update Inventory” button next to the inventory which will be updated.  3. Edit inventory details: InventoryName, Address. Then click “Update” button. | 2. Display updateInventory.jsp and request to enter new details of the inventory.  4. Validate edited inventory details.  5. Go back to page show all inventory. |
| Exception | 3: if inventory details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Remove an inventory



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_4.3 | |
| Name | Remove an Inventory Use Case | |
| Goal | Want to remove an inventory | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | The removed inventory must be deleted. | |
| Main Flow | 1. Click “Delete Inventory” button next to the inventory that will be removed. | 2. Delete the removed inventory. Remove that inventory in inventory list. |
| Exception |  | |
| Open Issues | N/A | |

2.1.4.5 Manage Orders



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_5.1 | |
| Name | View monthly reports Use Case | |
| Goal | Want to view monthly reports | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | Monthly reports must be created. | |
| Main Flow | 1. Click “View Report” button.  3. Select month and year. Then click “View Report” button. | 2. Display viewreport.jsp and request to select the month and year.  4. Validate new conference’s details.  5. Go back to page show all reports. |
| Exception | 3: if month and year are not correct, show error message and ask to select again. | |
| Open Issues | N/A | |

2.1.4.6 Manage News

* Add new News



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_6.1 | |
| Name | Add new news Use Case | |
| Goal | Want to create a news | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | New News must be added. | |
| Main Flow | 1. Click “Add News” button.  3. Enter new news details: Image, Content… Then click “Add News” button. | 2. Display addnews.jsp and request to enter details of the news.  4. Validate new conference’s details.  5. Go back to page show all news. |
| Exception | 3: if new news details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Update News



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_6.2 | |
| Name | Update news Use Case | |
| Goal | Want to update news | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | News’s details must be updated. | |
| Main Flow | 1. Click “Update News” button next to the news which will be updated.  3. Edit news’s details: Image, Content. Then click “Update” button. | 2. Display updatenews.jsp and request to enter new details of the news.  4. Validate edited news’s details.  5. Go back to page show all news. |
| Exception | 3: if news details are not correct, show error message and ask to input again. | |
| Open Issues | N/A | |

* Remove News



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_6.3 | |
| Name | Remove news Use Case | |
| Goal | Want to remove news. | |
| Actors | Admin | |
| Pre-conditions | User must log in with role “Admin” | |
| Post-conditions | The removed news must be deleted | |
| Main Flow | 1. Click “Delete News” button next to the news that will be removed. | 2. Delete the removed news. Remove that news in news list. |
| Exception |  | |
| Open Issues | N/A | |

2.1.4.7 View Product Detail



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_7.1 | |
| Name | View product detail Use Case | |
| Goal | Want to see the detail of product | |
| Actors | Admin, Customer | |
| Pre-conditions | Go to the website | |
| Post-conditions |  | |
| Main Flow | 1. Click “Detail” button to see detail of product. | 2. All information of product will display. |
| Exception |  | |
| Open Issues | N/A | |

2.1.4.8 Comment products

* Add new comment



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_8.1 | |
| Name | Add new comment Use Case | |
| Goal | Want to create a comment | |
| Actors | Admin, Customer | |
| Pre-conditions | User must login into system. | |
| Post-conditions | New comment must be added. | |
| Main Flow | 1. Enter content of comment.  2. Click “Comment” button. | 3. Go back to page show all comments of product. |
| Exception |  | |
| Open Issues | N/A | |

* Update comment



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_8.2 | |
| Name | Update a comment Use Case | |
| Goal | Want to update a comment. | |
| Actors | Admin, Customer | |
| Pre-conditions | User must login into system. | |
| Post-conditions | Content of comment must be updated. | |
| Main Flow | 1. Enter content of comment.  2. Click “Comment” button. | 3. Go back to page show all comments of product. |
| Exception |  | |
| Open Issues | N/A | |

* Remove a comment



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_8.3 | |
| Name | Remove a comment Use Case | |
| Goal | Want to remove a comment. | |
| Actors | Admin, Customer | |
| Pre-conditions | User must login into system. | |
| Post-conditions | The removed comment must be deleted | |
| Main Flow | 1. Click “Delete” button next to the comment that will be removed. | 2. Delete the removed comment. Remove that comment in comment list. |
| Exception |  | |
| Open Issues | N/A | |

2.1.4.9 View News Detail



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_9.1 | |
| Name | View news detail Use Case | |
| Goal | Want to see the detail of news | |
| Actors | Admin, Customer | |
| Pre-conditions | Go to the website | |
| Post-conditions |  | |
| Main Flow | 1. Click “Detail” button to see detail of news. | 2. All information of news will display. |
| Exception |  | |
| Open Issues | N/A | |

2.1.4.10 Order Product

* Add new product to cart



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_10.1 | |
| Name | Add new Product to Cart Use Case | |
| Goal | Want to add new product to cart. | |
| Actors | Customer | |
| Pre-conditions | User must log in with role “Customer” | |
| Post-conditions | Product must be added to cart. | |
| Main Flow | 1. Click “Add to Cart” button next to the product that you want to add to cart. | 2. Display all products bought |
| Exception |  | |
| Open Issues | N/A | |

* Remove a product to cart



|  |  |  |
| --- | --- | --- |
| User Case ID | UC\_10.2 | |
| Name | Remove a Product to Cart Use Case | |
| Goal | Want to remove a product to cart | |
| Actors | Customer | |
| Pre-conditions | User must log in with role “Customer” | |
| Post-conditions | Product must be deleted exit cart | |
| Main Flow | 1. Click “Remove” button next to the product in cart bean. | 2. Delete the removed product. |
| Exception |  | |
| Open Issues | N/A | |

## 2.2 Conceptual Model

## 2.2.1 Identify entity type

|  |  |
| --- | --- |
| Entity name | Description |
| User | User’s information |
| Role | Role of user |
| News | News |
| ProductLine | Category of product |
| Product | Product |
| Inventory | Store product quantity |
| Comment | Comment for product |
| Order | Order product |
| OrderItem | Order Item Product |

## 2.2.2 Identify attributes with entity

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Entity name | Attributes | | Description | | Data type | Nulls | | Multi-valued | |
| User | Username | | Username of account that used to login | | 20 characters variable | No | | No | |
|  | Password | | a secret word or string of characters that is used for authentication | | 255 characters variable | No | | No | |
|  | Email | | Email of User | | 100 characters variable | No | | No | |
|  | Address | | Address of User | | 100 characters variable | Yes | | No | |
|  | FullName | | Full name of User | | 10 characters variable | Yes | | No | |
|  | Phone | | Phone number of User | | 20 characters variable | No | | No | |
|  | Birthday | | Birthday of User | | Date | Yes | | No | |
| Role | RoleID | Unique identifies a Role | | 20 characters variable | | | No | | No |
|  | RoleName | Name of role | | 50 characters variable | | | Yes | | No |
|  | Description | Description of role | | 50 characters variable | | | Yes | | No |
| News | NewsID | Unique identifies a News | | Integer | | | No | | No |
|  | Title | Title of news | | 50 characters variable | | | Yes | | No |
|  | Image | Image of news | | 50 characters variable | | | Yes | | No |
|  | Content | Content of news | | 4000 characters variable | | | Yes | | No |
|  | CreatedDate | Time to create news | | Date | | | No | | No |
| ProductLine | ProdictLineID | Unique identifies a  Product line | | 20 characters variable | | | No | | No |
|  | ProductLineName | Name of product line | | 50 characters variable | | | Yes | | No |
|  |  |  | |  | | |  | |  |
| Product | ProductID | Unique identifies a Product | | 20 characters variable | | | No | | No |
|  | ProductLineID | Unique identifies a Product line | | 20 characters variable | | | No | | No |
|  | InventoryID | Unique identifies a inventory | | Integer | | | No | | No |
|  | ProductName | Name of the product | | 50 characters variable | | | Yes | | No |
|  | Quantity | Quantity of product | | Integer | | | No | | No |
|  | Price | Price of the product | | Decimal | | | Yes | | No |
|  | Image | Image of the product | | 50 characters variable | | | Yes | | No |
|  | Description | Description of the product | | 4000 characters variable | | | Yes | | No |
| Inventory | InventoryID | Unique identifies a Inventory | | Integer | | | No | | No |
|  | InventoryName | Name of Inventory | | 50 characters variable | | | Yes | | No |
|  | Address | Address of Inventory | | 100 characters variable | | | Yes | | No |
| Comment | CommentID | Unique identifies a comment | | Integer | | | No | | No |
|  | Username | Username of account that used to login | | 20 characters variable | | | No | | No |
|  | ProductID | Unique identifies a product | | 20 characters variable | | | No | | No |
|  | Content | Content of Comment | | 100 characters variable | | | No | | No |
|  | CommentDate | Time to create comment | | Date | | | No | | No |
|  | OfCommentID | Unique identifies a comment | | Integer | | | Yes | | No |
| Order | OrderID | Unique identifies a Order | | Integer | | | No | | No |
|  | Username | Username of account that used to login | | 20 characters variable | | | No | | No |
|  | OrderDate | Time to order product | | Date | | | No | | No |
|  | TotalAmount | Total amount of order product | | Decimal | | | Yes | | No |
| Order Item | OrderItemID | Unique identifies a Order Item | | Integer | | | No | | No |
|  | OrderID | Unique identifies a Order | | Integer | | | No | | No |
|  | ProductID | Unique identifies a Product | | 20 characters variable | | | No | | No |
|  | Quantity | Quantity of order item | | Integer | | | Yes | | No |
|  | Price | Price of order item | | Decimal | | | Yes | | No |
|  | Amount | Amount of order item | | Decimal | | | Yes | | No |

## 2.2.3 Entity Relationship Model



## 2.3 Sequence Diagram

## 2.3.1 Login

Log in



Register



## 2.3.2 Manage Users

Add new Roles



Update a Role



Delete a Role



Add new User



Update a User



Remove a User



## 2.3.3 Manage Products

Add new Product



Update a Product



Remove a Product



Add new Product Line



Update a Product Line



Remove a Product Line



## 2.3.4 Manage Inventory

Add new Product Quantity



Update a Product Quantity



## 2.3.5 Manage Orders

Create monthly Reports



## 2.3.6 Manage News

Add new News



Update a News



Remove a News



## 2.3.7 View Product Detail

View Product Detail



## 2.3.8 Comment Products

Add new Comment



Update a Comment



Remove a Comment



## 2.3.9 View News

View News



## 2.3.10 Order Product

Add new Product to Cart



Remove a product to Cart



## 2.4 Logical Data Model



|  |  |
| --- | --- |
| ProductLine( ProductLineID, ProductLineName) )  Primary key: ProductLineID  Alternate key: N/A  Foreign Key: N/A | Inventory(InventoryID, ProductID, Quantity)  Primary key: InventoryID  Alternate key: N/A  Foreign Key: ProductID ref Product(ProductID) |
| Comment(CommentID, Username, ProductID,  [Content], Date, OfCommentID)  Primary key: CommentID  Alternate key: N/A  Foreign Key: Username ref User(Username), ProductID ref Product(ProductID) | Product(productID, productLineID, name, price, image, description)  Primary key: productID  Alternate key: N/A  Foreign Key: productLineID ref ProductLine (productLineID) |
| Order(OrderID, Username, OrderDate, TotalAmount)  Primary key: OrderID  Alternate key: N/A  Foreign Key: Username ref User(Username) | Role(RoleID, RoleName, Description)  Primary key: RoleID  Alternate key: N/A  Foreign Key: N/A |
| User(Username, Password, FullName, Email, Address, Phone, Birthday)  Primary key: Username  Alternate key: N/A  Foreign Key: N/A | OrderItem(OrderItemID, OrderID, ProductID,  Quantity, Price, Amount)  Primary key: OrderItemID  Alternate key: N/A  Foreign Key: OrderID ref Order(OrderID),  ProductID ref Product(ProductID) |
| UserRole(Username, RoleID)  Primary key: Username, RoleID  Alternate key: N/A  Foreign Key: Username ref User(Username),  RoleID ref Role(RoleID) | News(NewsID, Image, [Content], Username, CreateDate)  Primary key: NewsID  Alternative key:N/A  Foreign key: Username ref User(Username) |

## 2.5 Physical Data Model



## 2.6 Class Diagram



## 2.7 Activity diagram



Activity Diagram



