
Group3

TechStore
Software Architecture Document

Version 1.01

TechStore	Version: 1.01
Software Architecture Document	Date: 13/July/22
<document identifier>	

Revision History

Date	Version	Description	Author
29/Jun/20	1.0	Initial Expectations	Nguyen Thai Hiep Duong Quang Binh Doan Anh Duong Phung Nghia Phuc Le Nguyen Lan Vy
13/July/22	1.01	Update and fix document	All members of team 3

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Software Architecture Document

1. Introduction

1.1 Purpose:

- This document provides a comprehensive architectural overview of the system, using a number of different architectural views to depict different aspects of the system. It is intended to capture and convey the significant architectural decisions which have been made on the system.

1.2 Scope:

- SAD provides an architectural overview of the Website System of TechStore. The Website System of TechStore is being developed by Group3 to help people go shopping online easier.
- This Document has been generated directly from Group3.

1.3 Definitions, Acronyms and Abbreviations:

RUP	Rational Unified Process
SAD	Software Architecture Document
UI	User Interface

1.4 References:

- Videos and documents of teachers

2. Architectural Goals and Constraints

2.1 Safety:

- Customer information is confidential: Ensure that no malicious code affects the user.
- Ensure that our team does not steal any information from customers for individual purposes.
- Our team ensures that we do not sale information for any third party, to guarantee customer rights as much as possible.

2.2 Security:

- User accounts are confidential and authenticated by username and password.
- Transmitting data is protected from the integrity of the data being transferred.
- Our team takes the highest responsibilities for data loss and information loss of customers.
- We provide secret methods to protect user data.

2.3 Privacy:

- Ensure the privacy of users, do not use their information without permission.

2.4 Portability

- The system can be running always 24/7.
- Our online shop can run on ios, android, window,... and support for older versions.

2.5 Distribution:

- The system will work on most operating systems and devices.

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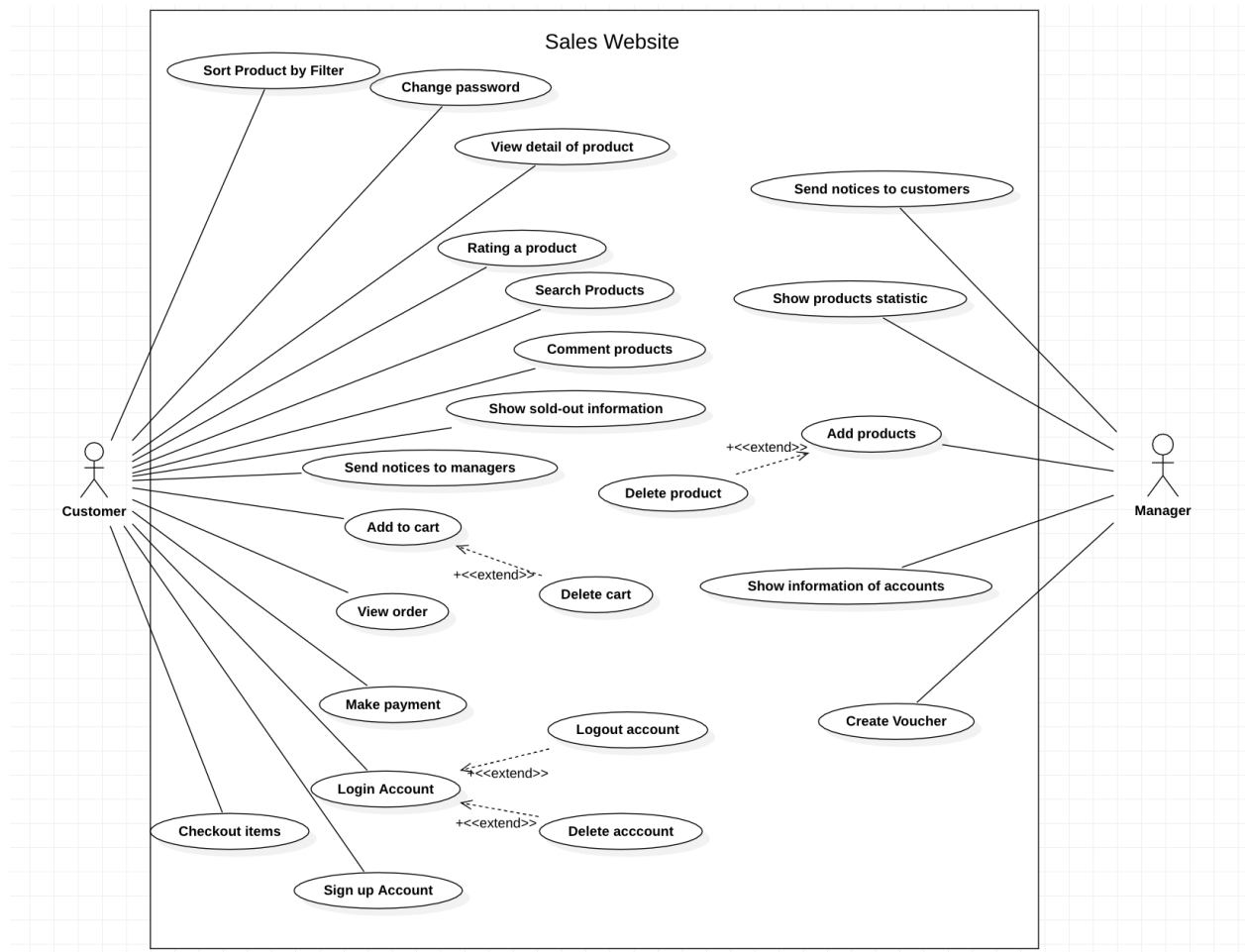
2.6 Interface:

- User-friendly interface, easy to use.

2.7 Performance:

- The system should reply to customers as soon as possible.

3. Use-Case Model

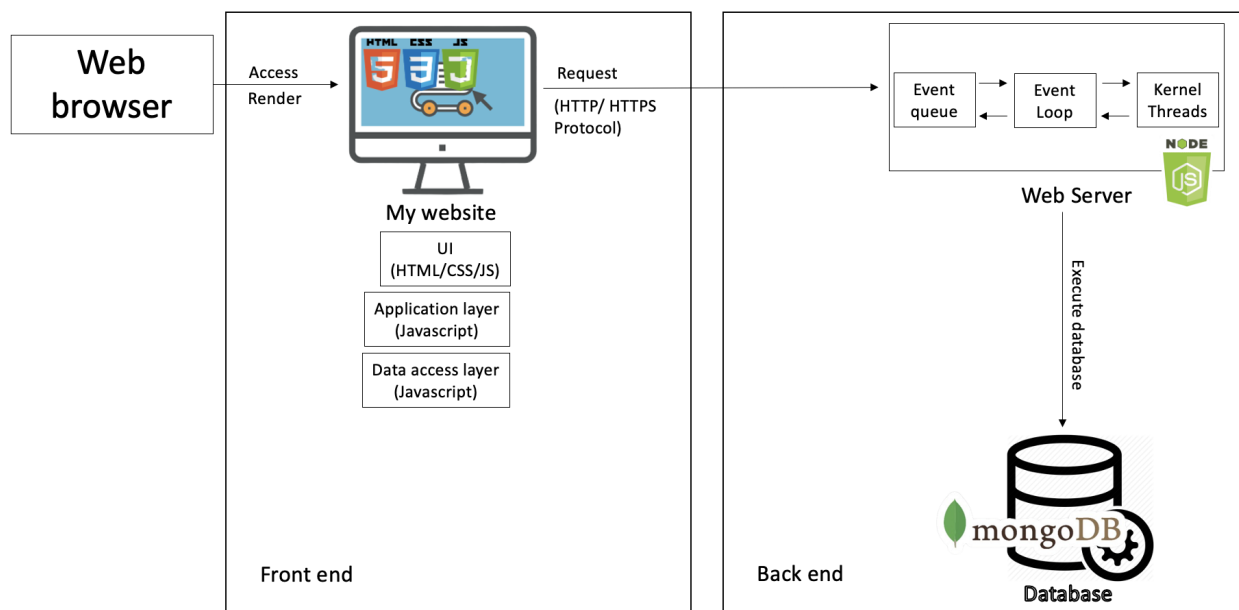
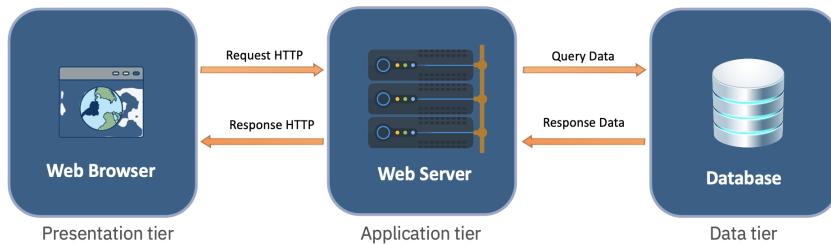


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4. Logical View

[Quickreview](#)

3-Tier Architecture



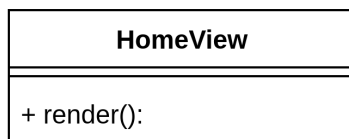
- Description of logical view: Describes the architecture with components and relationships among them. Besides describing the important layer of their organization in service packs, system, ...
- We use 3-tier architecture to create the web application.
- Within the web-server tier, we use MVC Model to make the server be more clear and increase the performance of our website.

4.1 Component: HomeView

Description: HomeView is an interface to show the homepage of a website.

- Class diagram:

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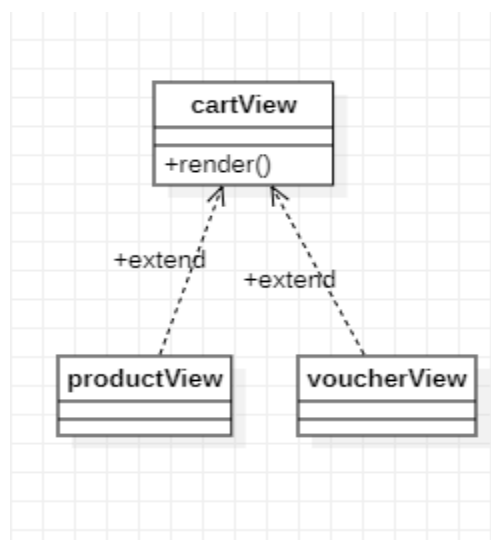


- Giải thích: Explain: The render() function returns the user interface

4.2 Component: CartView

Description: cartView is a interface to show shopping cart of customer

- Class Diagram:



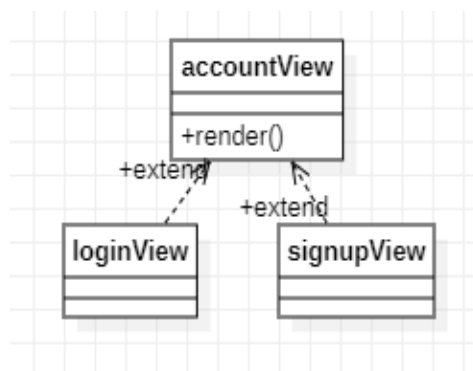
- Explain: The render() function returns the user interface

4.3 Component: AccountView

Description: loginView is a interface to help customer can login to account for shopping and have many promotion,

sign up View is a interface to help customer do not have an account before can sign thier information and login easily

- Class Diagram:



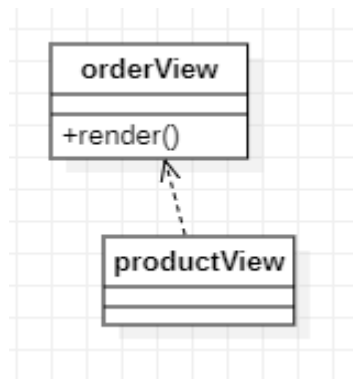
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- Explain: The render() function returns the user interface

4.4 Component: OrderView

Description: orderView is a interface to show ordering information of customer

- Class Diagram:

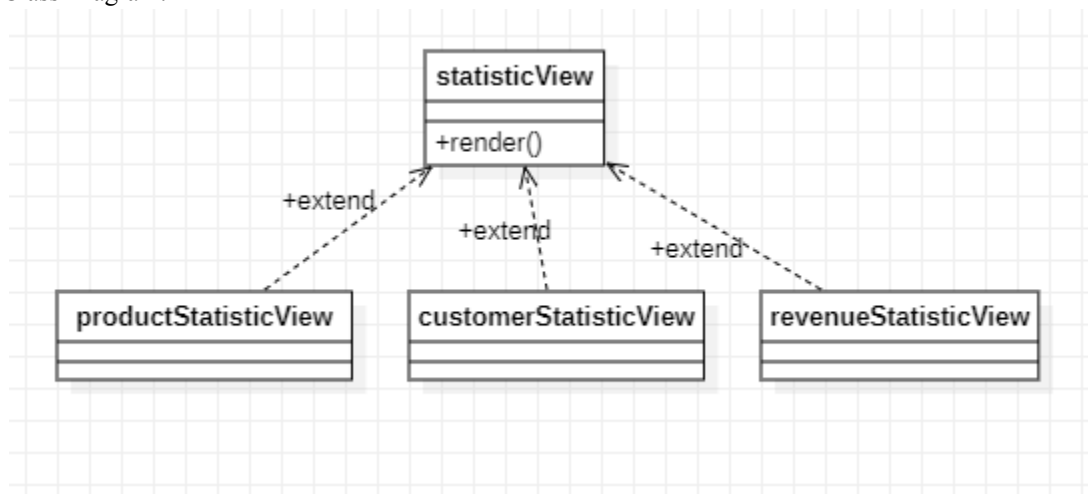


- Explain: The render() function returns the user interface

4.5 Component: StatisticsView

Description: StatisticsView is a interface to show the manager

- Class Diagram:



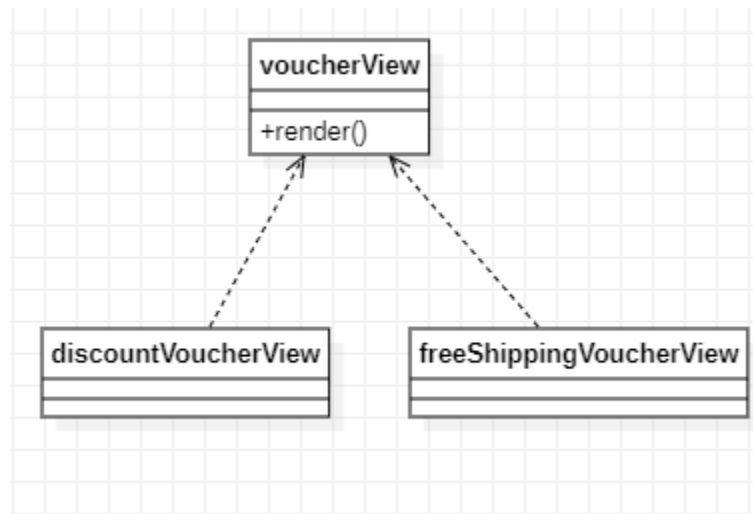
- Explain: The render() function returns the manager interface

4.6 Component: VoucherView

Description: VoucherView is a interface to show the voucher exist

- Class Diagram:

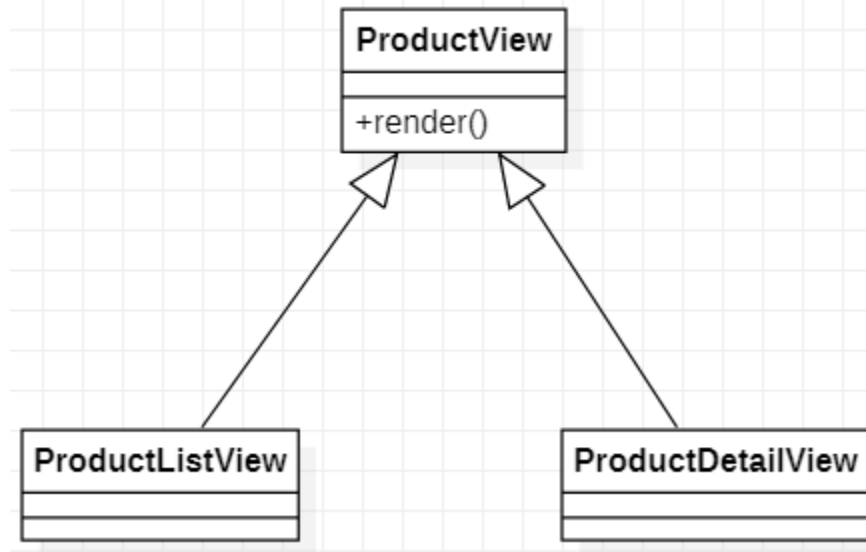
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- Explain: The render() function returns the user interface

4.7 Component: ProductView

- Description: ProductView is a display to use View Product of the shop.



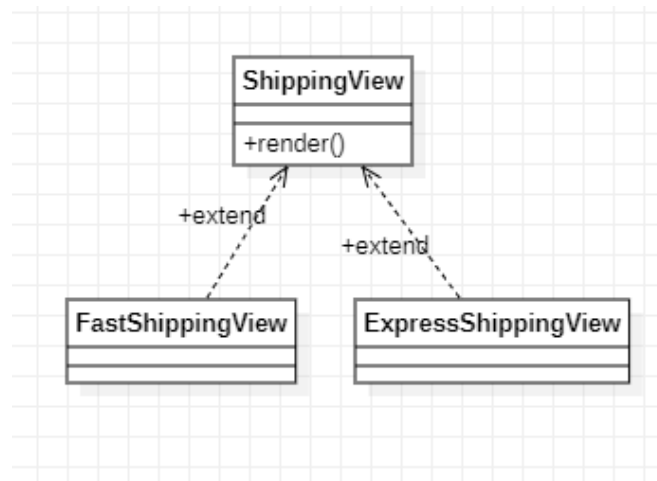
- Explain:
 - ProductView() return display for Product
 - Two class ProductListView() and ProductDetailView() is inheritance of ProductView() so this have properties render()

4.8 Component: ShippingView

Description: ShippingView is a interface to show the type of shipping

- Class Diagram:

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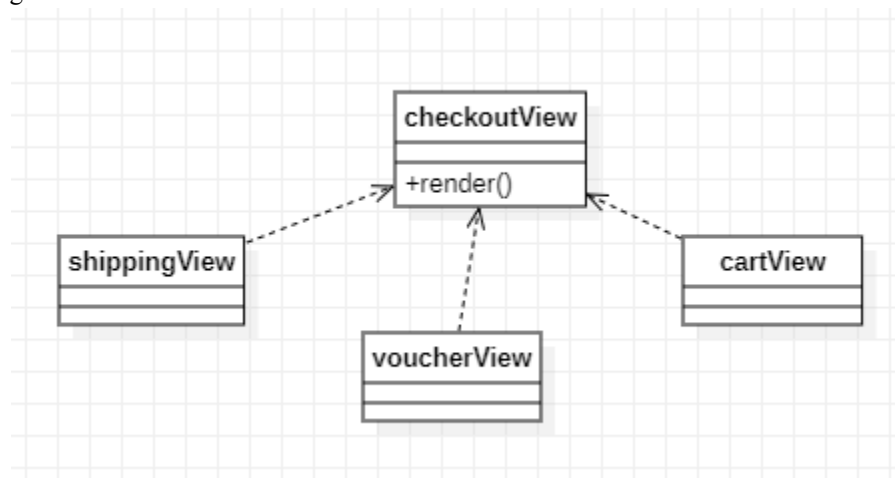


- Explain: The render() function returns the user interface

4.9 Component: CheckOutView

Description: CheckoutView is a interface to show the bill of customer

- Class Diagram:



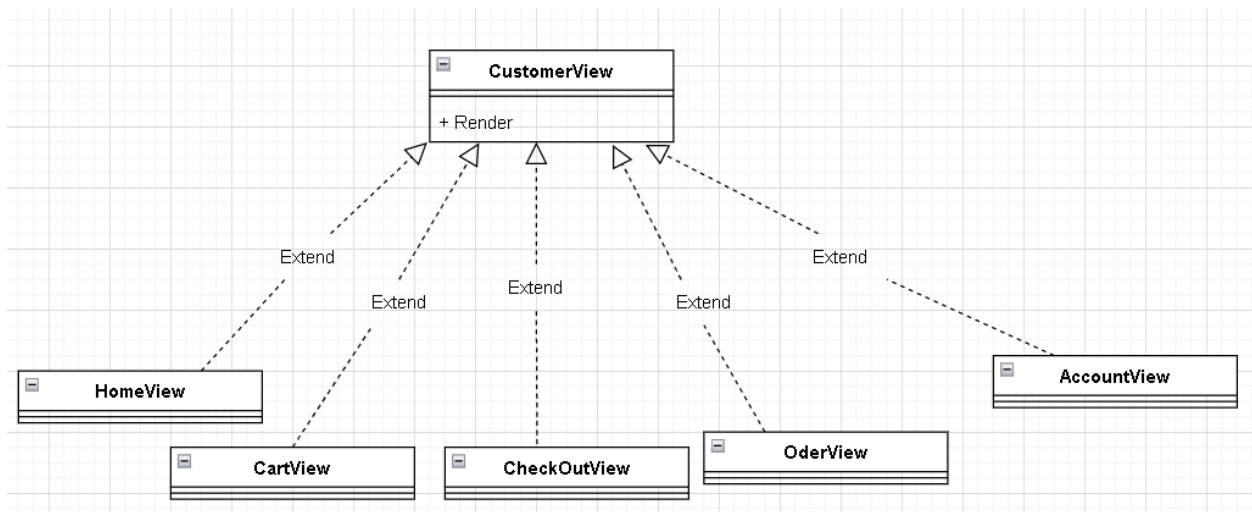
- Explain: The render() function returns the user interface

4.10 Component: CustomerView

Description: CustomerView is a display interface that allows customers to select items such as shopping cart, purchase, login, ...

- Class Diagram

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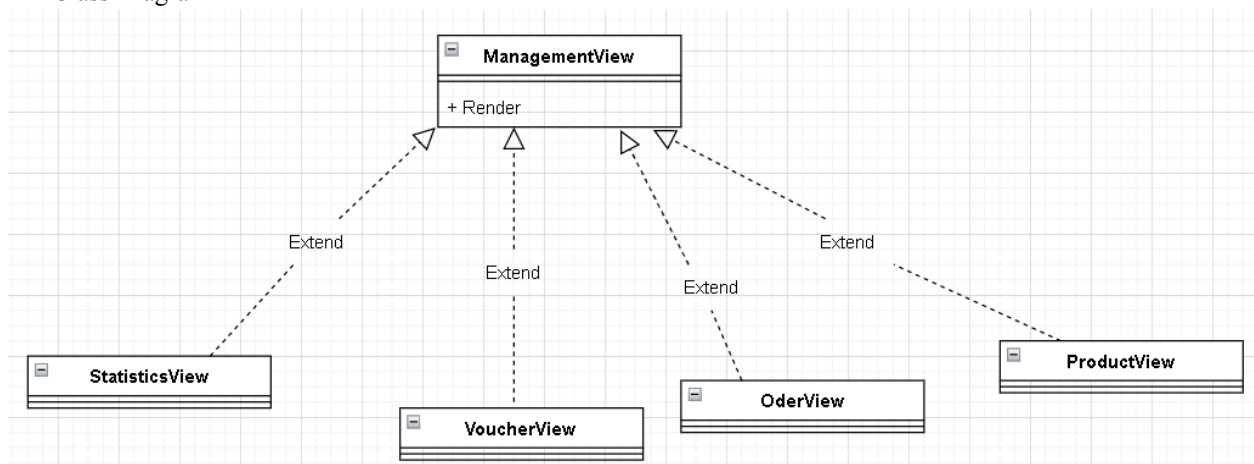


- Explain: The render() function returns the user interface

4.11 Component: ManagementView

Description: ManagementView is an interface present to manage functions such as vouchers, customer orders, etc.

- Class Diagram

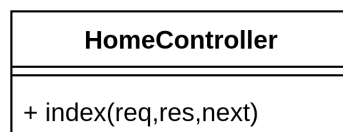


- Explain: The render() function returns the user interface

4.12 Component: HomeController

Description: controls guide to different pages

- Class diagram:



- Explain: The index() function performs navigation tasks.

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4.13 Component: CartController

Description: cartController handles shopping cart of website

- Class Diagram:

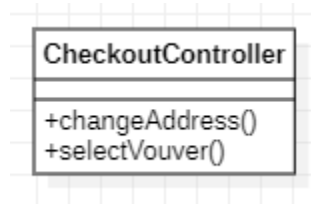


- Explain:
 - + `getListCart()`: return the list of carts
 - + `showCartDetail()`: show the shopping cart in detail
 - + `updateCart()`: update the shopping cart
 - + `addProduct()`: add a product into shopping cart
 - + `deleteProduct()`: delete a product out of cart
 - + `checkoutCart()`: check cart again for finish.

4.14 Component: CheckoutController

Description: checkoutController for customer checks bill when they want to order

- Class Diagram:

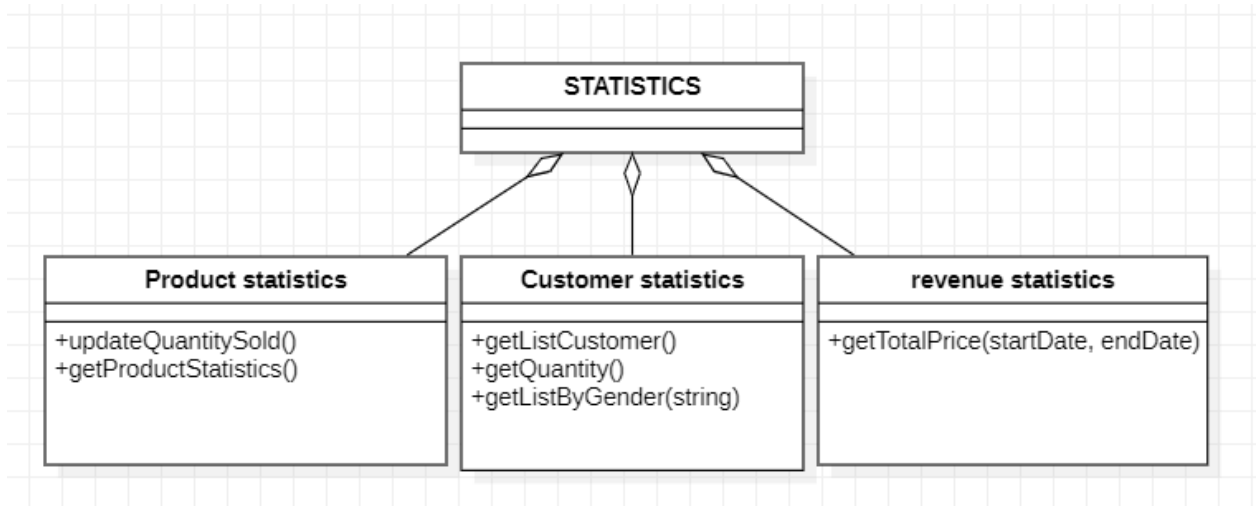


- Explain:
 - + `changeAddress()`: change the address of customer or address of place they want to pick up
 - + `selectVoucher()`: choose voucher have discount or free shipping

4.15 Component: StatisticsController

- Description: List products sold and in stock. List all customers, list customers by gender. Output revenue for a specific period of time

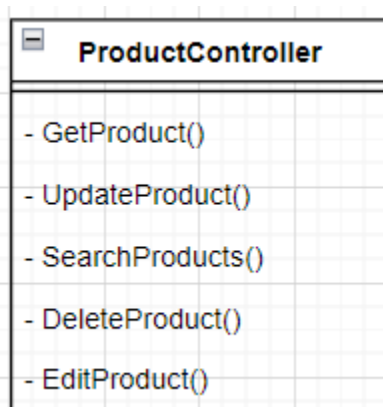
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- Explain :
 - updateQuantitySold() : After each successful sale of a product, the quantity of that product must be increased
 - getProductStatistics() : print out a list of all products
 - getListCustomer() : Print out a list of all customers
 - getQuantity() : Return the customer's quantity
 - getListByGender(string) : input is gender, the function will return a list of customers according to that gender
 - getTotalPrice(startDate, endDate) : returns the total income for a period

4.16 Component: ProductController

- Description: ProductController performs tasks to get Products, Update, Search, Delete, Edit Products of store



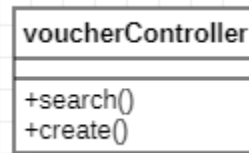
- Explain: Function of productController same as the name of the variables

4.17 Component: VoucherController

Description: voucherController finds a voucher

- Class Diagram:

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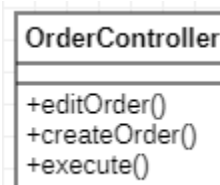


- Explain: `+ search()`: to find a voucher exist
 `+ create()`: to create a new voucher

4.18 Component: OrderController

Description: orderController handles orders of website

- Class Diagram:

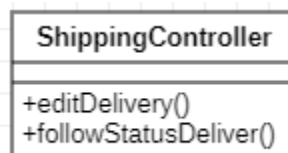


- Explain: `+ editOrder()`: edit information of one order
 `+ createOrder()`: create one order
 `+ execute()`: make a purchase

4.19 Component: ShippingController

Description: shipping Controller edits delivery and follow the status of deliver

- Class Diagram:



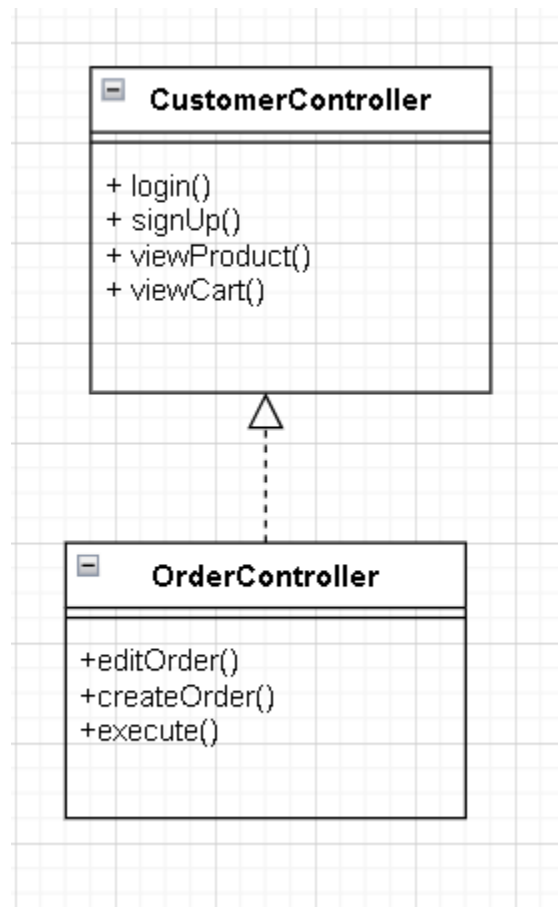
- Explain: `+ edit Delivery()`: to change information for delivery of goods
 `+ followStatusDeliver()`: to know the status of the package easier.

4.20 Component: CustomerController

Description: Handle customer requests such as: login, register, view products, order,...

- Class Diagram:

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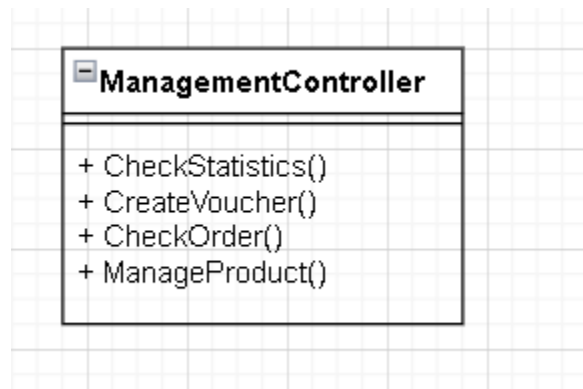
- Explain:
 - + login(): Handle logged in customer
 - + signUp(): Handle signup in customer
 - + viewProduct(): Handling customers viewing products
 - + viewCart(): Handling customers viewing cart

4.21 Component: ManagementController

Description: Handling requests from managers such as statistics, creating vouchers, receiving customer orders,...

- Class Diagram:

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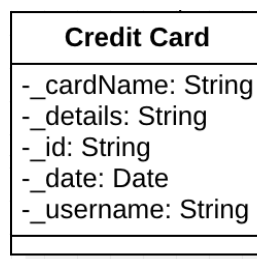


- Explain:
 - + `checkStatistics()`: Display statistics page for store management
 - + `CreateVoucher()`: manage to create vouchers for customers
 - + `CheckOrder()`: Manage and check customer orders
 - + `ManageProduct()`: Show page to add and edit products

4.22 Component: CreditCard

Description: class includes attributes that are credit card information

- Class Diagram:

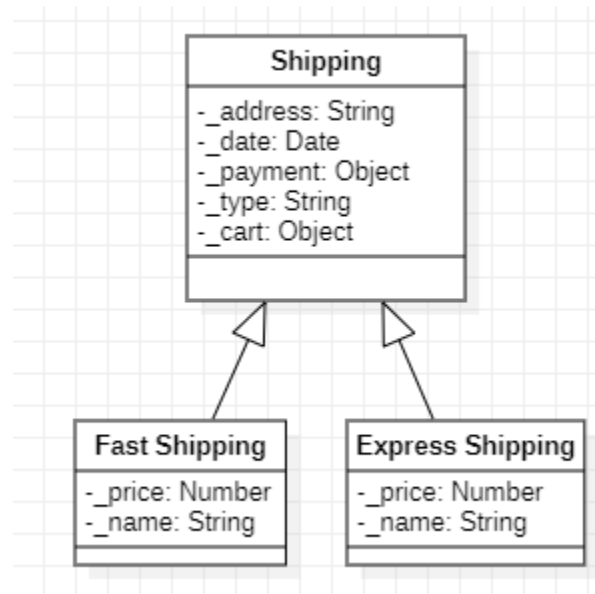


4.23 Component: Shipping

Description: provide information to delivery. And it has two types: fast and express shipping.

- Class Diagram:

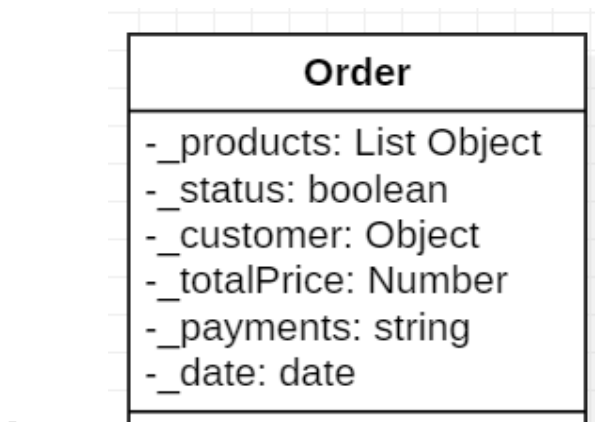
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4.24 Component: Order

Description: give your online customers the ability to order with just a few clicks from their desktop/laptop.

- Class Diagram:



- Explain:

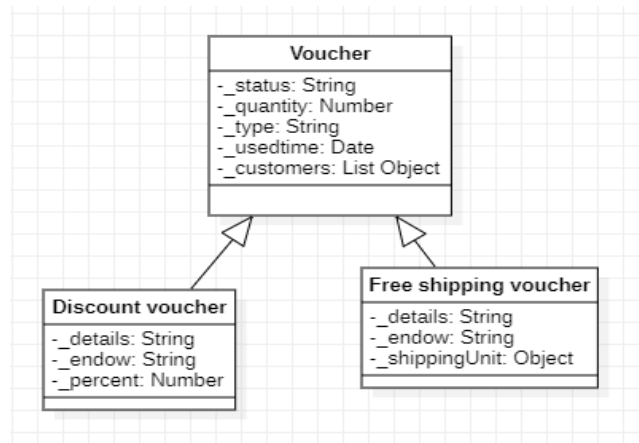
- `_products` : list of products
- `_status` : Successful or unsuccessful?
- `_customer` : customer of the order
- `_totalPrice` : total price of the order
- `_payments` : payment form of the invoice
- `_date` : Time Order

4.25 Component: Voucher

Description: give customer vouchers like: discount or free shipping to attract customer's attention.

- Class Diagram:

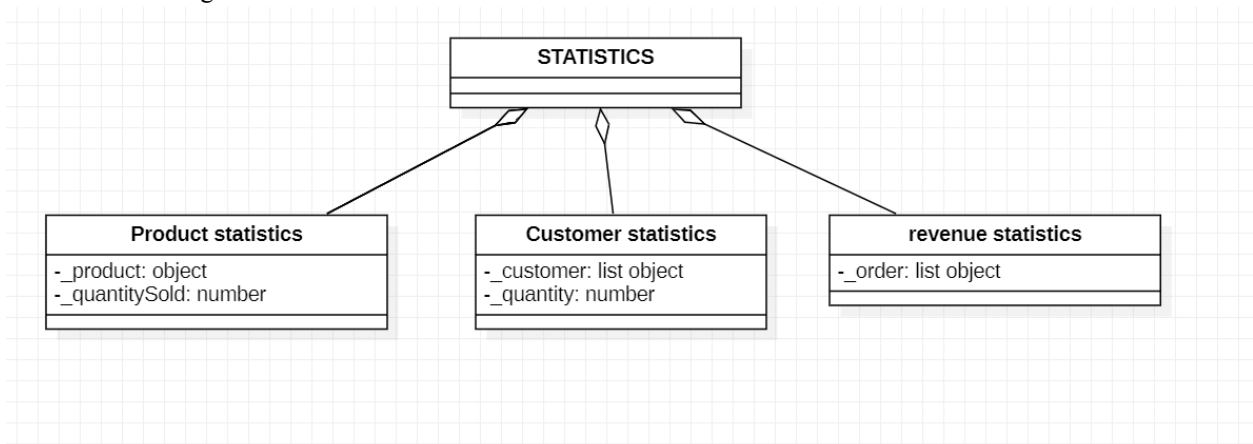
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4.26 Component: Statistics

Description: Describe statistic : product, customer, revenue

- Class Diagram:

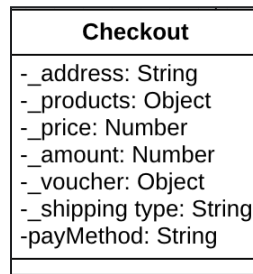


4.27 Component: Checkout

Description: class includes attributes that are check out form

- Class Diagram:

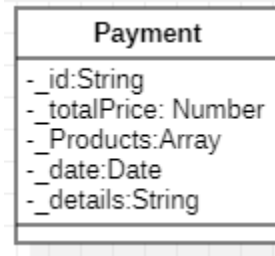
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4.28 Component: Payment

Description: Payment is the transfer of money, goods or services in exchange for goods

- Class Diagram:



- Explain:

Attribute:

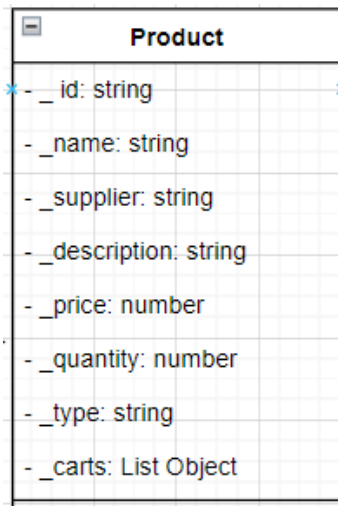
_totalPrice: is the total amount of the final product that the customer needs to pay
_products: include all the products that the customer wants to pay in the cart

4.29 Component: Product

Description: class includes attributes that are product information

- Class Diagram:

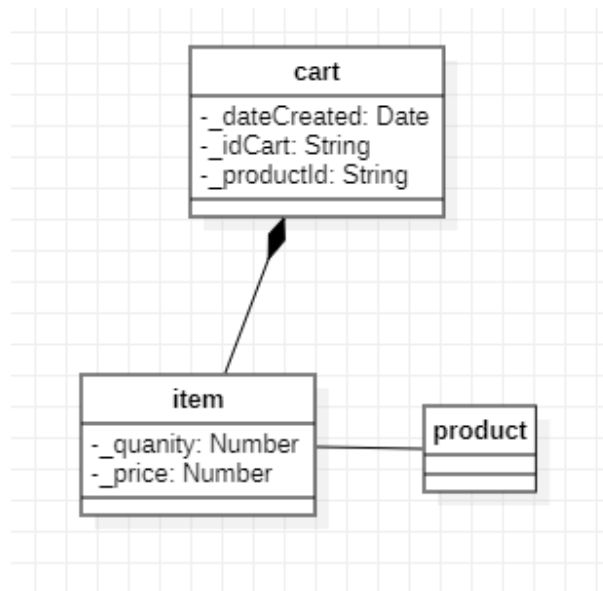
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4.30 Component: Cart

Description: cart includes attributes that are cart information.

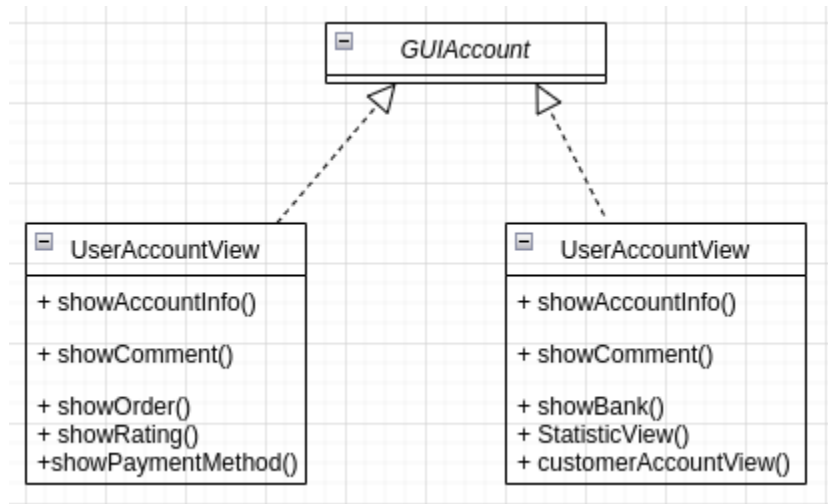
- Class Diagram:



Explain: shopping carts have items linked to a specific product. Each item is related to exactly one product. A product could be associated with many items or no item at all.

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4.31 Component: AccountView

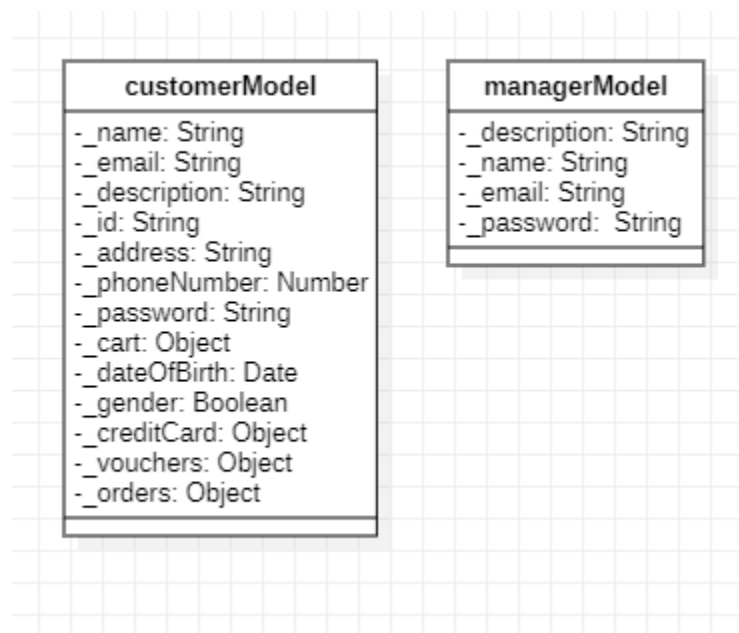


- Description:
 - We also need a GUIControl to manage what should be printed out on the website, but it is separated from User Account and Admin Account.
 - As we can see above, each type of accounts has different function.

4.32 Component: Account

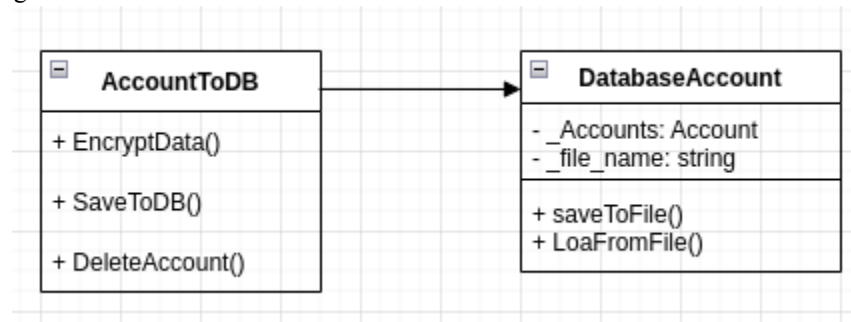
Description: Managers are producers or owners of some product or skill that is available for sale to a purchaser. customerModel includes attributes that are information, status,... of customer.

- Class Diagram:
 - Here is Model for Account, which contains all information needed below.



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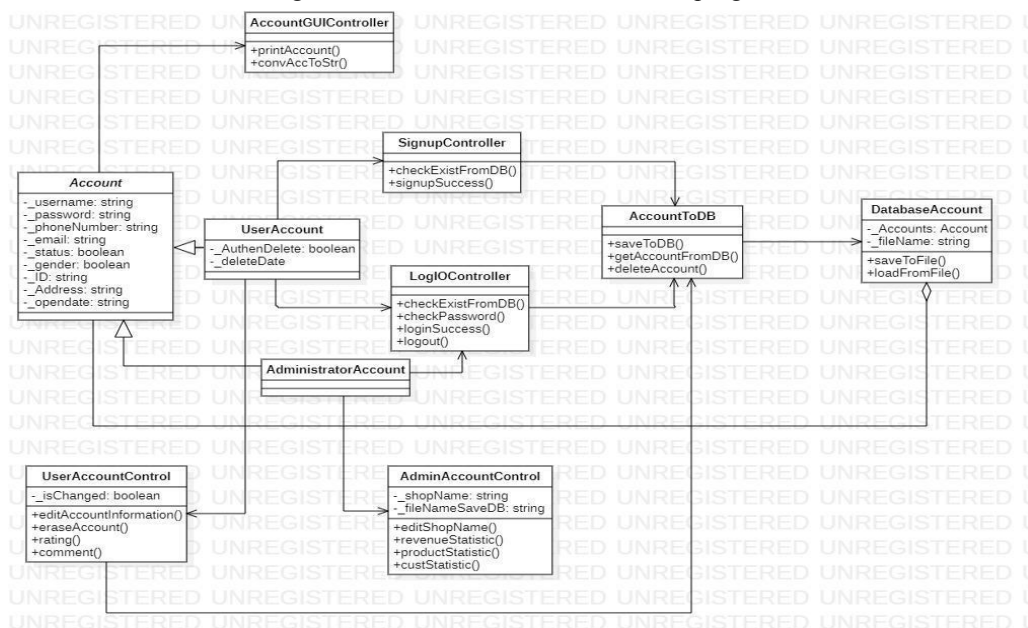
- The Progress to save Model to Database:



4.33 Component: AccountController

- Description:

- About the class diagram, we can see the overview of the progress:



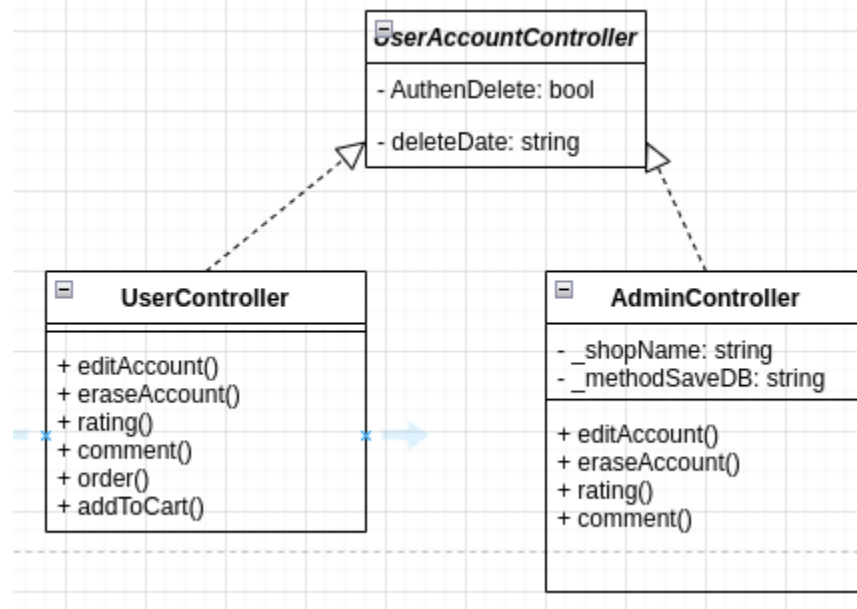
- Explain: This class diagram describes how an Account runs into my systems, and it provides an overview for all activities of the account.
- what activities in an account is:
 - Users can create an account on our system through Signup Progress.
 - They can edit their account if any information is wrong.
 - They can use their account to buy/order our products, but it will be presented in other components.
 - There are two types of the accounts: accounts for administrators (AdministratorAccount) to manage their own online shop, and accounts for users (UserAccount).
 - The AdministratorAccount: is already created and provided for contractors, So that we don't need to create an administrator account as a function.
 - User Account: this class has sufficient function to satisfy customers.
 - Two types of the account have different purposes, so that each type should have two Controllers as we can see in the class diagram (UserAccountControl and

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AdminAccountControl).

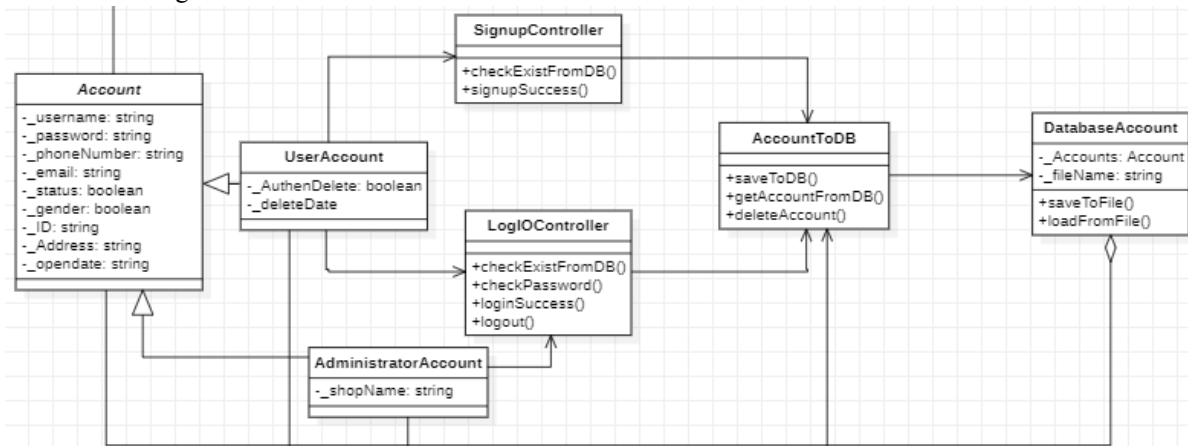
- Any account must be saved to the Database and file for alternative purposes.
- What activities involve products(like ProductStatistic) will be described more obviously at other components.

Core to solve utilities for account:



4.34 Component: Login/LogOut and Signup & Controller

- Class Diagram:

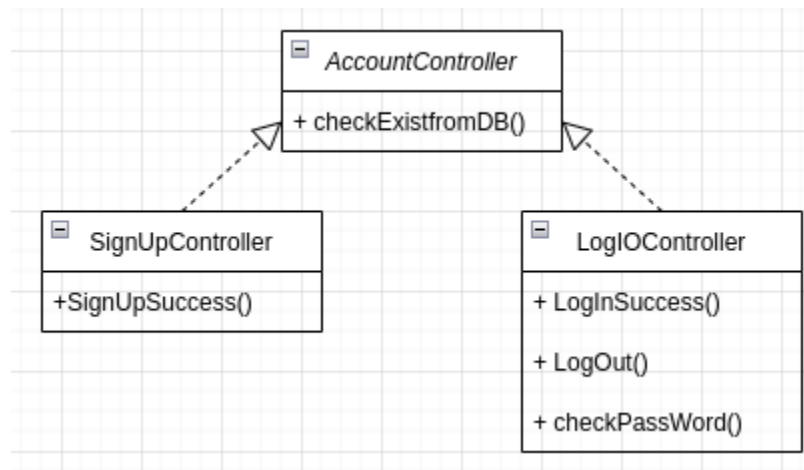


- Description:

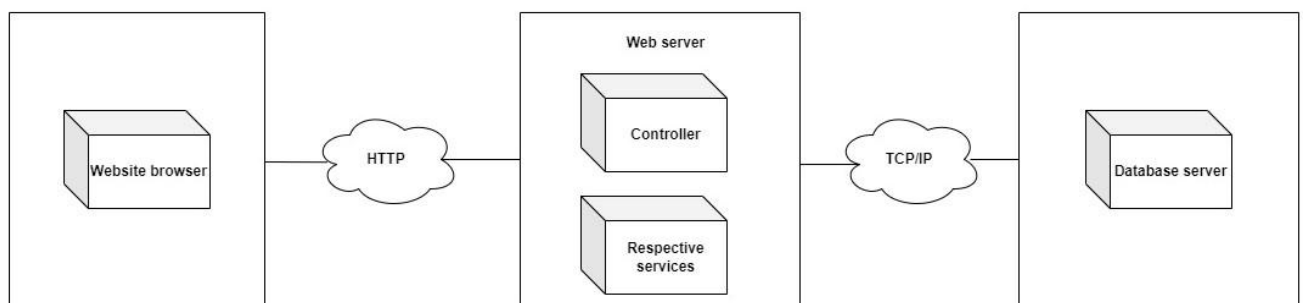
- Users want to login to their account, they must register on our website first.
- Our system must check the existence of the corresponding account in Database. If the account exists, User can continue to login.
- Because of that, we divided this progress into two smaller progresses:
 - LogIOController: manage arbitrary activities related to Login: like check account from database, check password.
 - SignupController: if our system cannot find the account data in the Database, it will notify the customer to create an account to use our features.

Controller for account:

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5. Deployment



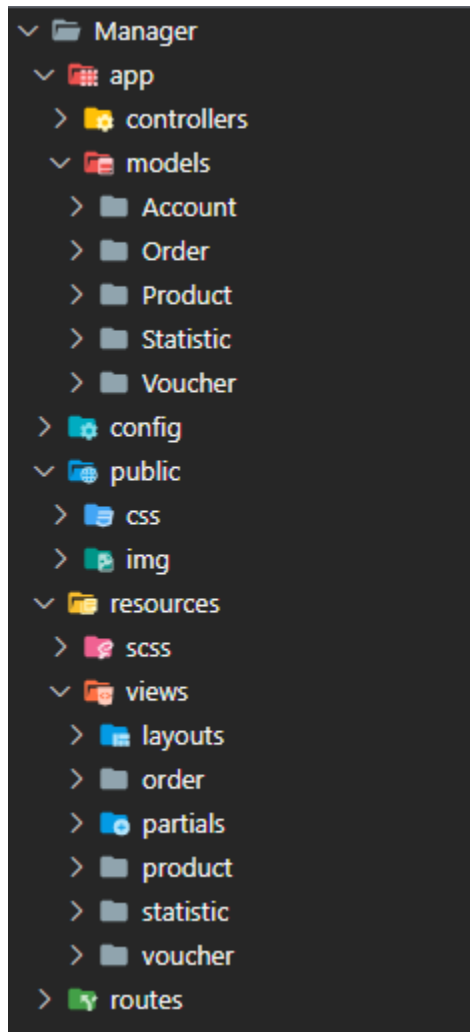
- Website browser: Customers use their device (may be Windows, MacOS or their phone) to access our website through the browser. When customers connect our website and send request to server by HTTP connection
- Controller: Receive request from customer or administrator -> Controller will call respective services to get data from Database server by TCP/IP and handle data -> reply.
- Database server: Save all database of system

6. Implementation View

I. Project Manager

Structure of directory tree:

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1. Folder app

Folder contains folders controllers and models

1.1. Foler controllers

Folder contains files (subdirectory containing the files) perform the request from the browser that the route navigates to and receives the results from the db returned and then renders the view to the browser.

1.2. Folder models

Folder contains files (the subdirectory containing the files) define the database structure and associated settings.

1.2.1. Folder account

Folder contains files that define the data structure of manager and customer accounts.

1.2.2. Folder order

Folder contains files that define the data structure of orders.

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1.2.3. Folder product

Folder contains files that define the data structure of products.

1.2.4. Folder statistic

Folder contains files that define the data structure of the statistics according to: product, customer, revenue

1.2.5. Folder voucher

Folder contains files that define the data structure of vouchers.

2. Folder public

Folder contains files (subdirectory containing the files) public

3. Folder routes

Folder contains files (subdirectory containing files) as the function to direct requests to the respective controllers.

4. Folder config

Folder contains files (subdirectory containing files) connect to the database to get the requested data from the browser.

5. Folder resources

5.1. Folder scss

Folder contains files that synchronized with files in folder css to customize a UI for a website.

5.2. Folder views

Folder contains files (subdirectory containing files) handlebars corresponding to the pages of the website.

5.2.1. Folder order

Contains file handlebars of processing orders: display order information,...

5.2.2. Folder layout

Contains a file that defines the general structure of the web.

5.2.3. Folder partial

Contains header, footer files shared for web pages.

5.2.4. Folder statistic

Contains file handlebars of revenue, product, customer statistics function.

5.2.5. Folder product

Contains file handlebars related to products such as updating, adding, .. products.

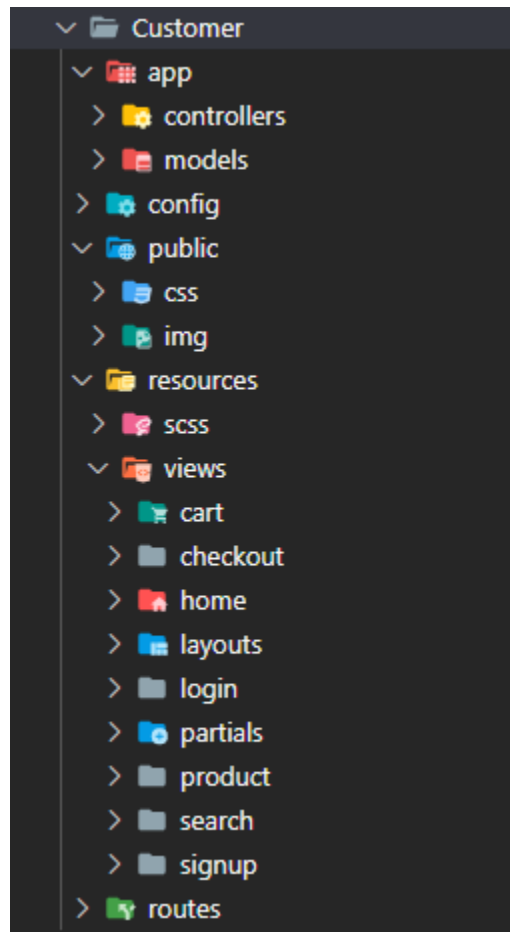
5.2.6. Folder voucher

Contains file handlebars of related coupons such as adding promotions to customers.

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II. Project Customer

Structure of directory tree:



1. Folder app

Folder contains folders controllers and models

1.1. Folder controllers

Folder contains files (subdirectory containing the files) perform the request from the browser that the route navigates to and receives the results from the db returned and then renders the view to the browser.

1.2 Folder models

Folder contains files (subdirectory containing the files) that define customer database structure, cart history,...

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2. Folder config

Folder contains files (subdirectory containing files) connected to the database to get the requested data from the browser.

3. Folder public

Folder contains files (subdirectory containing the files) public

4. Folder routes

Folder contains files (subdirectory containing files) as the function to direct requests to the respective controllers.

5. Folder resources

5.1 Folder scss

Folder contains files that synchronized with files in folder css to customize a UI for a website.

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Folder contains files (subdirectory containing files) handlebars corresponding to the pages of the website.

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Contains header, footer files shared for web pages.