

FPT UNIVERSITY

PNG JEWELRY

Group 4	
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- Ho Chi Minh City, 11/2020 -

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1. Problem Definition

1.1 The object of project

PNG project is a website that is created with the purpose of approaching customers. This website allows customers access to all products of jewelry as well as the information of business. This website provides the following facilities:

- ❖ For customer:
 - View all products
 - Shopping cart
 - View purchase history
 - Search products
- ❖ For admin:
 - View all products
 - Search products
 - Create, Update, Delete categories
 - Create, Update, Delete products

1.2 Functional Requirements:

Following is a list of functionalities of the system. More functionalities that you find appropriate can be added to this list.

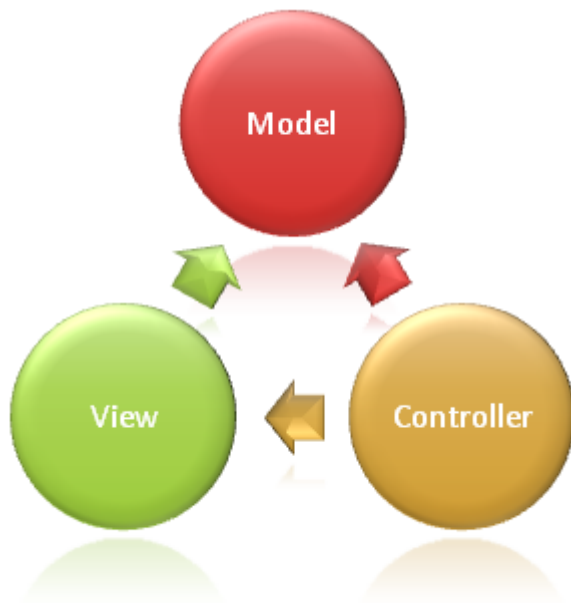
- When accessing the website, a list of available products will be shown for customers.
- Users can search products based on category or name of product and view the detail of products.
- Customers can add a list of products to their cart but can not checkout. If a customer does not have an account, the checkout request will navigate to login page or register page if necessary.
- For the function of login, the system will check the role of the account. If the account is admin, the system will return an appropriate page for admin to manage categories, products. If the account is a member, the system will return appropriate information for members to view, buy products and find the information of PNG Jewelry.
- Admin can add a new category to store and update or delete any category if necessary.
- Admin can add a new project to store and update or delete any product in store if necessary.
- Members can track their order history.
- Customers can update the quantity of any product in their cart or delete items from the cart.

2. Architecture

This project is built based on the ASP.NET MVC model.

The Model-View-Controller (MVC) architectural pattern separates an application into three main groups of components: Models, Views, and Controllers. This pattern helps to achieve separation of concerns. Using this pattern, user requests are routed to a Controller which is responsible for working with the Model to perform user actions and/or retrieve results of queries. The Controller chooses the View to display to the user, and provides it with any Model data it requires.

The following diagram shows the three main components and which ones reference the others:



Model Responsibilities

The Model in an MVC application represents the state of the application and any business logic or operations that should be performed by it. Business logic should be encapsulated in the model, along with any implementation logic for persisting the state of the application.

View Responsibilities

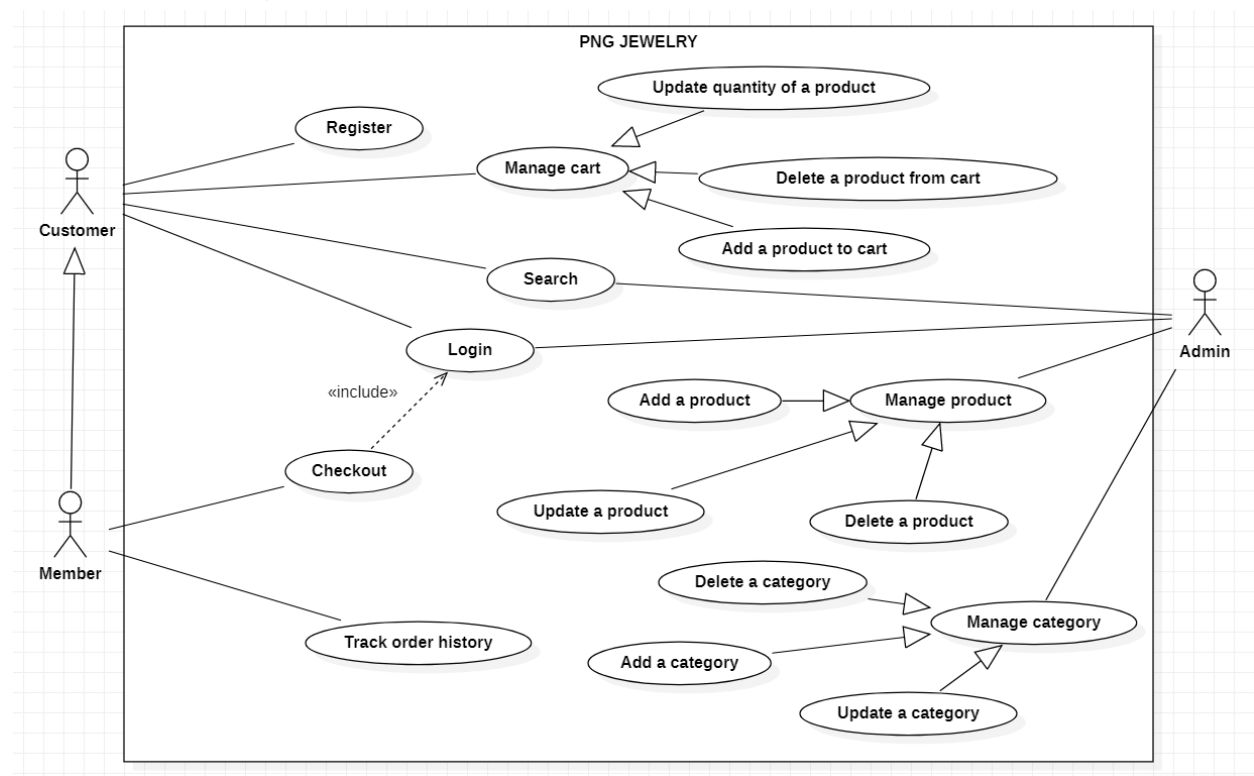
Views are responsible for presenting content through the user interface. They use the Razor view engine to embed .NET code in HTML markup. There should be minimal logic within views, and any logic in them should relate to presenting content.

Controller Responsibilities

Controllers are the components that handle user interaction, work with the model, and ultimately select a view to render. In an MVC application, the view only displays information; the controller handles and responds to user input and interaction. In the MVC pattern, the controller is the initial entry point, and is responsible for selecting which model types to work with and which view to render.

3. Use case diagram

3.1 Use case diagram



3.2 Use case description

3.2.1 Actor

- **Customers** : include all visitors that use this website. They are guests and members.
- **Guest** is the person that uses this website but doesn't register.
- **Member** is the person that uses this website and register to become a member of us.
- **Admin** is the person that manages categories and products in store

3.2.2 Use case

Use case 1	Register
Short Description	Register account to become a member of the web site.
Pre-Conditions	
Post-Conditions	New account is added to database

Main flow	<p>-Customers click on the Register button after entering the full field in the register page.</p> <p>-System checks input data is valid or not before adding new data into DB with role “member”</p> <p>-If customers register successfully, navigate to the login page, else the system should send a message to the customer.</p>
Alternative flow(s)	<p>-If the mandatory information that the customer provided is missed or not exactly, the system notifies the error. All cases are :</p> <ul style="list-style-type: none"> • Email has existed in Database. • Confirm Password and Password are not the same. • Email is invalid or has existed in the database. • Any fields are blank.

Use case 2	Login
Short Description	Log in to the website to use any member function.
Pre-Conditions	
Post-Conditions	
Main flow	<p>-Guest inputs the login information :</p> <ul style="list-style-type: none"> • Email. • Password. <p>-Guest clicks on the Login button.</p> <p>-System check the Email and Password.</p> <p>-If Email and Password are valid, the system will move members to Homepage.</p> <p>- If Email or Password is not correct, system should send a message to customer</p>
Alternative flow(s)	-If Email field or Password field is invalid form or blank when a customer clicks on the “Login” button, the system should send a message to the customer..

Use case 3	Create a new product
Short Description	Admin creates a new product for the website.
Pre-Conditions	Admin login to the website by admin account.
Post-Conditions	The new product will be added into the system database.
Main flow	<p>-Admin click “Product” link on navigation bar</p> <p>-Admin click “New Product” button on screen</p> <p>-Admin fill in the product information</p> <p>-Admin click “Create” button</p> <p>-The create result will be shown on the screen for admin</p>

Alternative flow(s)	-If the information the admin provided is empty or not right. The system will show errors on screen for admin to add or edit the information properly.
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Use case 4	Create a new category
Short Description	Admin creates a new product for the website
Pre-Conditions	Admin login to the website by admin account.
Post-Conditions	The new product will be added into the system database.
Main flow	<ul style="list-style-type: none"> -Admin click "Category" link on navigation bar -Admin click "Create new" button on top-left corner screen. -Admin fill in the category's information -Admin click "Create" button -The create result will be shown on the screen for admin
Alternative flow(s)	-If the information the admin provided is empty or not right. The system will show errors on screen for admin to add or edit the information properly.

Use case 5	Update a selected product
Short Description	Admin updated the information of selected product
Pre-Conditions	Admin login to the website by admin account
Post-Conditions	The selected product will be updated into the system database.
Main flow	<ul style="list-style-type: none"> -Admins request to view list of product -System will return all product in store -Admins click on Update button on product card that they want to edit -System will navigate to the update page and map all saved data into fields. -Admins change any fields they want -Admins click on Update button to finish updating process -System will update information of this product in the database system.
Alternative flow(s)	-If any information is invalid, the system will notify the error, and rollback.

Use case 6	Delete a selected product
Short Description	Admin delete the information of selected product
Pre-Conditions	Admin login to the website by admin account

Post-Conditions	The status of the selected product will be updated into the system database.
Main flow	<ul style="list-style-type: none"> -Admins request to view list of product -System will return all product in store -Admins click on Delete button on product card that they want to delete -System will update status of this product to Unavailable in the database system
Alternative flow(s)	

Use case 7	Update a selected category
Short Description	Admin updated the information of selected category
Pre-Conditions	Admin login to the website by admin account
Post-Conditions	The selected category will be updated into the system database.
Main flow	<ul style="list-style-type: none"> -Admins request to view list of category -System will return all category in store -Admins click on Update button on the same row with category that they want to edit -System will navigate to the update page and map all saved data into fields. -Admins change any fields they want -Admins click on Update button to finish updating process -System will update information of this category in the database system.
Alternative flow(s)	-If any information is invalid, the system will notify the error, and rollback.

Use case 8	Delete a selected category
Short Description	Admin delete the information of selected category
Pre-Conditions	Admin login to the website by admin account
Post-Conditions	The status of the selected category will be updated into the system database.
Main flow	<ul style="list-style-type: none"> -Admins request to view list of category -System will return all category in store -Admins click on Delete button on the same row with category that they want to delete -System will update status of this category to Unavailable in the database system
Alternative flow(s)	

Use case 9	Add a product to cart
Short Description	Customers are allowed to add products to their cart

Pre-Conditions	
Post-Conditions	
Main flow	<ul style="list-style-type: none"> -Customers request to view all available products in stock -System returns all product in home page -Customers click to choose to view detail of a product in home page -Customers click to “Add to Cart” button to add a product to cart
Alternative flow(s)	

Use case 10	Checkout cart
Short Description	Checkout to finish ordering requests.
Pre-Conditions	Customer login to the website by member role
Post-Conditions	Order details will be saved into the database system.
Main flow	<ul style="list-style-type: none"> -Customers click on the Checkout button to finish order requests. -System will check the remaining quantity in stock to make sure the quantity of each product that is available. -System navigates to information checkout page -Customer fill all required fields in this page and click Submit button to finish -System will save all order details in the database system
Alternative flow(s)	-If quantity is out of stock, system should send a warning error to customer

Use case 11	Track order history
Short Description	Member can view all order that they did in the past
Pre-Conditions	Customer login to the website by member role
Post-Conditions	
Main flow	<ul style="list-style-type: none"> -Customers request to view their order history by clicking on “Order History” button on navbar -System will return all orders in the past with quantity and price respectively.
Alternative flow(s)	

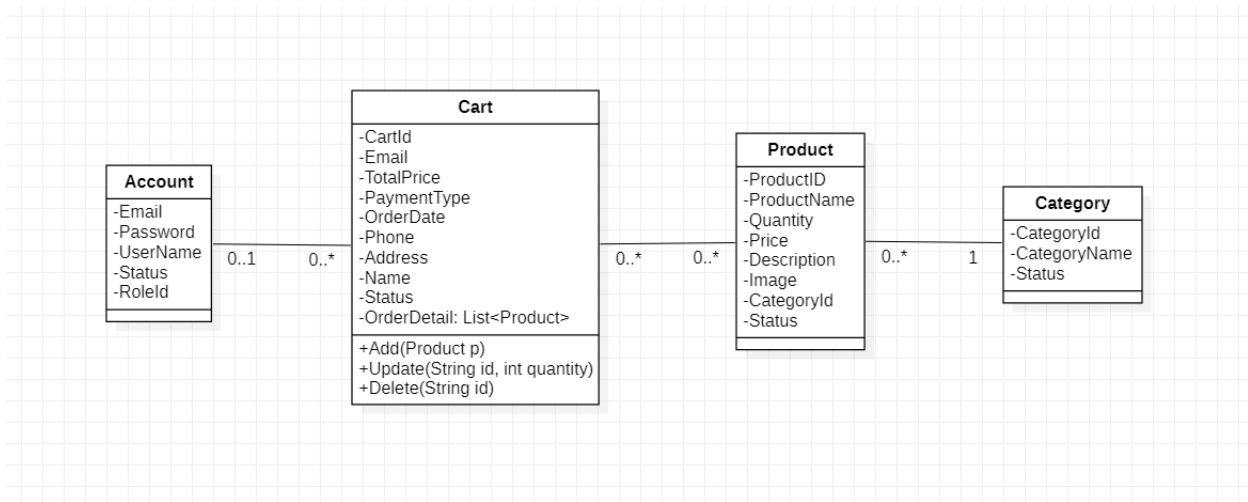
Use case 12	Remove a product form cart
Short Description	Remove any product from your cart
Pre-Conditions	
Post-Conditions	Update the number of products in your cart
Main flow	<ul style="list-style-type: none"> -Customers request to view their cart by clicking on “Your cart” button on navbar -System will return all products in their cart with quantity and price respectively. -Customers click on Delete button in the same row with this product -System will update quantity in cart and reload this page.
Alternative flow(s)	

Use case 13	Update quantity of product in cart
Short Description	Update quantity of a product in your cart
Pre-Conditions	
Post-Conditions	Quantity of this product in cart is updated
Main flow	<ul style="list-style-type: none"> -Customers request to view their cart by clicking on “Your cart” button on navbar -System will return all products in their cart with quantity and price respectively. -Customers change quantity in quantity textbox field. -Customers click on Update button in the same row with this product -System will update quantity in cart and reload this page.
Alternative flow(s)	

Use case 14	Search products
Short Description	Search list of products based on a category or name of products
Pre-Conditions	
Post-Conditions	
Main flow	<ul style="list-style-type: none"> -Users input keyword search into textbox Search or click to choose a category. - If users choose a category, the system should search for a list of products based on category. -If users enter a search key into the textbox, the system should return a list of products which contains names.
Alternative flow(s)	-If the list of products returned is empty, the system should return a message to the user.

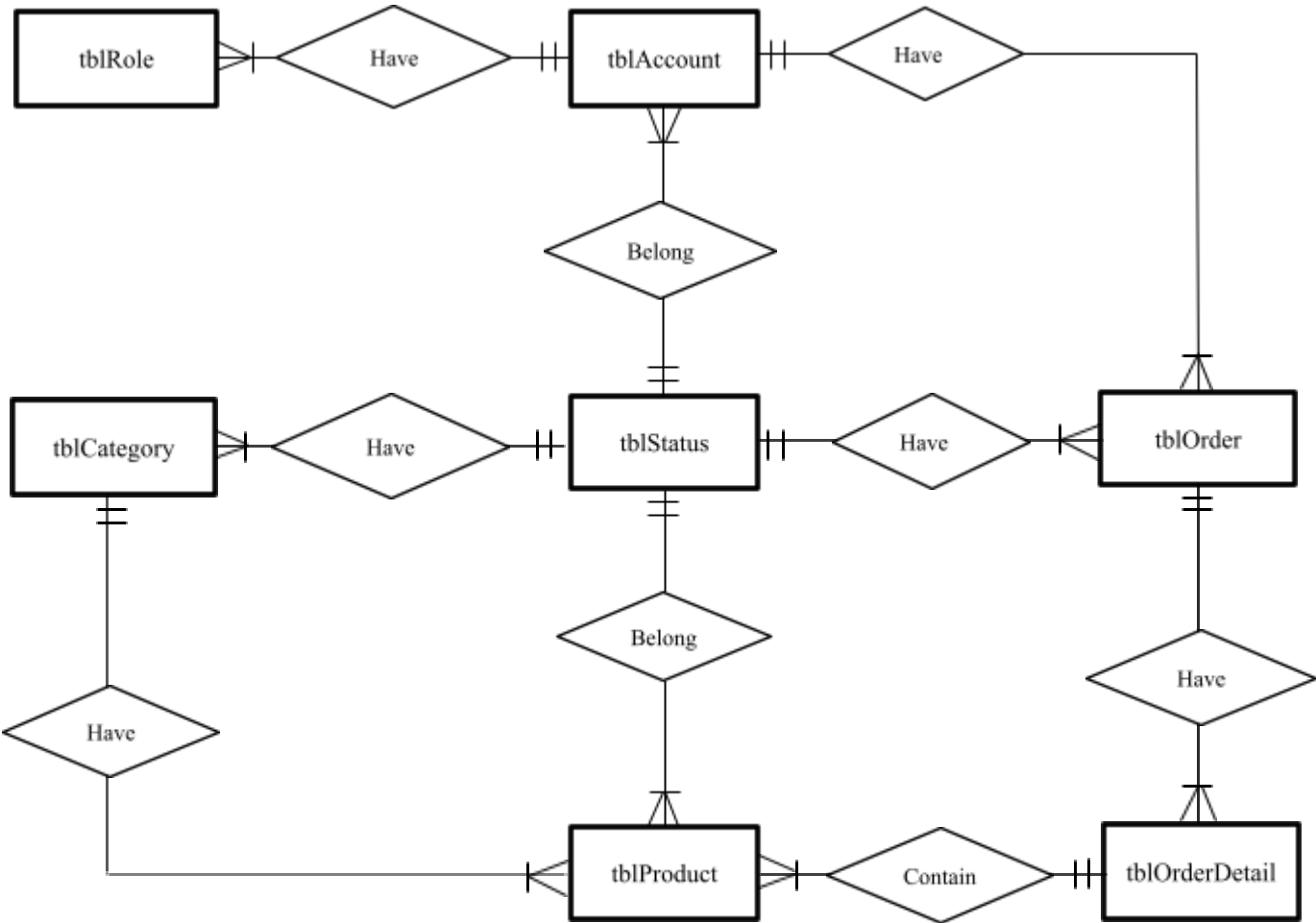
4. Class diagram and ERD diagram

4.1 Class diagram

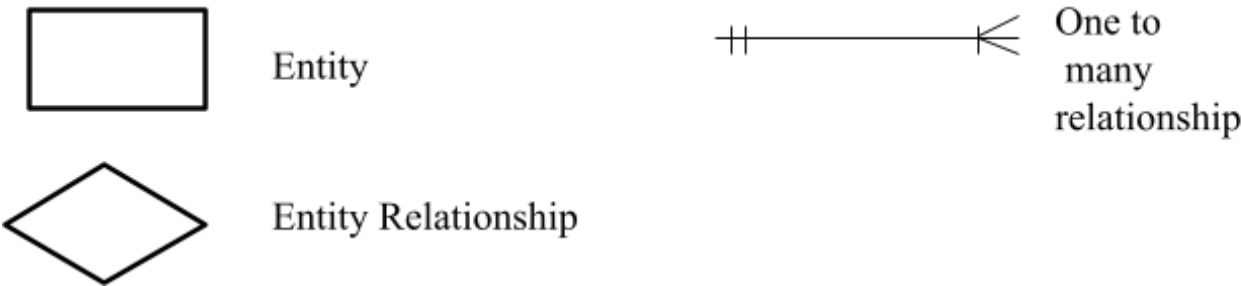


4.2 ERD diagram

ENTITY RELATIONSHIP DIAGRAM (ERD)

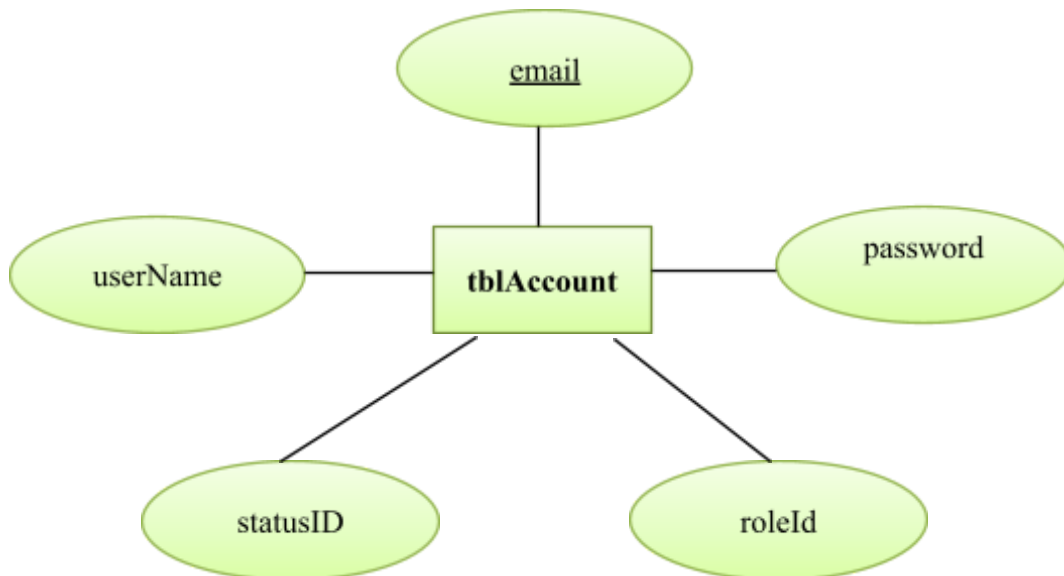


Note:

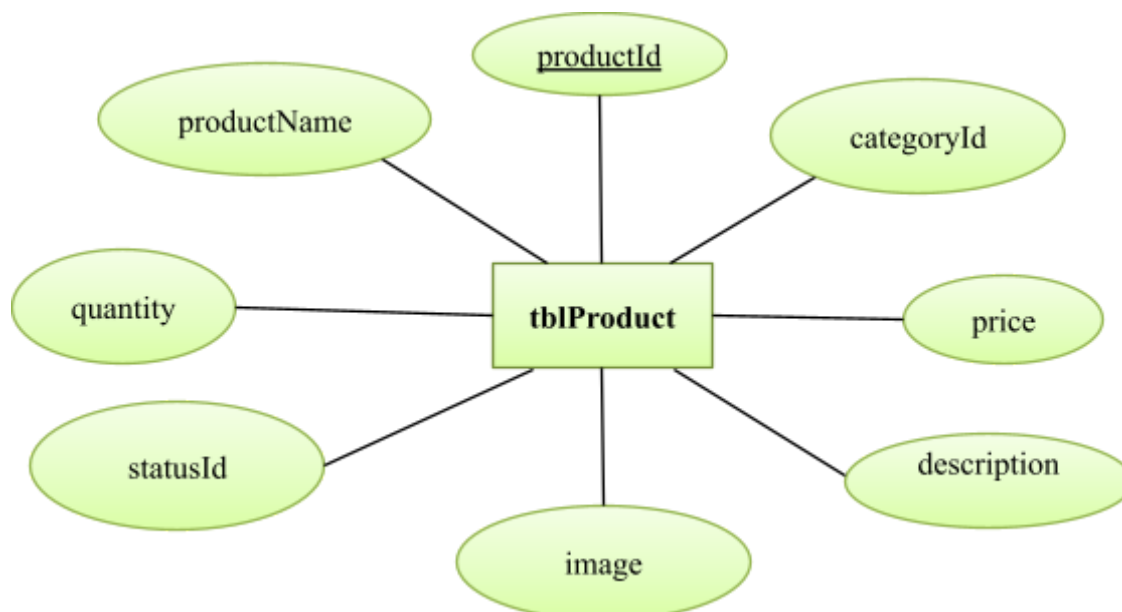


4.3 Entity description

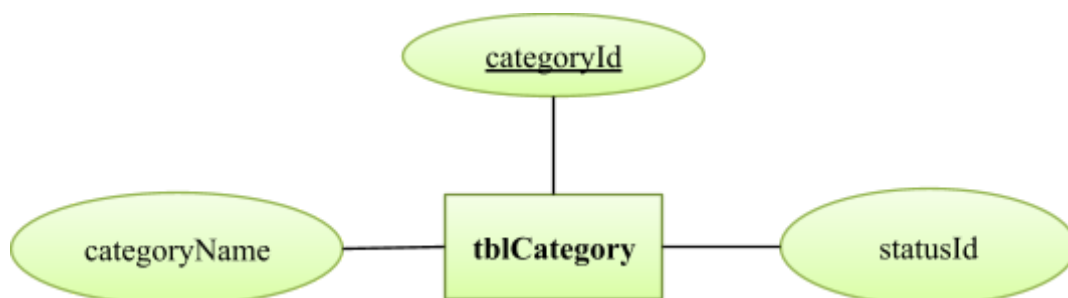
4.3.1 tblAccount:



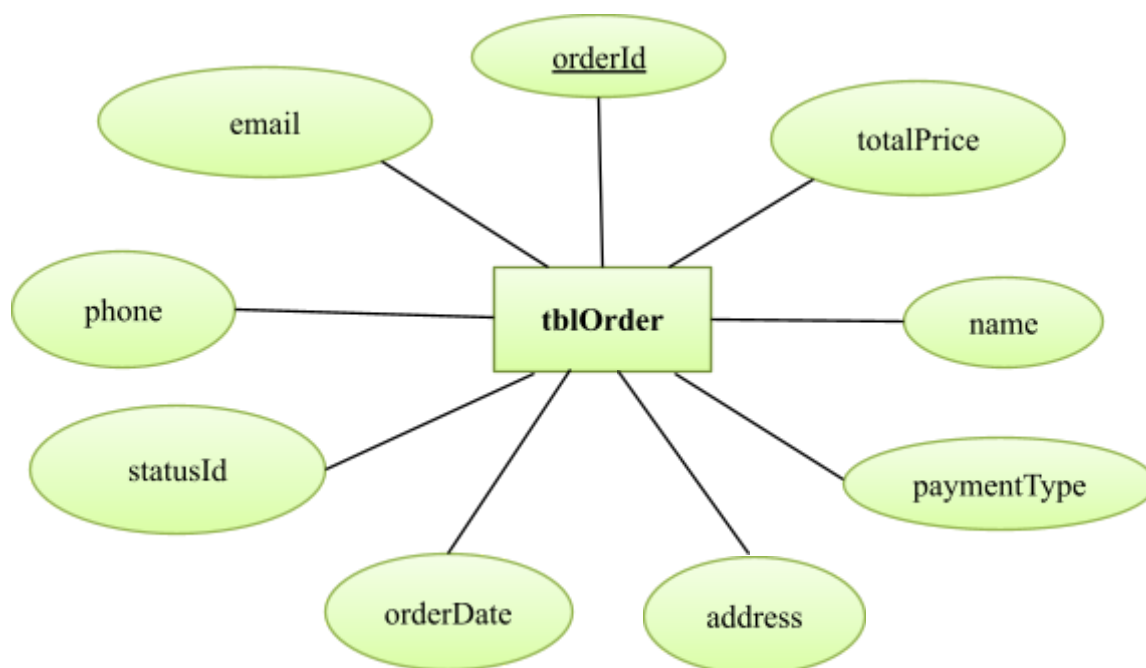
4.3.2 tblProduct:



4.3.3 tblCategory:



4.3.4 tblOrder:



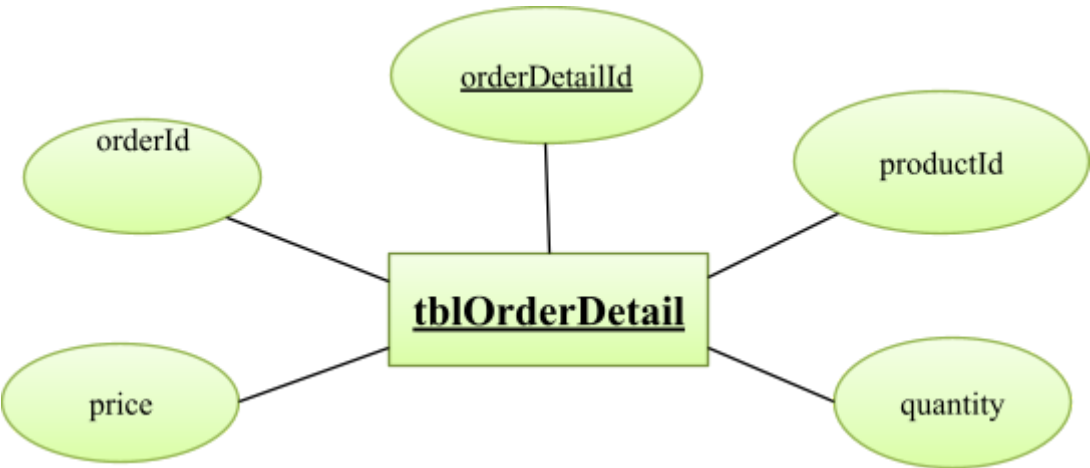
4.3.5 tblRole:



4.3.6 tblStatus:




_____ 4.3.7 tblOrderDetail:




4.4. Table design


4.3.1 tblAccount:

No	Column Name	Data Type	Size	Check	Description
1	 email	varchar	50	not null	Customer's email
2	password	varchar	50	not null	Customer's password
3	userName	nvarchar	50	not null	Customer's user name
4	statusID	int		not null	The status of account
5	roleID	int		not null	The role of account


4.3.2 tblProduct:

No	Column Name	Data Type	Size	Check	Description
1	 productId	uniqueidentifier		not null	The ID of product
2	productName	nvarchar	max	not null	Product's name
3	quantity	int		not null	The number of each product
4	price	float		not null	The price of each product
5	categoryId	uniqueidentifier		not null	The category ID of product
6	description	nvarchar	max	null	Product's description
7	image	nvarchar	max	not null	Product's image
8	statusId	int		not null	The status ID of product

4.3.3 tblCategory:


No	Column Name	Data Type	Size	Check	Description
1	 categoryId	uniqueidentifier		not null	The ID of category
2	categoryName	nvarchar	50	not null	Category's name
3	statusId	int		not null	The status ID of category

4.3.4 tblOrder:


No	Column Name	Data Type	Size	Check	Description
1	 orderId	uniqueidentifier		not null	The ID of order
2	email	varchar	50	not null	The customer's email of order
3	totalPrice	float		not null	The total price of order
4	paymentType	varchar	50	not null	The type of payment for order
5	statusId	int		not null	The status ID of order
6	orderDate	datetime		not null	The date when order is created
7	phone	nvarchar	50	not null	The customer's phone of order

8	address	nvarchar	max	not null	The customer's address of order
9	name	nvarchar	50	not null	The customer's name of order


4.3.5 tblRole:

No	Column Name	Data Type	Size	Check	Description
1	 roleId	int		not null	Role ID
2	roleName	varchar	50	not null	The name of role

4.3.6 tblStatus:

No	Column Name	Data Type	Size	Check	Description
1	 statusId	int		not null	Status ID
2	statusName	varchar	50	not null	The name of status

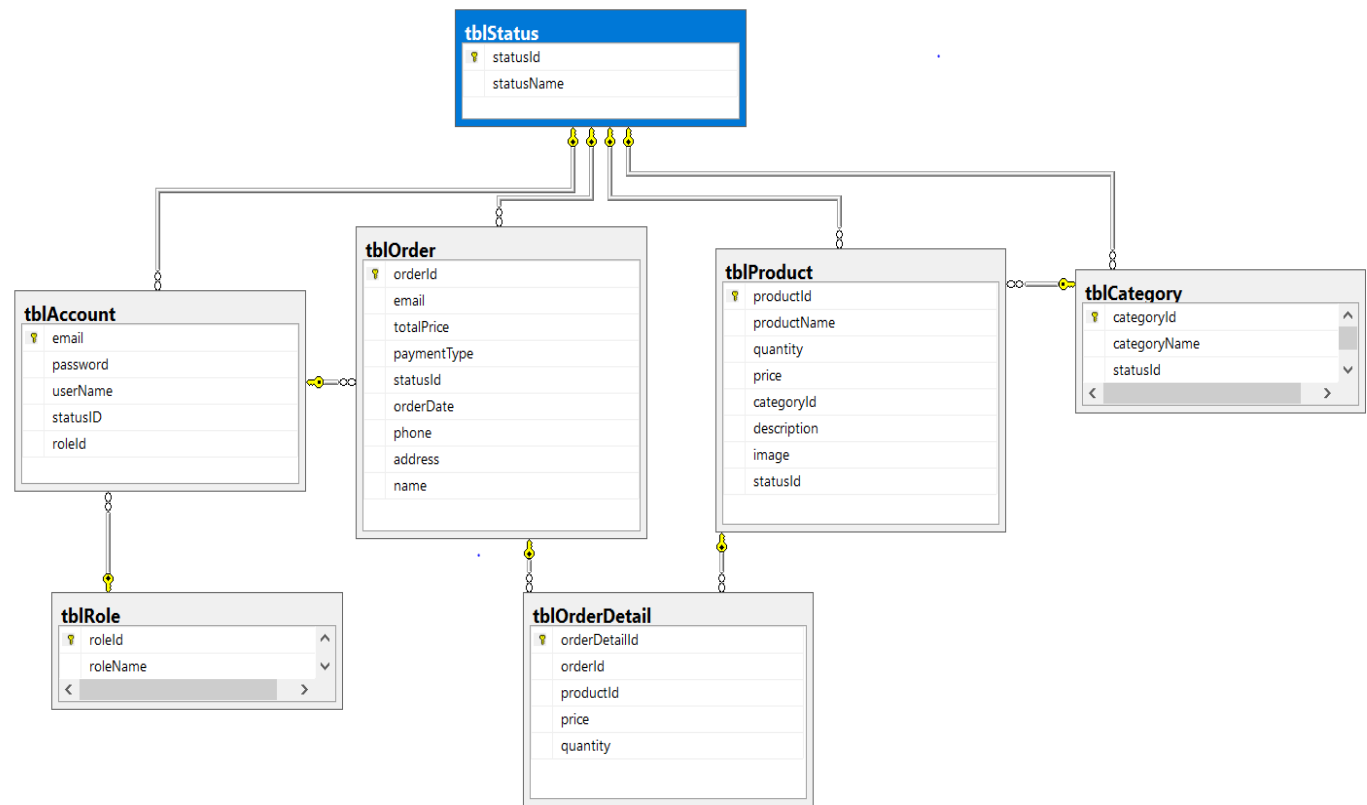
4.3.7 tblOrderDetail:

No	Column Name	Data Type	Size	Check	Description
1	 orderDetailId	uniqueidentifier		not null	The ID of order detail
2	orderId	uniqueidentifier		not null	Order ID of order detail
3	productId	uniqueidentifier		not null	The ID of each product
4	price	float		not null	The price of each product
5	quantity	int		not null	The quantity of each product

Note:

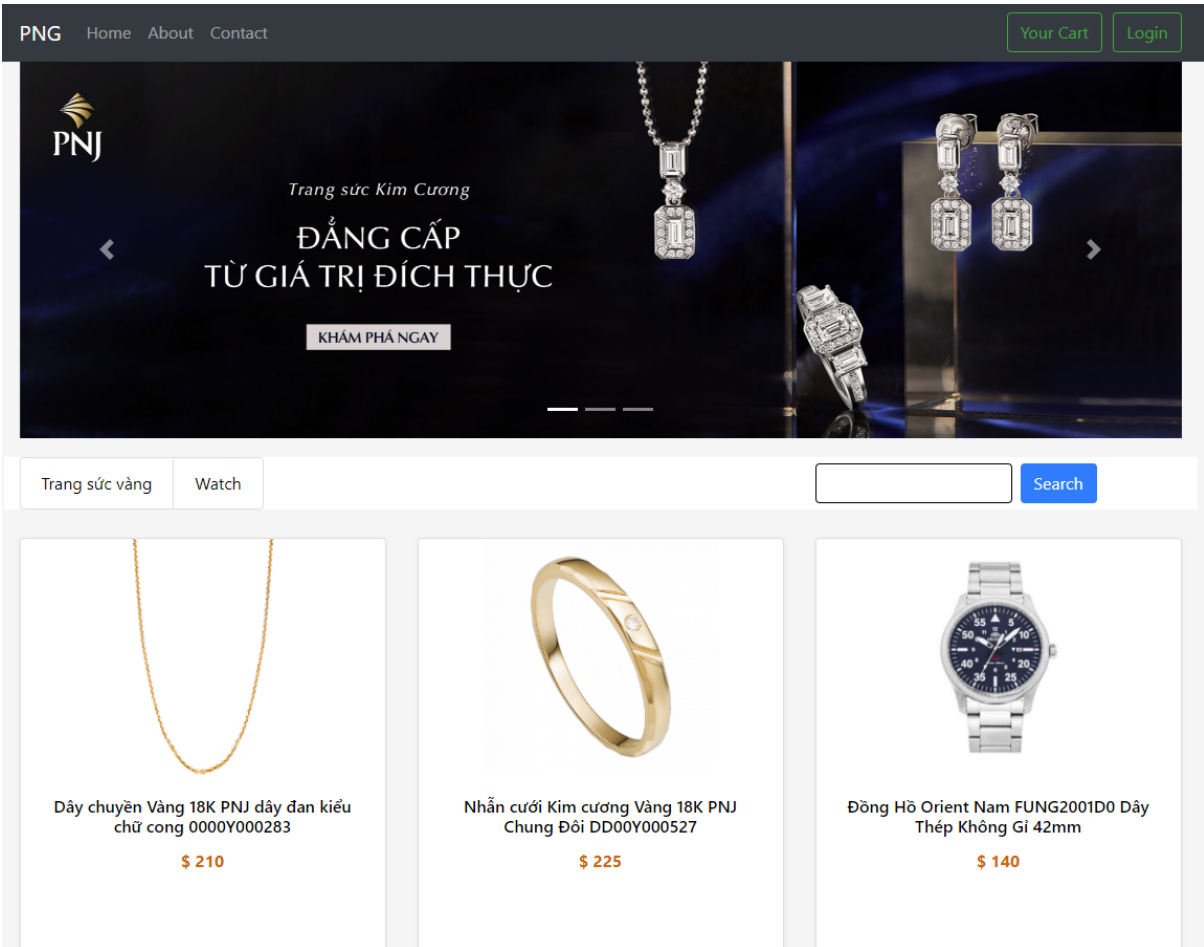
 Primary key

4.5. Table relationship diagram




5. Interface Design

5.1 Home page



Name	Type	Event	Validation	Description	Status
Home	Hyperlink		Click	Return Home Page.	
About	Hyperlink		Click	Return About Page which contains the information of PNG Jewellery.	
Contact	Hyperlink		Click	Return Contact Page which provides the methods of contact.	
Your Cart	Button		Click	View products which customers added.	
Login	Button		Click	Choose Login	
Trang sức vàng / Watch	Hyperlink		Click	Search products by category	
Search	Button		Click	Search products by text box	

5.2 Login


[Home](#)
[About](#)
[Contact](#)

[Your Cart](#)
[Login](#)

Sign in

Email

Password


Login

OR

Register

Name	Type	Event	Validation	Description	Status
Email	TextBox		String, not null	Input customer's email	
Password	TextBox		String, not null,	Input customer's password	
Login	Button		Click	Login	
Register	Button		Click	Create an account	

5.3 Register


[Home](#)
[About](#)
[Contact](#)

[Your Cart](#)
[Login](#)

Register

Email

UserName

Password

ConfirmPassword

Register

Name	Type	Event	Validation	Description	Status
Email	TextBox		String, not null	Input customer's email	
UserName	TextBox		String, not null	Input full name of customer	
Password	TextBox		String, not null,	Input customer's New password	
ConfirmPassword	TextBox		String,not null	Input customer's Password again to confirm	
Register	Button		Click	Create an account	

5.4 Detail product

PNG


Home

About

Contact

Your Cart

Login



Product Details

Dây chuyền Vàng 18K PNJ dây đơn
kiểu chữ cong 0000Y000283

Mã: 4721312b-5384-456b-aa05-385ede371461

Giá: \$210

Giá sản phẩm thay đổi tùy trọng lượng vàng và đá

Đổi sản phẩm trong 48h tại hệ thống cửa hàng PNG

Miễn phí giao hàng toàn quốc từ 2 - 7 ngày làm việc

Thêm vào giỏ hàng

Name	Type	Event	Validation	Description	Status
Add to cart	Button	Click		Add a product cart	

5.5 Cart

PNG

Home

About

Contact

Your Cart

Login

No	Product Name	Quantity	Unit Price	Total	
1	Đồng Hồ Orient Nam FUNG2001D0 Dây Thép Không Gỉ 42mm	<input type="text" value="1"/>	140 \$	140 \$	<div>UpdateDelete</div>
2	Nhẫn cưới Kim cương Vàng 18K PNJ Chung Đôi DD00Y000527	<input type="text" value="1"/>	225 \$	225 \$	<div>UpdateDelete</div>
3	Đồng Hồ Fossil Nam FS5536 Dây Nhựa 44mm	<input type="text" value="1"/>	100 \$	100 \$	<div>UpdateDelete</div>

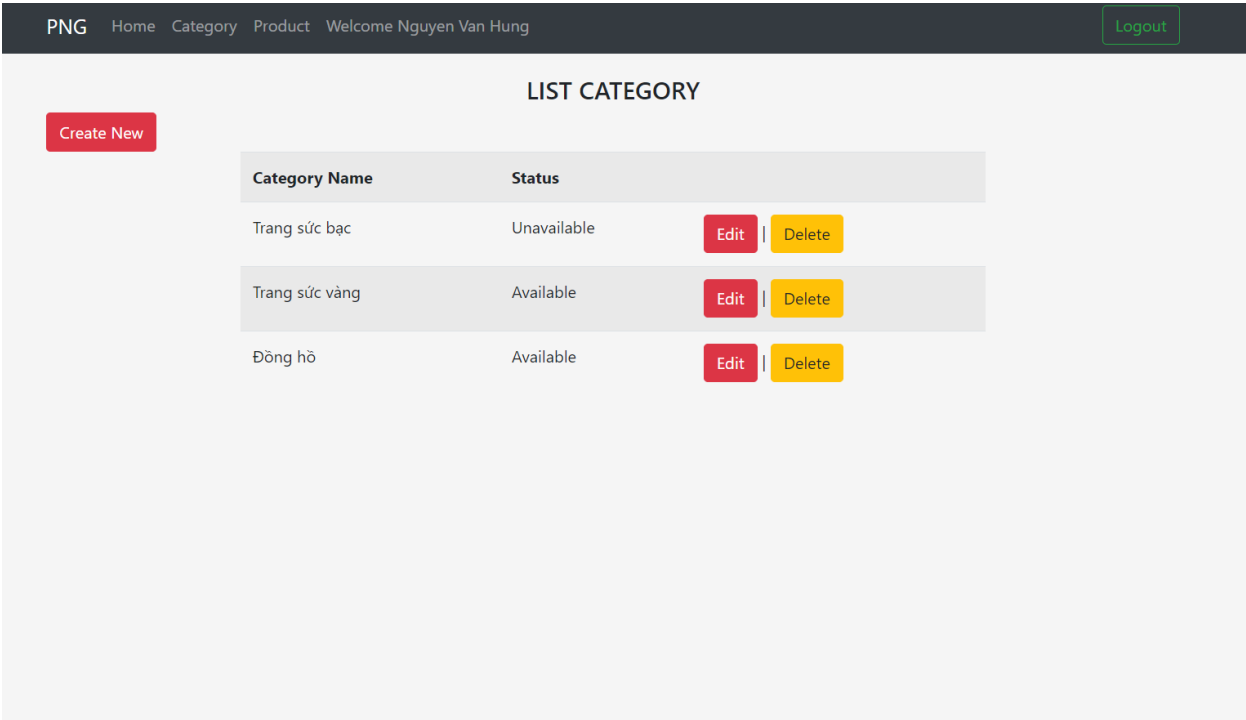
Total: 465 \$

Tiếp tục mua hàng

Tiến hành đặt hàng

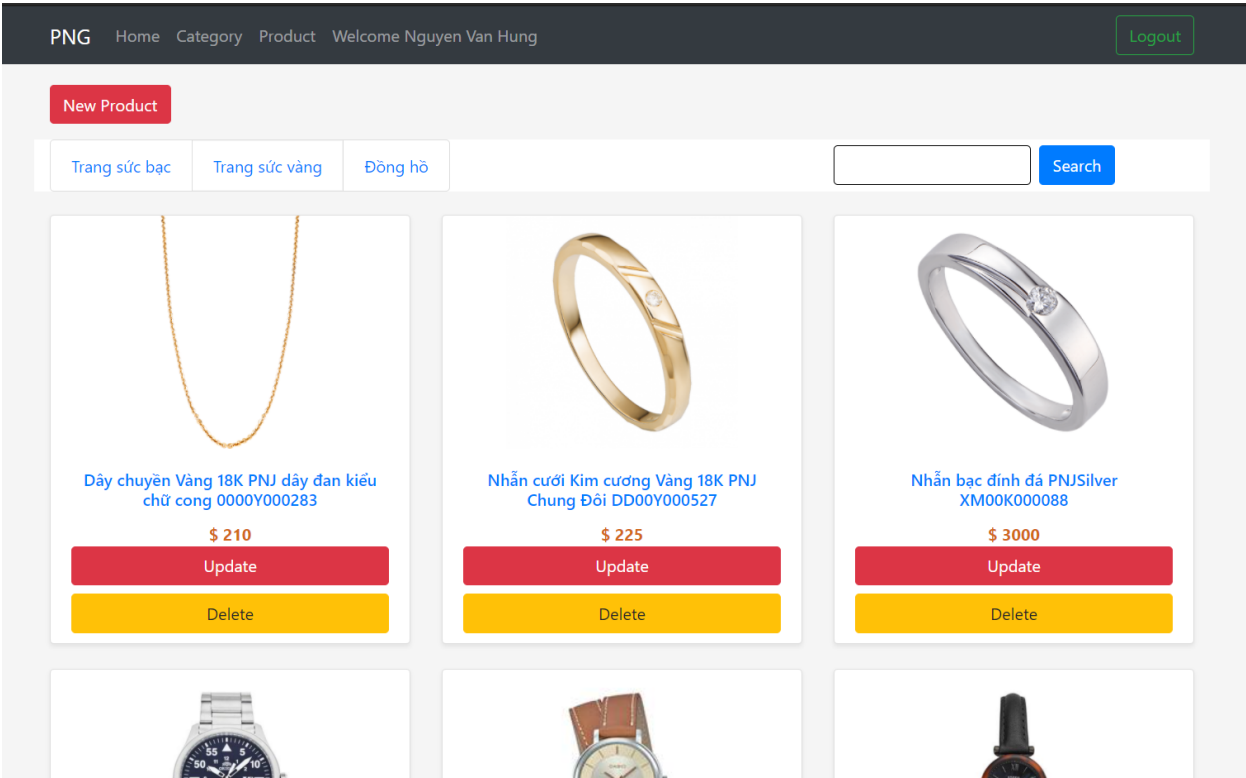
Name	Type	Event	Validation	Description	Status
Back to Shopping	Button	Click		Navigate to home page to continue shopping	
Checkout	Button	Click		Checkout cart	
Update	Button	Click		Update quantity of a product in cart	
Delete	Button	Click		Delete a product from cart	
Quantity Textbox	Textbox		Number	Change the quantity of product in cart	

5.6 List Category



Name	Type	Event	Validation	Description	Status
Edit	Button	Click		Navigate to edit category page	
Delete	Button	Click		Delete a category (change status)	
Create New	Button	Click		Navigate to create new category page	

5.7 List Product



Name	Type	Event	Validation	Description	Status
Update	Button	Click		Navigate to edit product page	
Delete	Button	Click		Delete a product (change status)	
New product	Button	Click		Navigate to create new product page	
Search	Button	Click		Search products based on name	
Search textbox	Textbox		String	Type a string to search	

5.8 Update product

PNGHomeCategoryProductWelcome Nguyen Van HungLogout

UPDATE PRODUCT

Name

Dây chuyền Vàng 18K PNJ dây đan kiểu chữ cong 0000Y000283

Quantity

100

Price

210

Description

Description

Image

ImageBrowse

Category

Trang sức vàng

Status

Available

Update

Name	Type	Event	Validation	Description	Status
Update	Button	Click		Submit update product	
Information textboxes	Textbox		String, Number	Type information of each field for product	

5.9 Order history

PNG

Home

About

Contact

History Order

Welcome Tran Khanh Hung

Your Cart

Logout

History

Customer Name: Tran Khanh Hung

Order Date: 11/9/2020 10:40:48 PM

Phone: Buon Ma Thuot City

Phone: 0945513672

Payment Method: Cash

Payment Status: Not yet

No	Name	Quantity	Unit Price	Total
1	Đồng Hồ Fossil Nam FS5536 Dây Nhựa 44mm	3	100 \$	300 \$
2	Nhẫn cưới Kim cương Vàng 18K PNJ Chung Đới DD00Y000527	2	225 \$	450 \$
			Total	750 \$

Customer Name: Nguyen Van Hung

Order Date: 11/9/2020 10:42:51 PM

Phone: Buon Ma Thuot City

Phone: 0909231232

Payment Method: Cash

Payment Status: Not yet

5.10 Checkout Information

PNG

Home

About

Contact

History Order

Welcome Tran Khanh Hung

Your Cart

Logout

Thông tin khách hàng

Name

Phone

Address

Đặt hàng

Checkout	Button	Click		Submit update product	
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Information textboxes	Textbox		String, Number	Type information of customer before checkout	
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6. Task Sheet

No	Task Detail	Member	Status	Note
1	Login function	Hung	Done	
2	Register function	Hung	Done	
3	List all kinds of category and product in home page	Hung	Done	
4	Search based on category and name	Hung	Done	
5	List all category(for admin)	Vy	Done	
6	List all product (for admin)	Tu	Done	
7	Create new category	Vy	Done	
8	Create new product	Tu	Done	
9	Update selected category	Vy	Done	
10	Update selected product	Tu	Done	
11	Delete a category	Vy	Done	
12	Delete a product	Tu	Done	
13	Add a product to cart	Hung	Done	
14	Update quantity of a product in cart	Hung	Done	
15	Delete a product from cart	Hung	Done	
16	Checkout (including checking out of stock before submitting to database)	Hung	Done	
17	Draw ERD diagram, entity description	Vy	Done	
18	Show list of order history	Hung	Done	

PNG Jewelry

19	Draw use case and class diagram	Hung	Done	
20	Write architecture, interface design	Tu	Done	
21	Use case diagram	Hung, Tu, Vy	Done	