

HKU SPACE Community College
University of Plymouth – Computer and Information Security
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ISAD251 - Database Application Development

Application Design Document

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GitHub repository: <https://github.com/prince116/ISAD251-COURSEWORK>

YouTube Video: <https://youtu.be/I6266765lsQ>

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1 Background

This is a web application that will provide the ability for a customer to order some snacks and drinks in the café. It also provided the administrator tools for café owner to enter details of drinks and snacks for sale.

As a customer, you can:

- Order a drink or snack.
- Check what you have ordered.
- Add more drink or snack to your current order.
- Cancel your order for a drink or snack.

As the admin, you can:

- Enter details of drinks or snacks for sale.
- Read details of drinks or snacks.
- Edit details of drinks or snacks for sale.
- Withdraw a drink or snack from sale.
- View all customer's orders.

* The web application does not include payments, delivering the order and users management.

2 Getting Started

2.1 Guide to running application

The following steps will lead you to run the application:

1. Clone the source code from GitHub to Desktop
2. Open the project file MyShop.sln
(ISAD251-COURSEWORK > application > MyShop > MyShop.sln)
3. On the menu, click Tools > NuGet Package Manager > Package Manager Console
4. Enter command `update-database`
5. On the menu, click View > Server Explorer, expand the Data Connections
7. Right click on the DefaultConnection > New Query
8. Copy all SQL statements from the SQL file
(ISAD251-COURSEWORK > SQL > ISAD251.sql)
9. Paste all SQL statements to the New Query tab and execute all SQL statements.
10. On the top menu, click Build > Clean Solution
11. You can run the application.

YouTube Video for how to run the application:

<https://youtu.be/ncrS5tlbLXI>

2.2 Account

Administrator

Email: admin@myshop.com

Password: Aa~11111111

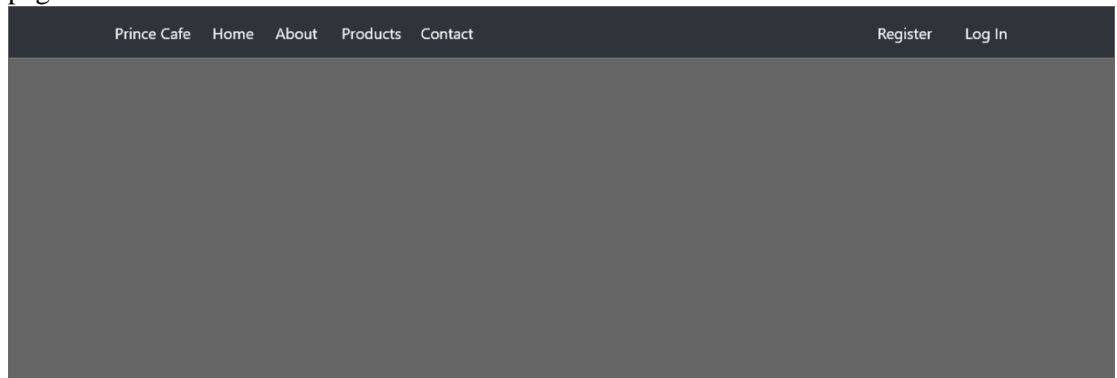
Customer

Email: prince@gmail.com

Password: Aa~11111111

3 Storyboard

1. If this is your first time to visit our website, you can create an account in registration page.



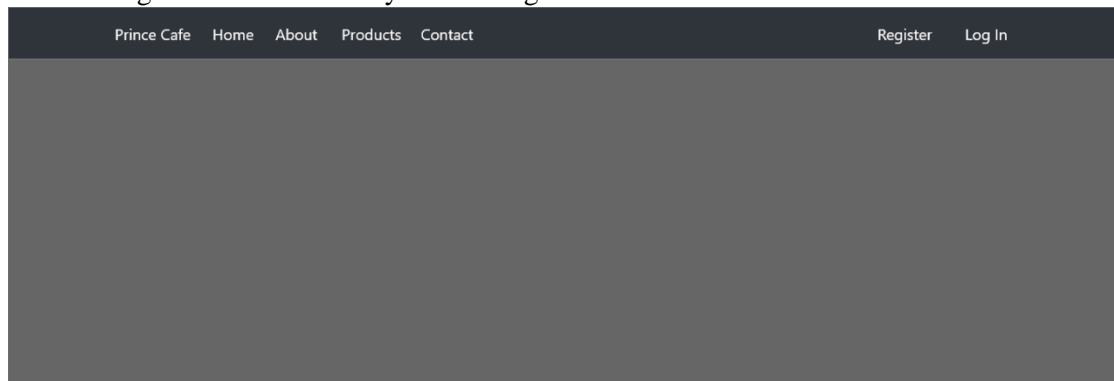
Home / Registration

Registration

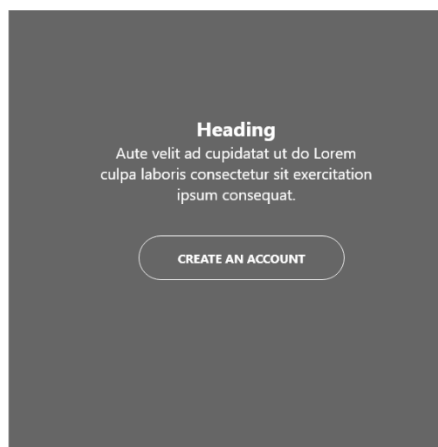
REGISTER



2. You can login our website with your existing account.



Home / Login



Welcome

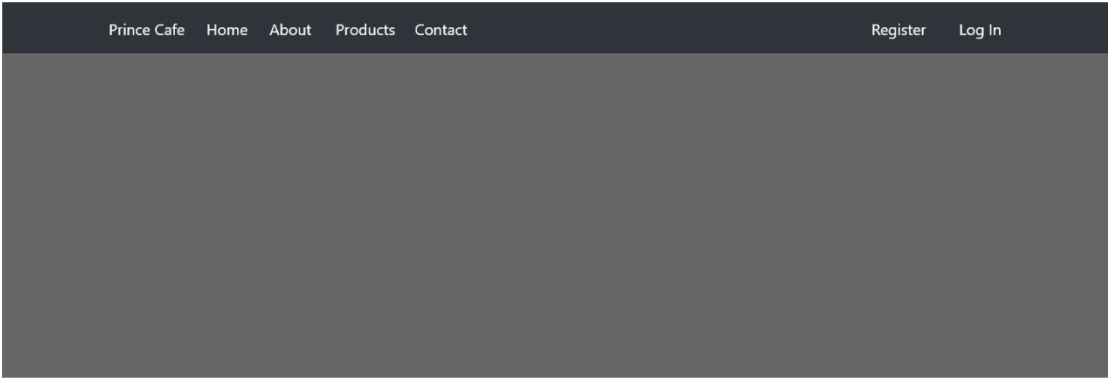
Email

Password

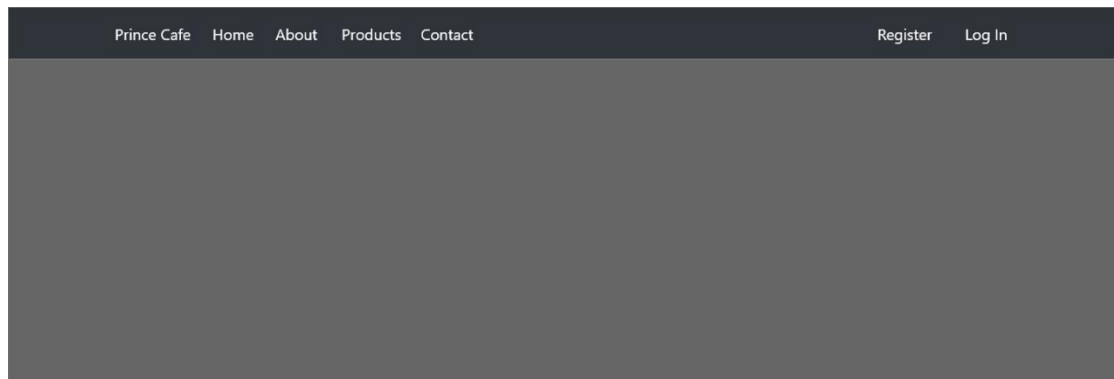
LOGIN



3. After login to our website, you should redirect to our home page. The home page will display six items randomly. You should see “Add to cart” button when your mouse hover on the product image.



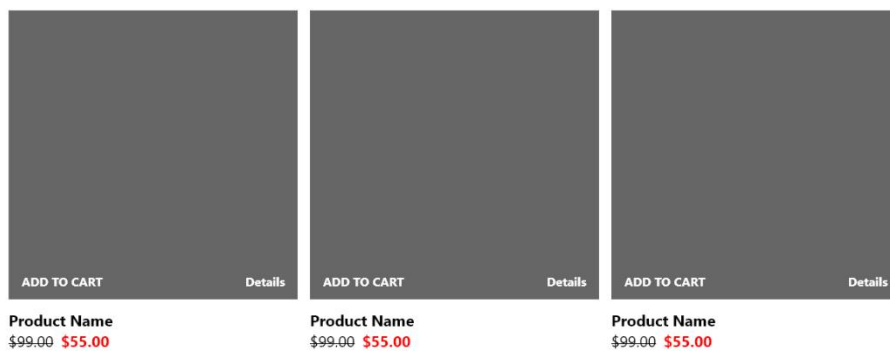
4. The product page includes filter and search function. For example, if you click snack or drinks button, the relevant items will be shown in below section. If you enter any keyword into the search box, the relevant items will be shown in below section.



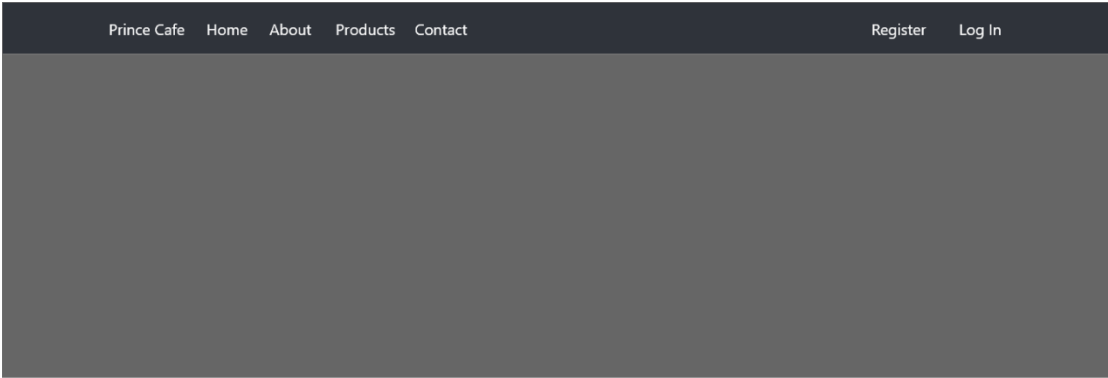
Home / Products

All / Food / Drink

Search for ...



5. This is the product details page. Once you confirm to buy the product, you may select the quantity and click “Add to cart” button. The selected item will be added to your shopping cart.



[Home](#) / [Products](#) / [Product Details](#)



Product Name

Aute velit ad cupidatat ut do Lorem culpa laboris consectetur sit exercitation ipsum consequat. Aliqua cillum ut excepteur velit nisi reprehenderit qui excepteur eu sint ea. Non veniam aliquip nostrud irure.aute consequat proident magna nulla id et excepteur eiusmod sit. Consequat cupidatat amet veniam occaecat sunt.

~~\$33.00~~

\$22.00

Status: In Stock

Quantity:

ADD TO CART

Related Products



[ADD TO CART](#) [Details](#)

Product Name
~~\$99.00~~ **\$55.00**



[ADD TO CART](#) [Details](#)

Product Name
~~\$99.00~~ **\$55.00**



[ADD TO CART](#) [Details](#)

Product Name
~~\$99.00~~ **\$55.00**

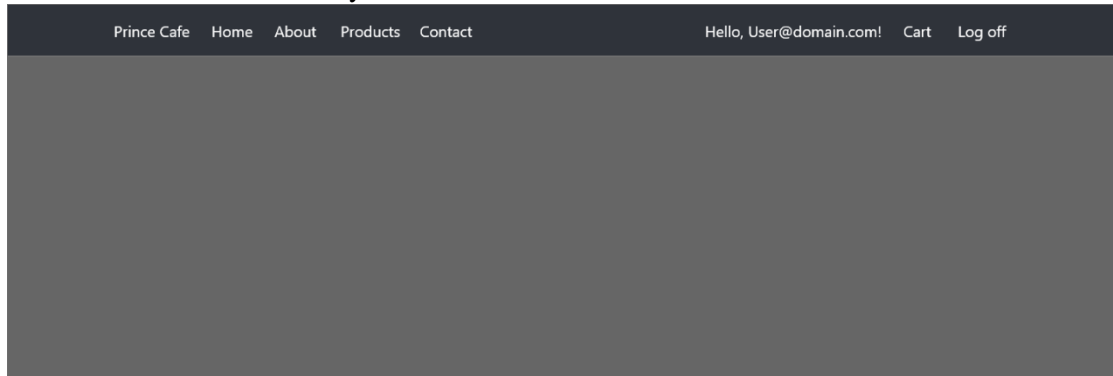


[ADD TO CART](#) [Details](#)

Product Name
~~\$99.00~~ **\$55.00**






6. You can update the quantity of the product in your shopping cart. The total price will be updated immediately. You also can remove unwanted items. Once the order is confirmed, you can click the “Proceed to check out” button. You are required to choose to dine in or take away.



[Home](#) / [Cart](#)

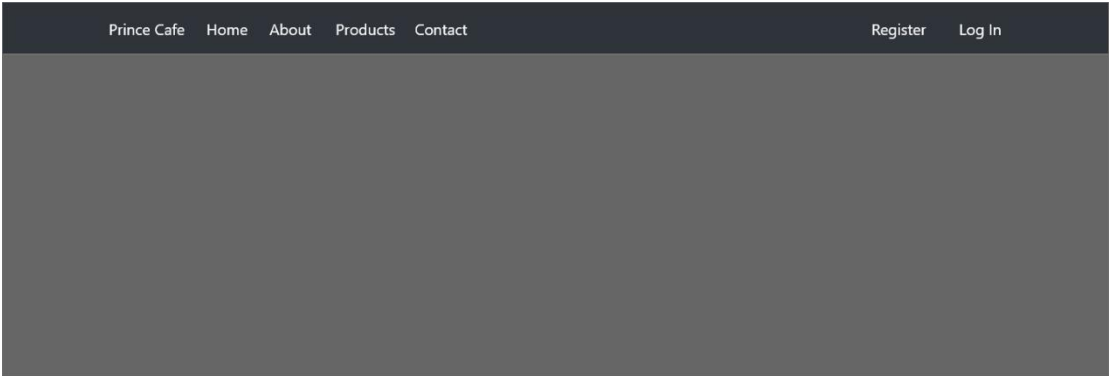
Your Cart

Product		Price	Quantity	Total
	Product Name Remove	\$55.00	<input type="text" value="30"/>	\$1650.00
	Product Name Remove	\$55.00	<input type="text" value="30"/>	\$1650.00
	Product Name Remove	\$55.00	<input type="text" value="30"/>	\$1650.00
				CANCEL ORDER
				Total \$4950.00

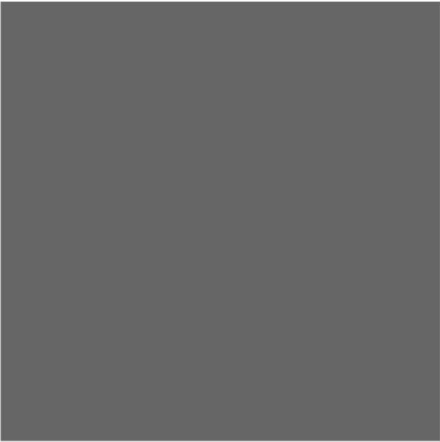
[PROCEED TO CHECK OUT](#)



7. This is the about us page.



Home / About



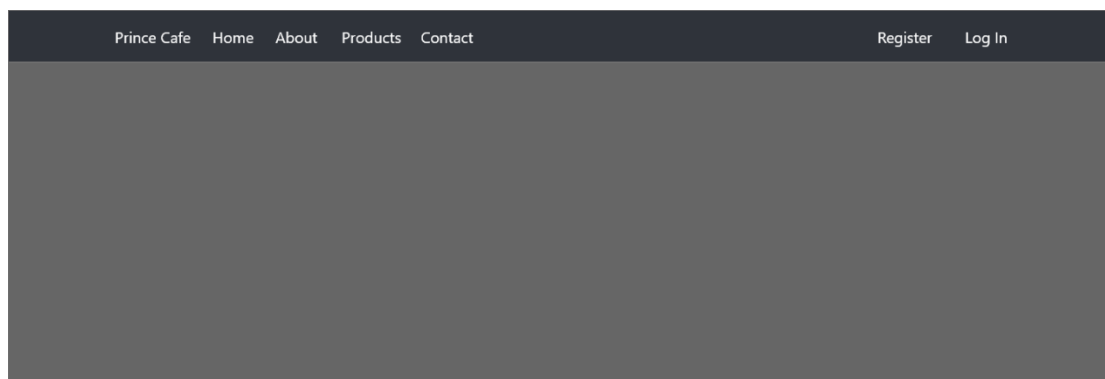
Aute velit ad cupidatat ut do Lorem culpa laboris consectetur sit exercitation ipsum consequat. Aliqua cillum ut excepteur velit nisi reprehenderit qui excepteur eu sint ea. Non veniam aliquip nostrud irure. Aute consequat proident magna nulla id et excepteur eiusmod sit. Consequat cupidatat amet veniam occaecat sunt.

Aute velit ad cupidatat ut do Lorem culpa laboris consectetur sit exercitation ipsum consequat. Aliqua cillum ut excepteur velit nisi reprehenderit qui excepteur eu sint ea. Non veniam aliquip nostrud irure. Aute consequat proident magna nulla id et excepteur eiusmod sit. Consequat cupidatat amet veniam occaecat sunt.

Aute velit ad cupidatat ut do Lorem culpa laboris consectetur sit exercitation ipsum consequat. Aliqua cillum ut excepteur velit nisi reprehenderit qui excepteur eu sint ea. Non veniam aliquip nostrud irure. Aute consequat proident magna nulla id et excepteur eiusmod sit. Consequat cupidatat amet veniam occaecat sunt.



8. This is the contact page. You can provide some feedback to our administrator.



Home / Contact

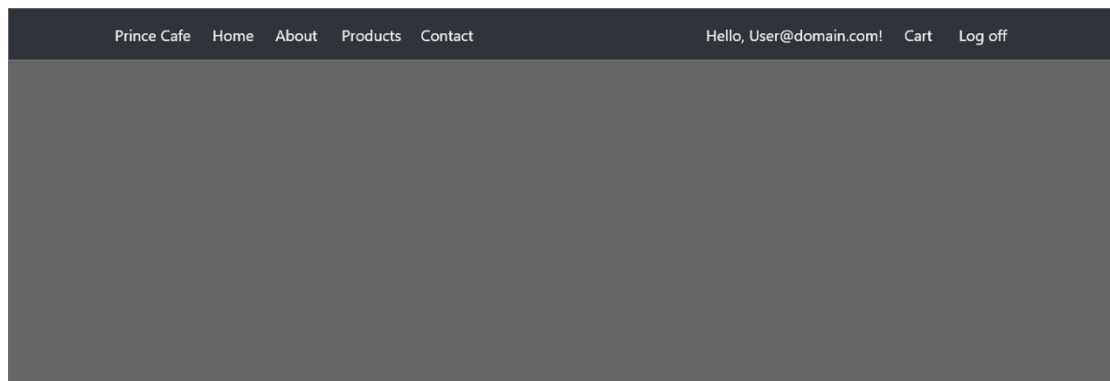
Get In touch

First Name	Last Name
Email	
Subject	
Message	

SEND MESSAGE



9. You can see your purchase histories in your profile page.



[Home](#) / [Account](#)

Purchase History

Order No: 000000001
Transaction Status: Checkout
Order Date: Thu, December 11, 2019 00:01:49
Amount: \$55.00

Order No: 000000002
Transaction Status: Checkout
Order Date: Thu, December 11, 2019 00:01:49
Amount: \$55.00

Order No: 000000003
Transaction Status: Checkout
Order Date: Thu, December 11, 2019 00:01:49
Amount: \$55.00



10. This is the purchase record details page.

Prince Cafe

Home

About

Products

Contact




Hello, User@domain.com!

Cart

Log off

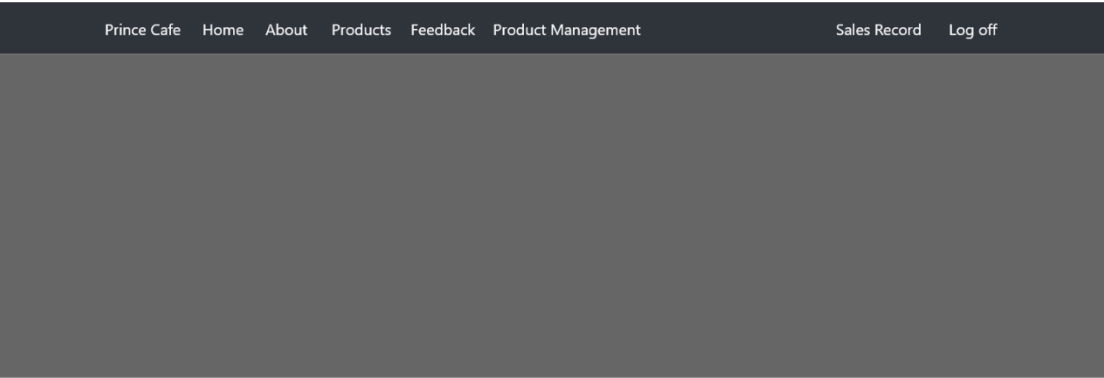
Home / Cart

Your Cart

Product		Price	Quantity	Total
	Product Name	\$55.00	30	\$1650.00
	Product Name	\$55.00	30	\$1650.00
	Product Name	\$55.00	30	\$1650.00

Back

11. Logged in as administrator, we can manage products, order histories and view customer feedbacks. In the feedback management page, we can view customer feedbacks.



Home / Feedback

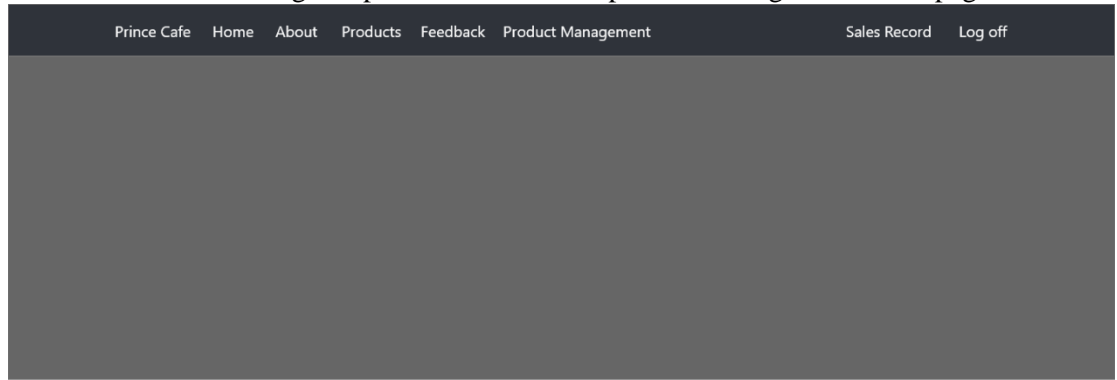
Subject: Hello World	Date: Sunday , January 5, 2019 13:00:00
From: Peter Email: peter@gmail.com Message: This is the message	

Subject: Hello World	Date: Sunday , January 5, 2019 13:00:00
From: Peter Email: peter@gmail.com Message: This is the message	

Subject: Hello World	Date: Sunday , January 5, 2019 13:00:00
From: Peter Email: peter@gmail.com Message: This is the message	







12. Administrator can manage all products. This is the product management home page.



Home / Product Management

Product Management

CREATE PRODUCT

	Product Name Price: \$99.00 Last Modified at: Wednesday, Decemeber 11, 2019 18:00:00	Edit Details
	Product Name Price: \$99.00 Last Modified at: Wednesday, Decemeber 11, 2019 18:00:00	Edit Details
	Product Name Price: \$99.00 Last Modified at: Wednesday, Decemeber 11, 2019 18:00:00	Edit Details
	Product Name Price: \$99.00 Last Modified at: Wednesday, Decemeber 11, 2019 18:00:00	Edit Details



13. This is the page for creating product.

Prince Cafe

Home

About

Products

Feedback

Product Management

Sales Record

Log off

Home / Product Management / Create

Publish

☐ Yes ☒ No

Product Name

Category

Product Description

Price

Discounted Price

Sales Period Start At

Sales Period End At

Stock Quantity

Thumbnail

CREATE

BACK TO LIST

14. This is the page for reading product details.

Prince CafeHomeAboutProductsFeedbackProduct ManagementSales RecordLog off

Home / Product Management / Edit

Publish

Yes

Product Name

Product Name

Category

Snack

Product Description

Aute consequat proident magna nulla id et excepteur eiusmod sit. Consequat cupidatat amet veniam occaecat sunt.

Price

\$33.00

Discounted Price

\$22.00

Sales Period Start At

2019-11-11

Sales Period End At

2020-11-11

Stock Quantity

30

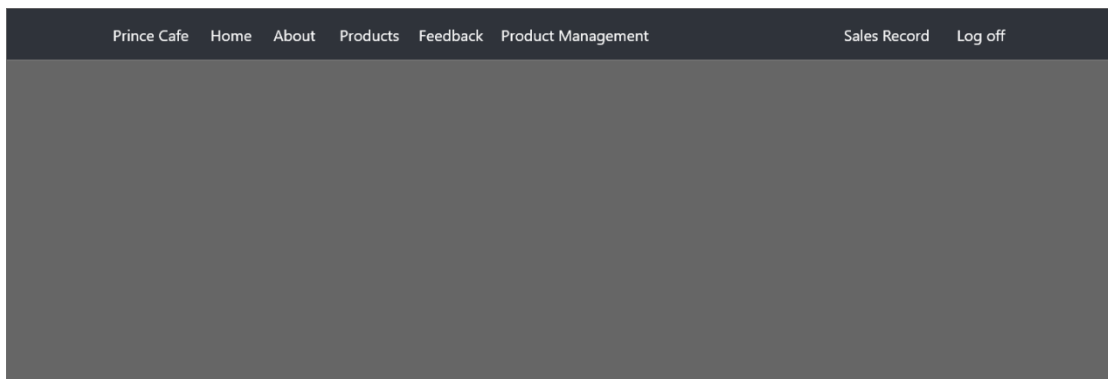
Thumbnail

Edit

BACK TO LIST

Page 18 of 36

15. As an administrator, you can check order histories.



Home / Account

Sales Record

Order No: 000000001
Transaction Status: Checkout
Order Date: Thu, December 11, 2019 00:01:49
Delivery: Dinn In
Table No. : 5
Amount: \$55.00

Order No: 000000001
Transaction Status: Checkout
Order Date: Thu, December 11, 2019 00:01:49
Delivery: Dinn In
Table No. : 5
Amount: \$55.00

Order No: 000000001
Transaction Status: Checkout
Order Date: Thu, December 11, 2019 00:01:49
Delivery: Dinn In
Table No. : 5
Amount: \$55.00

Order No: 000000001
Transaction Status: Checkout
Order Date: Thu, December 11, 2019 00:01:49
Delivery: Dinn In
Table No. : 5
Amount: \$55.00






16. This is the order histories details page

Prince CafeHomeAboutProductsFeedbackProduct ManagementSales RecordLog off

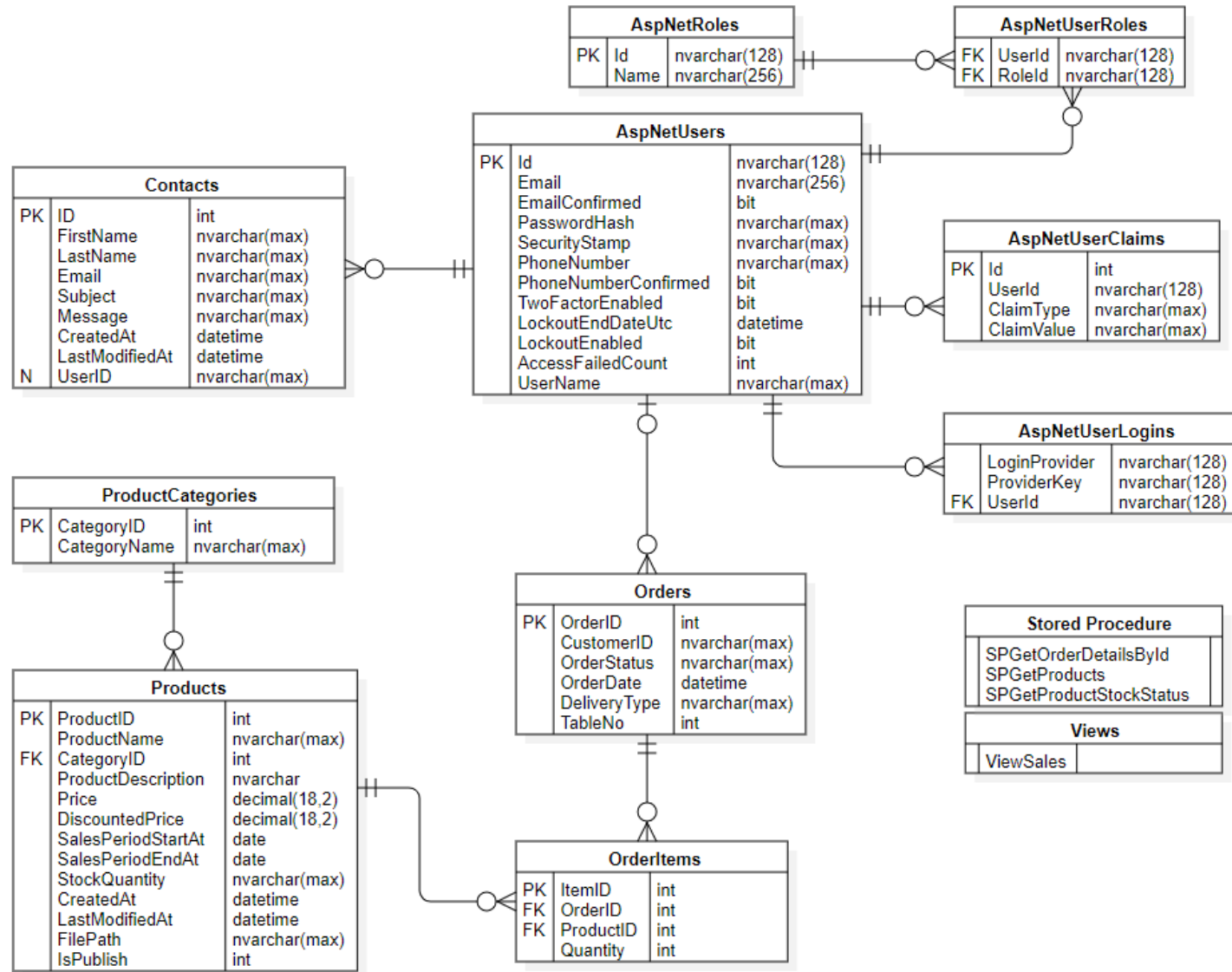
Home / Order / Order Details

Sales Record Details

Product		Price	Quantity	Total
	Product Name	\$55.00	30	\$1650.00
	Product Name	\$55.00	30	\$1650.00
	Product Name	\$55.00	30	\$1650.00

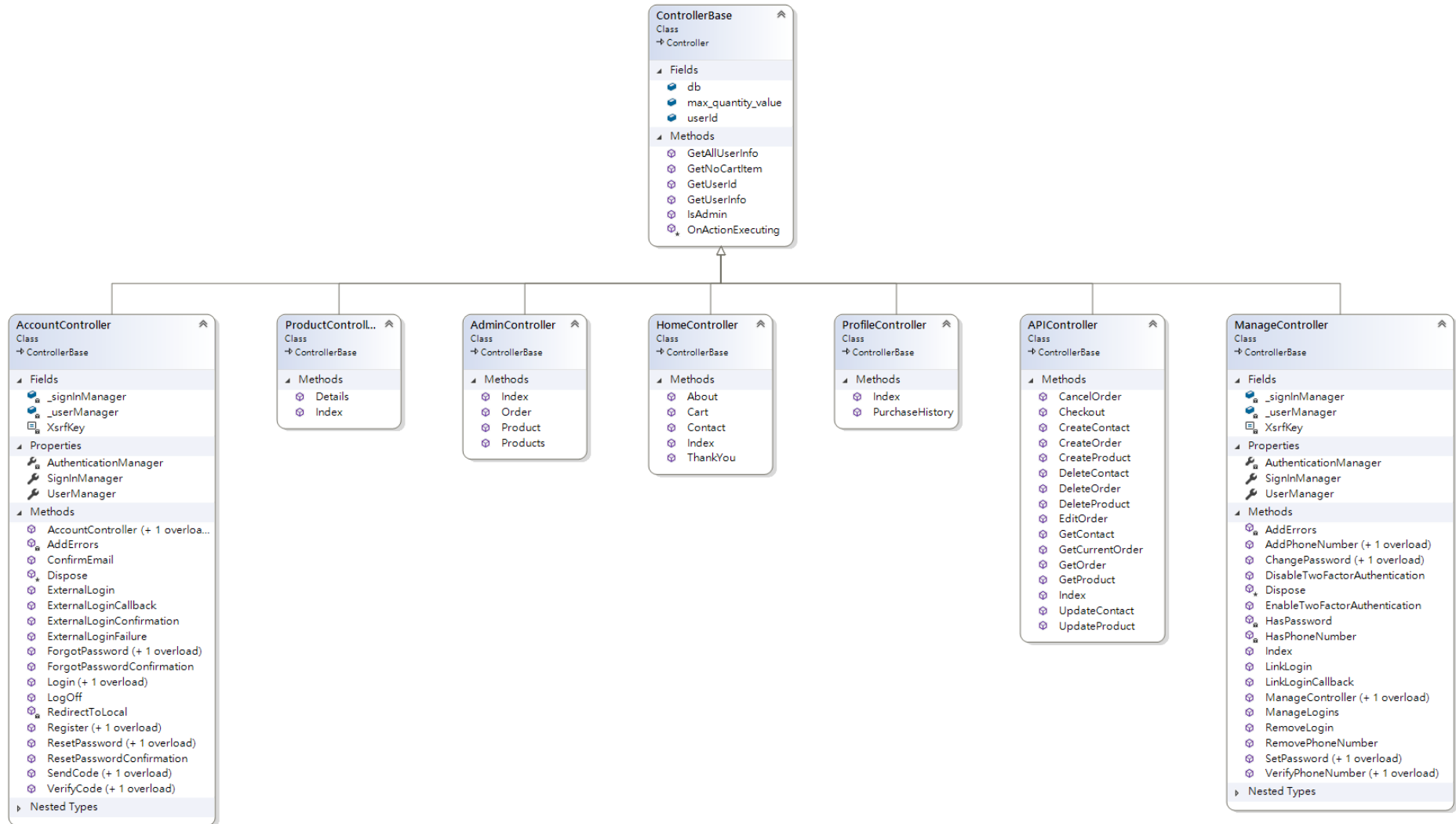
Back

4 Entity-Relationship Diagram



Remark: Tables include AspNetRoles, AspNetUserRoles, AspNetUsers, AspNetUserClaims and AspNetUserLogins were generated by ASP.NET MVC.

5 Class Diagram



6 RESTful API

API request by using **POST**, **PUT** and **DELETE** methods are required to request with verification token to prevent **CSRF (Cross-site request forgery)**.

6.1 Product API

/api/product GET

List all products

Response

```
{
  "products": [{
    "product_id": 21,
    "product_name": "Caffè Misto",
    "product_description": "A one-to-
one mix of fresh brewed coffee and steamed milk add up to one distinctly delicious coffee drink.",
    "category_id": 2,
    "category_name": "Drink",
    "price": "$33.00",
    "discounted_price": "$22.00",
    "stock": 30,
    "file_path": "/Uploads/file_20191211060500.jpg",
    "discount": true,
    "last_modified_at": "Wednesday, December 11, 2019 18:05:00"
  }, {
    "product_id": 20,
    "product_name": "Caffè Mocha",
    "product_description": "Espresso combined with mocha syrup and steamed milk, topped with
whipped cream.",
    "category_id": 2,
    "category_name": "Drink",
    "price": "$60.00",
    "discounted_price": "$55.00",
    "stock": 60,
    "file_path": "/Uploads/file_20191211060409.jpg",
    "discount": true,
    "last_modified_at": "Wednesday, December 11, 2019 18:04:09"
  }]
}
```

/api/product/:id GET

List a product by id

Response

```
{
  "product": {
    "id": 9,
    "is_publish": "Yes",
    "name": "Christmas Tree Brownie",
    "description": "Chocolate brownie with a layer of chocolate buttercream and finished with a s
prinkling of gold dust",
    "category": "Food",
    "price": "$80.00",
    "discounted_price": "$70.00",
    "sales_period_start": "2019-11-11",
    "sales_period_end": "2023-11-11",
    "stock": 30,
    "file_path": "/Uploads/file_20191212104830.jpg"
  }
}
```

/api/product POST

Create a product

Parameters

Parameter Name	Data Type
ProductName	String
ProductDescription	String
CategoryID	Integer
Price	Decimal
DiscountedPrice	Decimal
SalesPeriodStartAt	DateTime
SalesPeriodEndAt	DateTime
StockQuantity	Integer
Thumbnail	String
IsPublish	Integer
__requestverificationtoken	String

Response

```
{
  "Message": "Record has been created."
}
```

/api/product/:id PUT

Update a product by id

Parameters

Parameter Name	Data Type
ProductName	String
ProductDescription	String
CategoryID	Integer
Price	Decimal
DiscountedPrice	Decimal
SalesPeriodStartAt	DateTime
SalesPeriodEndAt	DateTime
StockQuantity	Integer
Thumbnail	String
IsPublish	Integer
__requestverificationtoken	String

Response

```
{
  "Message": "Record with ID :id has been updated."
}
```

/api/product/:id Delete

Delete a product by id

Parameters

Parameter Name	Data Type
id	Integer
__requestverificationtoken	String

Response

```
{
  "Message": "Record with ID :id has been deleted."
}
```

6.2 Order API

/api/order GET

List all orders

Response

```
{
  "orders": [{
    "invoice_no": 4,
    "order_no": 4,
    "order_datetime": "Thursday, January 9, 2020 13:05:46",
    "order_status": "CHECKOUT",
    "total_amount": "$160.00",
    "delivery_type": "Dinn In",
    "table_no": 4
  }, {
    "invoice_no": 2,
    "order_no": 2,
    "order_datetime": "Thursday, December 12, 2019 00:08:49",
    "order_status": "CHECKOUT",
    "total_amount": "$55.00",
    "delivery_type": "Dinn In",
    "table_no": 5
  }]
}
```

/api/order/:id GET

List an order by id

Response

```
{
  "orderedItems": [{
    "category": "Drink",
    "item_id": 4,
    "product_id": 20,
    "product_name": "Caffè Mocha",
    "product_description": "Espresso combined with mocha syrup and steamed milk, topped with
whipped cream.",
    "price": "$55.00",
    "sub_total": "$110.00",
    "file_path": "/Uploads/file_20191211060409.jpg",
    "quantity": 2,
    "stock": 59
  }, {
    "category": "Drink",
    "item_id": 5,
    "product_id": 15,
    "product_name": "Cappuccino",
    "product_description": "Dark, rich espresso combined with steamed milk, topped with a deep
layer of foam.",
    "price": "$50.00",
    "sub_total": "$50.00",
    "file_path": "/Uploads/file_20191211055853.jpg",
    "quantity": 1,
    "stock": 79
  }],
  "totalAmount": "$160.00",
  "orderId": 4,
  "firstName": "Jennifer",
  "lastName": "Mak",
  "email": "jennifer@gmail.com",
  "phoneNumber": "99956789",
  "deliveryType": "dinn_in",
  "tableNo": 4,
  "orderDate": "Thursday, January 9, 2020 13:05:46"
}
```

/api/order POST

Create an order and add ordered items to the order

Parameters

Parameter Name	Data Type
ProductID	Integer
Quantity	Integer
__RequestVerificationToken	String

Response

```
{
  "Message": "The product has been added to the shopping cart."
}
```

/api/order/:id PUT

Update an order by id

Parameters

Parameter Name	Data Type
ItemID	Integer
Quantity	Integer
__RequestVerificationToken	String

Response

```
{
  "Status": "SUCCESS",
  "Message": "Record has been updated."
}
```

/api/order DELETE

Cancel current order

Parameters

Parameter Name	Data Type
ItemID	Integer
__RequestVerificationToken	String

Response

```
{
  "Status": "SUCCESS",
  "Message": "Your order has been cancelled."
}
```

6.3 Contact API

/api/contact GET

List all feedbacks from users

Response

```
{
  "IsEmpty": false,
  "Records": [{
    "subject": "Hello World",
    "first_name": "Peter",
    "last_name": "Wong",
    "email": "peter@gmail.com",
    "message": "This is the message",
    "date": "Sunday, January 5, 2020 13:21:39"
  }]
}
```

/api/contact/:id GET

List a feedback by id

Response

```
{
  "contact": {
    "ID": 1,
    "FirstName": "Peter",
    "LastName": "Wong",
    "Email": "peter@gmail.com",
    "Subject": "Hello World",
    "Message": "This is the message",
    "CreatedAt": "✓Date(1578201699373)✓",
    "LastModifiedAt": "✓Date(1578201699373)✓",
    "UserID": "15b4fdf8-27f2-43ed-a56e-98897acc1fab"
  }
}
```

/api/contact POST

Create a feedback

Parameters

Parameter Name	Data Type
FirstName	String
LastName	String
Email	String
Subject	String
Message	String

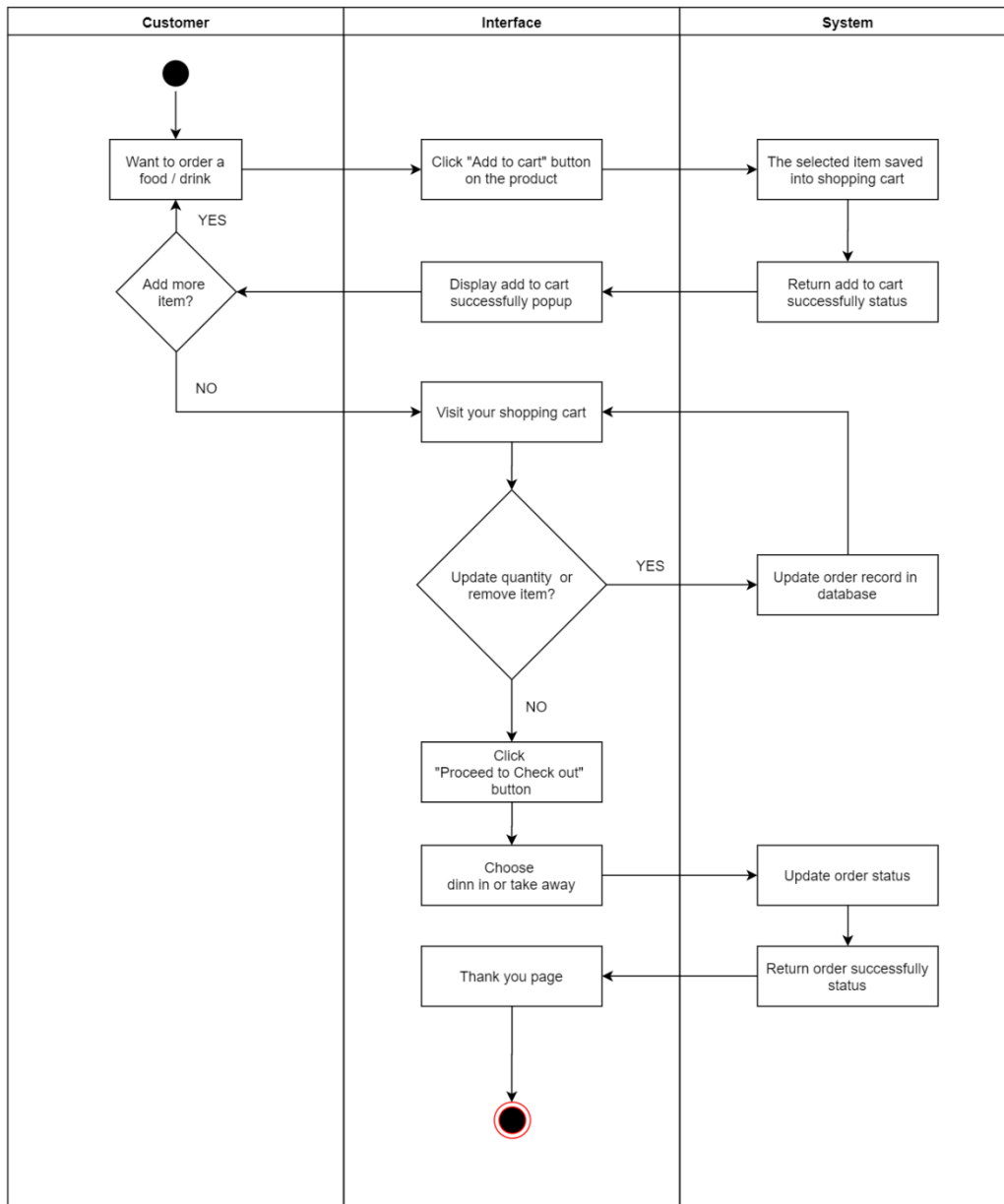
Response

```
{  
  "Message": "Record has been created."  
}
```

7 Activity Diagram

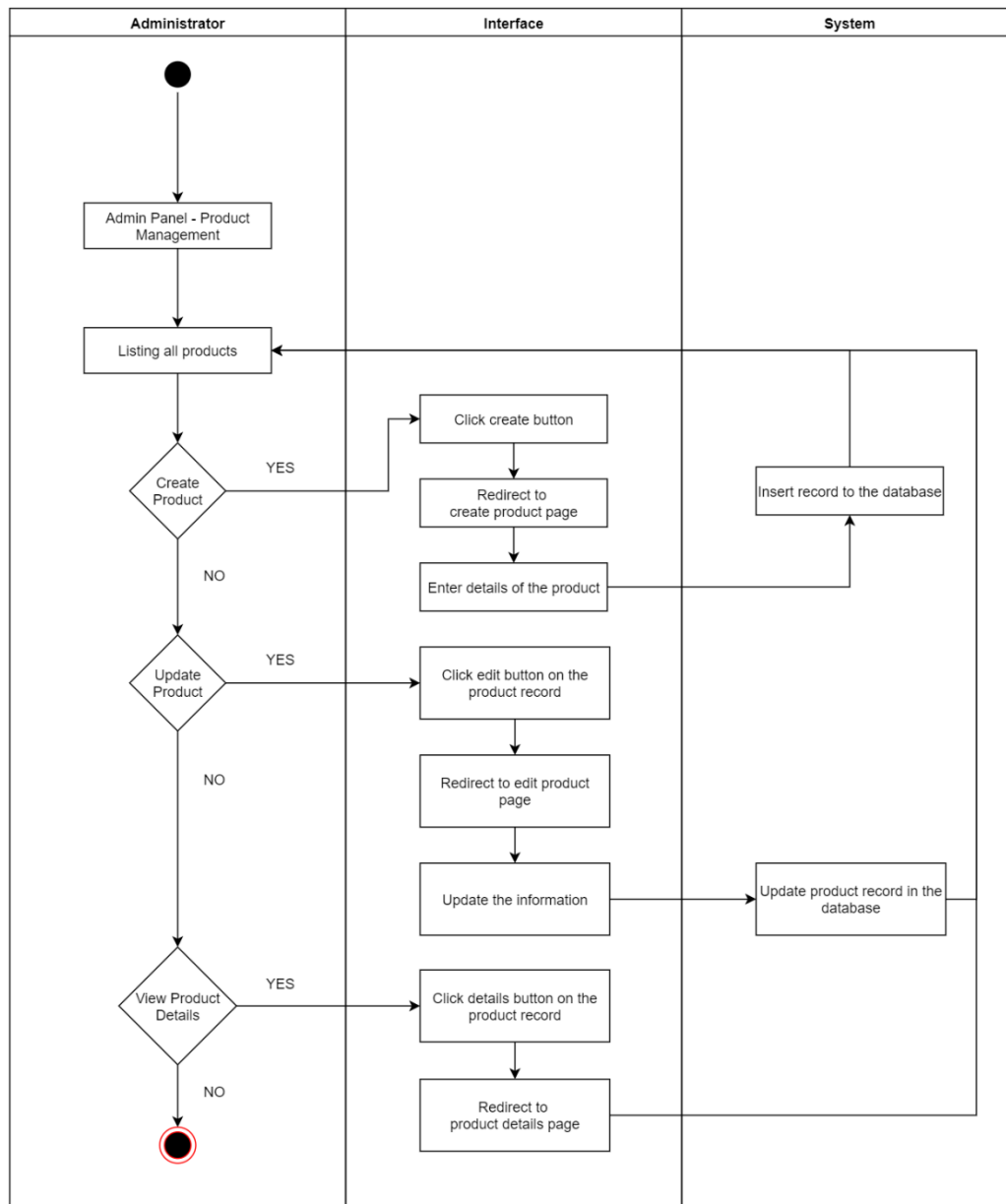
7.1 Order Processing

Activity Diagram - Order Processing



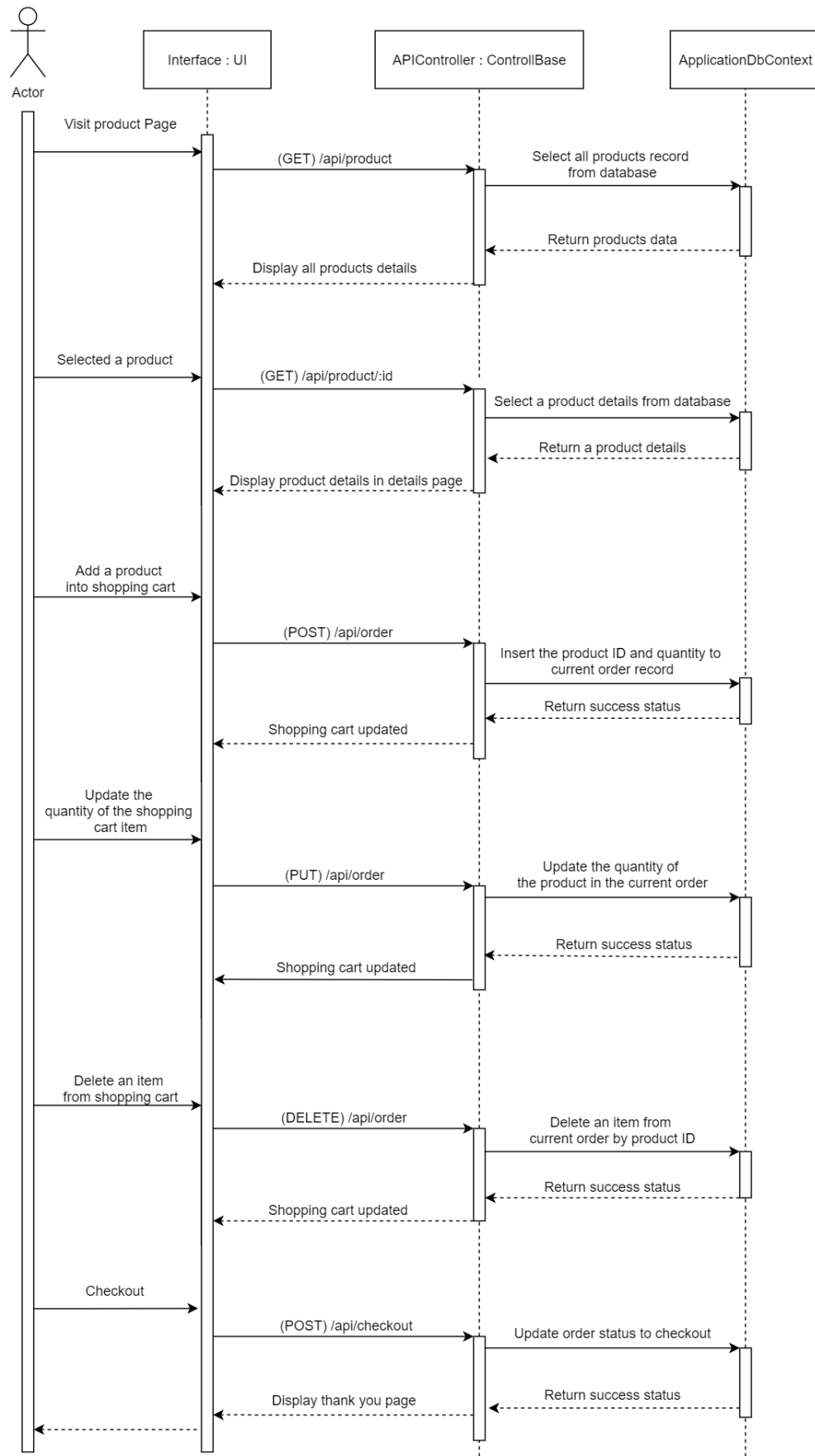
7.2 Product Management

Activity Diagram - Product Management



8 Sequence Diagram

8.1 Order Processing



9 Browser Testing

Page	Chrome	Firefox	Safari
Home	✓	✓	✓
About	✓	✓	✓
Products	✓	✓	✓
Product Details	✓	✓	✓
Contact	✓	✓	✓
Cart	✓	✓	✓
Login	✓	✓	✓
Registration	✓	✓	✓
Thank You	✓	✓	✓
Admin Panel			
Home	✓	✓	✓
Product Management – Home	✓	✓	✓
Product Management – Create	✓	✓	✓
Product Management – Details	✓	✓	✓
Product Management – Edit	✓	✓	✓
Order Management – Home	✓	✓	✓
Order Management – Details	✓	✓	✓
Feedback Management – Home	✓	✓	✓

10 Web Accessibility

10.1 Tools for Web Accessibility Audit

For this course work, I decided to use Lighthouse to audit the Web Accessibility. Lighthouse is an open-source tool built in Google Chrome for improving the quality of web application such as performance, accessibility, progressive web apps, SEO and more.

10.2 Audit Result



Accessibility

These checks highlight opportunities to [improve the accessibility of your web app](#). Only a subset of accessibility issues can be automatically detected so manual testing is also encouraged.

10.3 Audit Items

Passed audits (16)

● [aria-*) attributes match their roles	▼
● [aria-*) attributes have valid values	▼
● [aria-*) attributes are valid and not misspelled	▼
● Buttons have an accessible name	▼
● The page contains a heading, skip link, or landmark region	▼
● Background and foreground colors have a sufficient contrast ratio	▼
● Document has a <title> element	▼
● [id] attributes on the page are unique	▼
● <html> element has a [lang] attribute	▼
● <html> element has a valid value for its [lang] attribute	▼
● Image elements have [alt] attributes	▼
● Form elements have associated labels	▼
● Links have a discernible name	▼
● Lists contain only elements and script supporting elements (<script> and <template>).	▼
● List items () are contained within or parent elements	▼
● [user-scalable="no"] is not used in the <meta name="viewport"> element and the [maximum-scale] attribute is not less than 5.	▼

11 Additional Resources Credit

11.1 Libraries

Mustache.js (<https://mustache.github.io/>)

Bootstrap (<https://getbootstrap.com/docs/3.3/>)

jQuery (<https://jquery.com/>)

W3.css (https://www.w3schools.com/w3css/w3css_downloads.asp)

Gulp (<https://gulpjs.com/>)

npm (<https://www.npmjs.com/>)

Sass (<https://sass-lang.com/>)

pug (<https://pugjs.org/api/getting-started.html>)

11.2 Images and Wordings

Freepik (<https://www.freepik.com/free-photos-vectors/coffee>)

Unsplash (<https://unsplash.com/images/food/coffee>)

Starbucks (<https://www.starbucks.co.uk/>)