



E-Commerce Flower Shop

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E-commerce Flower Shop

Our flower-centric web application is aimed at simplifying the process of finding and buying the ideal flowers for any occasion. Comparable to popular online shopping platforms such as Amazon, our application provides users with an extensive range of floral options but with a distinctive search function.

Our website combines the concepts of an e-commerce platform and a flower-oriented application. The main purpose of our project is to establish an online flower-shopping platform that allows users to purchase flowers from the comfort of their own homes, and helps them to buy the perfect flowers with intentional and heartfelt meanings for any occasions that arise.

Teamwork and Design Dynamics

What worked:

- ❖ Waterfall (plan-based method)
 - *splitting work into smaller groups*
 - *having a fluid plan/structure*
 - *biweekly coding meetings for each individual group*
- ❖ Weekly, in-person, whole group meetings
 - *helped us connect together front-end and back-end*

What did not work:

- quickly realized that even with defined plan, it was hard to code individually then try to combine after



Outside 201

Outside Classes

- CSCI 102 : Fundamentals of Computation
- CSCI 103 : Intro. to Programming
- CSCI 104 : Data Structures/OOD
- ITP 104 : Web Publishing
- ITP 249 : Intro. to Data Analytics

Outside Software/Topics

- Figma
- Maven build tool
- Spring MVC java
- Springboot framework
- Google Cloud (MySQL)
- Git
- MVC result controllers
- Open source frameworks
- UX design and formatting
- Github Desktop
- Project Management

Project designs and Pivots

What worked:

- ❖ Automatic user registration: we decided that redundant information input during the checkout process could be avoided by having users register an account before accessing the website. This also helped to store their information in a simpler and more secure way.
- ❖ Search functionality: from the beginning, we wanted an enhanced search functionality that would allow users to find flowers with specific and intentional meanings for all kinds of occasions in their lives. Users don't need to know exactly what kind of flower they want, and have the freedom to search by occasion or meaning to figure that out instead.

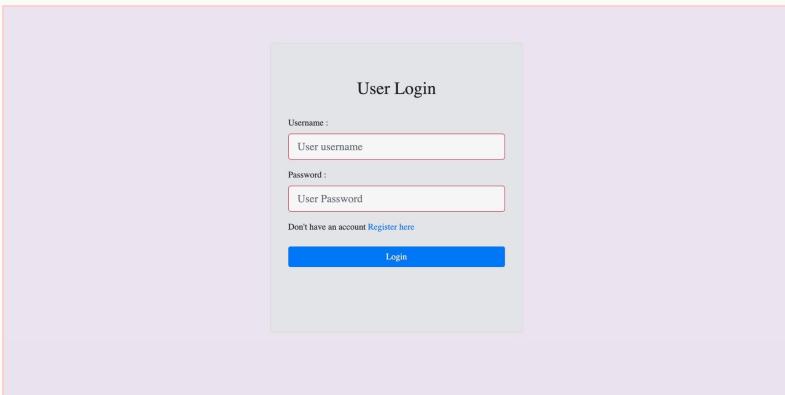
What didn't:

- ❖ Multiple search pages: Originally we thought about taking the user to a new page on the website to execute their search. We found it much simpler (for both us and our users) to simply have search results display on the same page.

Frontend UI/UX

Login/Registration

A simple and easily understandable design for both regular users and administrators. They share a login page, but obviously have different access levels once they are logged in. Guest users are able to search, view all products but not able to add to cart/checkout/order history.



A large, light pink rectangular placeholder image occupies the center-left area of the page, representing the intended layout for the login and registration forms.

Sign Up Now

Please fill out this to register

User Name

Email address
 We'll never share your email with anyone else.

Password
 Show Password

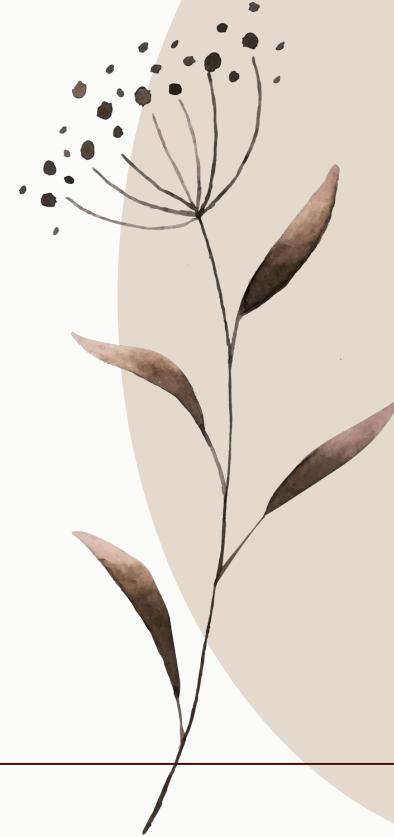
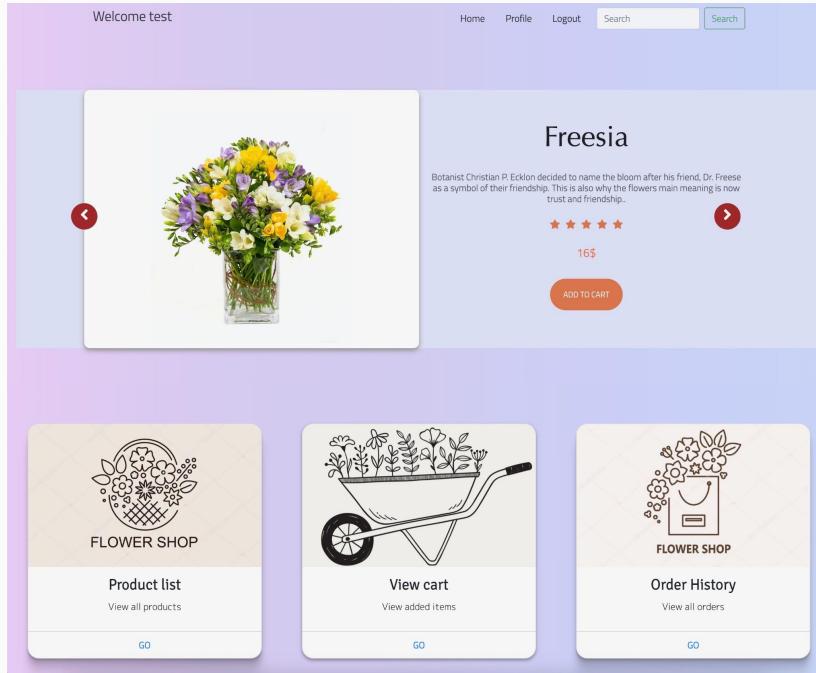
Address

Already have an account [Login here](#)

[Register](#)

Main/Home Page

- ❖ Simple layout: all actions are easily located
- ❖ Option to see all products, view cart, see order history
- ❖ Inputting into the search bar will display products right on page



View Products and View Cart



View Cart allows the user to see everything in their cart, along with the relevant information. They can also initiate checkout from this page.



Serial No.	Product Name	rating	Preview	Quantity	Price	Description	Update
13	Daisy	5.0		1	12	The meaning of a daisy flower can be purity, innocence, new beginnings, joy and cheerfulness. In the Victorian Era, daisies symbolised innocence, loyalty and an ability to keep things secret.	<button>Update</button>

Checkout

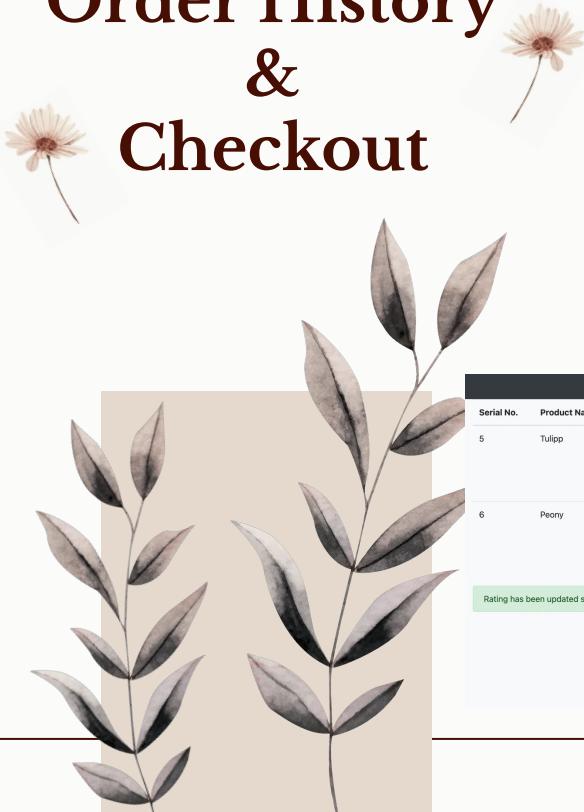
View Products allows the user to see all the available products on the website, and all the relevant information regarding them. They can also add to their cart from this page.



Serial No.	Product Name	rating	Preview	Quantity	Price	Description	Add To Cart
1	Red Rose	2.7		8	15	Most of us are familiar with what the red rose means, having been used across cultures to represent love and romance for centuries. The meaning of red roses is universally understood to be love and passion.	<button>Add To Cart</button>
2	White Rose	5.0		10	16	White roses symbolize purity, youthfulness, and innocence. Young love, eternal loyalty, and new beginnings are also commonly tied to the meaning of white roses, making them a popular choice for weddings and romantic occasions.	<button>Add To Cart</button>
3	Allium	5.0		10	14	Allium symbolizes unity, good fortune, prosperity, humility, and patience—these blooms make the perfect gift to wish someone good luck on a new endeavor.	<button>Add To Cart</button>
4	Sunflower	5.0		10	17	Sunflowers symbolize loyalty and adoration thanks to the myth of Clytie and Apollo. And, because of their association with the sun, sunflowers are well-known for being a happy flower and the perfect bloom for a summer flower delivery to brighten someone's mood!	<button>Add To Cart</button>
5	Tulip	5.0		10	15	The most known meaning of tulips is perfect and deep love. As tulips are a	<button>Add To Cart</button>

[Home Page](#)

Order History & Checkout



Write your imaginary card number. The Address, City and Zipcode areas are required. Click Submit Payment for purchasing.

Payment Informations

Card Number
MM / YY
CCV
Street Address
City
ZIP code

VISA
XXXX XXXX XXXX XXXX
name Trojan EXP XX/XX CCV XXX

Submit Payment

Serial No.	Product Name	rating	Preview	Quantity	Price	Description	Update
5	Tulipp	5		1	15	The most known meaning of tulips is perfect and deep love. As tulips are a classic flower that has been loved by many for centuries they have been attached with the meaning of love. They're ideal to give to someone who you have a deep, unconditional love for, whether it's your partner, children, parents or siblings.	<button>Update</button>
6	Peony	3		1	14	Generally symbolic of love, honor, happiness wealth, romance, and beauty, the peony is traditionally given on special occasions as an expression of goodwill, best wishes, and joy.	<button>Update</button>

Rating has been updated successfully.

Checkout

- ❖ Requires text input for (imaginary) card details and billing address.
- ❖ Submitting payment will show a confirmation message as well as clear the user's cart

Order History

- ❖ Shows the user all previous purchases made
- ❖ Customers could rate any products they purchased before

Admin Pages

The **Admin Home Page** gives the administrator the ability to choose what data they would like to update or manipulate.

The **Products Page** gives the administrator the ability to update/delete any of the available products– they can change the any information about any of the flowers on the website.

The **Customers Page** gives the administrator the ability to view all customers and manipulate accounts as necessary



Welcome Back, Admin

Manage your data from this Admin Panel

Products
Manage all the products here.
[Manage](#)

Customers
Manage all the customer here.
[Manage](#)

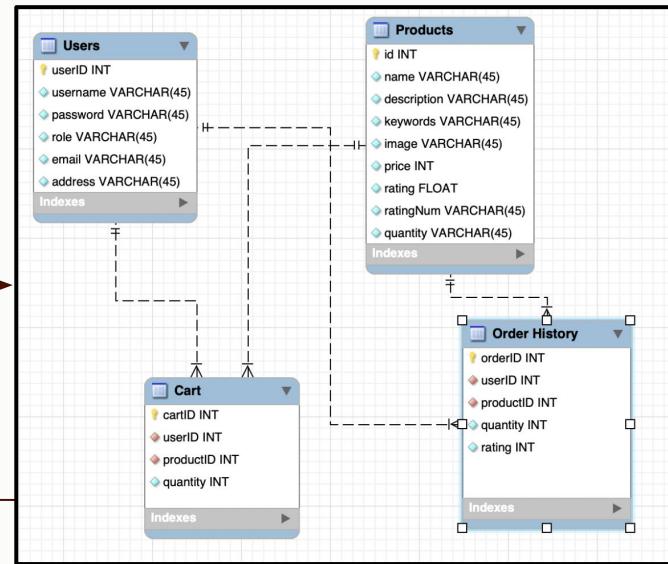
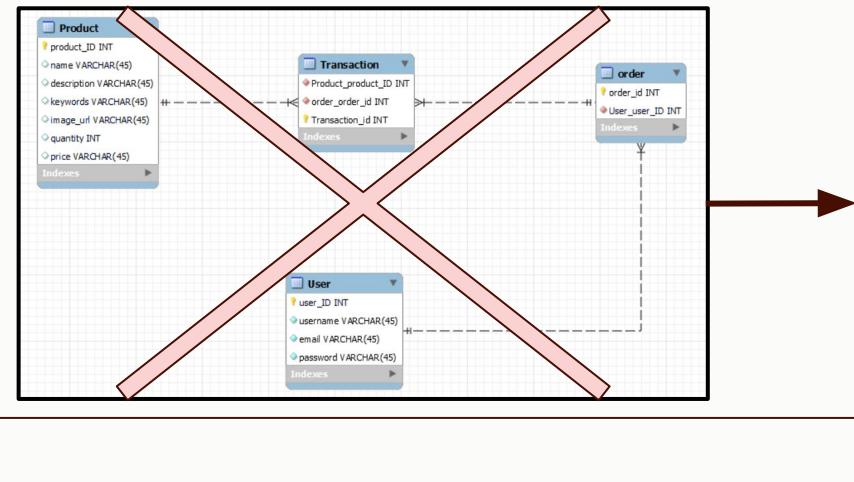
Serial No.	Product Name	Preview	Quantity	Price	Description	Delete	Update
1	Red Rose		10	15	Most of us are familiar with what the red rose means, having been used across cultures to represent love and romance for centuries. The meaning of red roses is universally understood to be love and passion.	Delete	Update
2	White Rose		10	16	White roses symbolize purity, youthfulness, and innocence. Young love, eternal loyalty, and new beginnings are also commonly tied to the meaning of white roses, making them a popular choice for weddings and romantic occasions.	Delete	Update
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5	Tulip		10	15	The most known meaning of tulips is perfect and deep love. As tulips are a classic flower that has been loved by many for centuries they have been attached with the meaning of love. They're ideal to give to someone who you have a deep, unconditional love for, whether it's your partner, children, parents or siblings.	Delete	Update

Userid	Customer Name	Email	Password
0	admin	test@a.com	123
1	user-tc	1@11.com	Flower123@

Data & Database

Data Storage

- ❖ Cart and Order History table linked to Users and Products tables
- ❖ A large pivot in our project was significant changes to our database structures as we fleshed out the backend. Our original plans are shown on the left, and what we finalized is shown on the right



Database queries, Data Structures

```
CREATE TABLE `cart` (
  `cart_id` int(11) NOT NULL AUTO_INCREMENT,
  `user_id` int(11) NOT NULL,
  `product_id` int(11) NOT NULL,
  `quantity` int(11) NOT NULL,
  PRIMARY KEY (`cart_id`),
  KEY `fk_user_id` (`user_id`),
  KEY `fk_product_id` (`product_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
CREATE TABLE `users` (
  `user_id` int(11) NOT NULL AUTO_INCREMENT,
  `username` varchar(45) NOT NULL,
  `password` varchar(64) NOT NULL,
  `role` varchar(45) NOT NULL,
  `enabled` tinyint(4) DEFAULT NULL,
  `email` varchar(110) NOT NULL,
  `address` text NOT NULL DEFAULT '',
  PRIMARY KEY (`user_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
CREATE TABLE `order_history` (
  `order_id` int(11) NOT NULL AUTO_INCREMENT,
  `user_id` int(11) NOT NULL,
  `product_id` int(11) NOT NULL,
  `quantity` int(11) NOT NULL,
  `rating` int(11) NOT NULL DEFAULT -1,
```

```
CREATE TABLE `products` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `name` varchar(255) NOT NULL,
  `description` text NOT NULL,
  `keywords` varchar(255) NOT NULL,
  `image` text NOT NULL,
  `price` int(11) NOT NULL,
  `rating` float NOT NULL,
  `ratingNum` int(11) NOT NULL,
  `quantity` int(11) NOT NULL,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

Data Structures used:

List<Product>: used to store products

ResultSet: used to store products selected by user

ArrayList: used to store error messages

Map: used to store any product that existed (key = serial ID)

Spring framework Model: Stored product data that was then sent to front end



Server Code

Networking

- ❖ Database Connection and Operation
 - Utilize JDBC (Java Database Connectivity) to connect to MySQL database
 - Perform operation like Query, Insert, Update
- ❖ User HTTP Session Management
 - When a user logs in, their user ID and role are stored in the session and used to determine if they authenticated
- ❖ Handle HTTP requests
 - Utilizes @Controller, @GetMapping, @RequestMapping, @RequestParam
 - Model class is used to pass data between the controller and the view

Multithreading

Our website's multi-threading functionality allows for seamless concurrent user activity. For instance, if multiple users are logged into the website simultaneously, they can each create their own shopping carts and proceed with the checkout process simultaneously without any fear of system crashes or other issues.

The application relies on the built-in multithreading capabilities provided by the Spring framework and the web server. The underlying web framework, Spring, inherently provides some level of multithreading support. When a Spring application receives multiple HTTP requests, each request is typically processed by a separate thread. This is because the underlying web server (e.g., maven, used in our project) allocates a thread from its thread pool to handle each incoming request.



Thanks!

