

WIPRO NGA Program – 25SUB4530_CP_JAVA

Capstone Project Presentation – 9th Feb & 10th Feb 2026

E-commerce Order Management System

Batch - 11

Presented by -

58674 - Abhinay Matam

58664- Nandyala Siva Sai Danush

Introduction:

- This E-Commerce Order Management System streamlines online shopping by efficiently handling products, orders, and delivery statuses.
- The application features a responsive Angular frontend, offering distinct dashboards for admins and customers to manage their activities.
- Built on a robust Spring Boot backend with Spring Data JPA, it ensures secure, reliable, and high-performance data processing.
- To ensure scalability and high availability, the system is containerized with Docker and deployed on the Azure cloud platform.
- Key capabilities include real-time product inventory management and comprehensive order lifecycle tracking from placement to delivery.
- This full-stack solution demonstrates modern DevOps practices, combining powerful frameworks to solve real-world retail challenges.

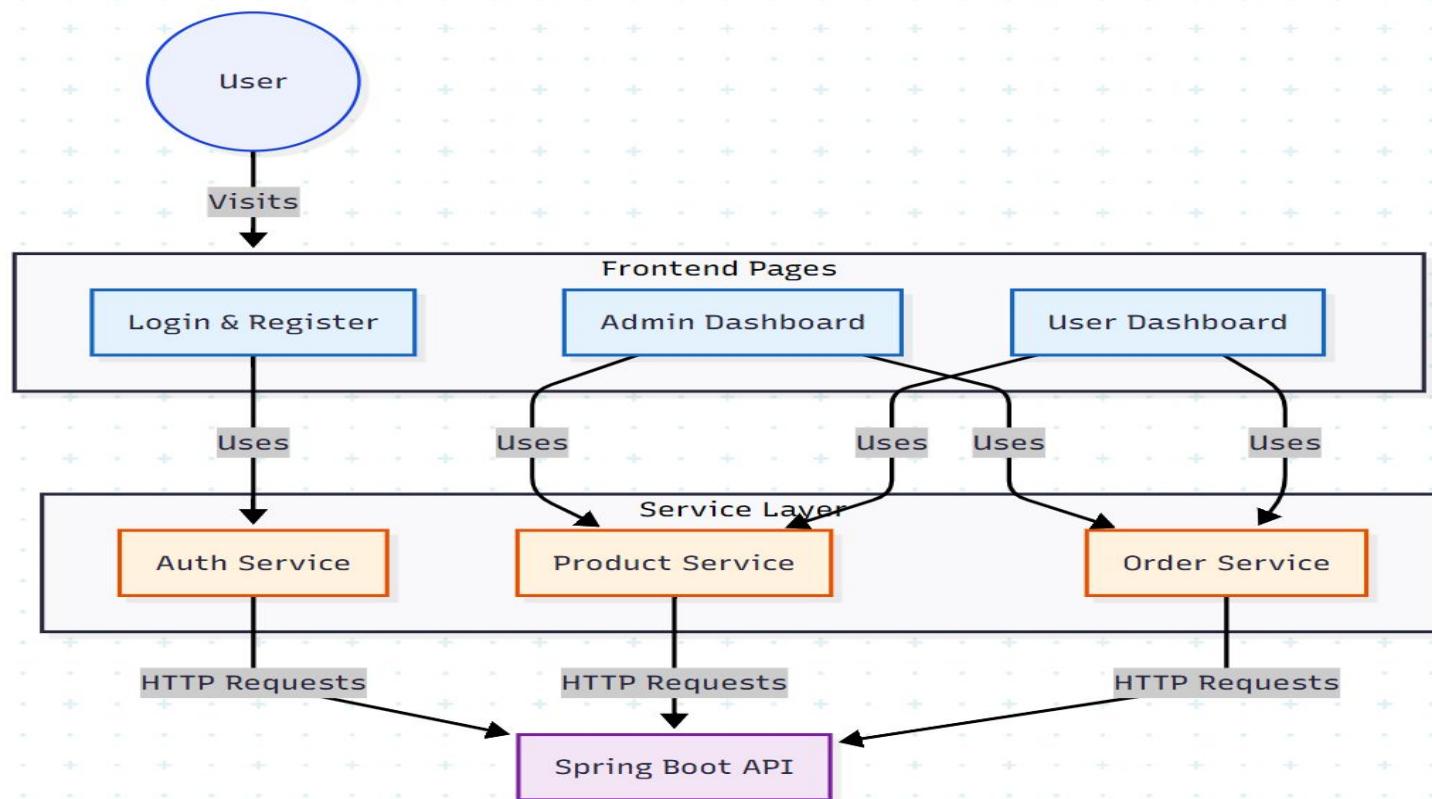
Technologies Used:

- Frontend
 - Angular
 - TypeScript
 - HTML & CSS
- Backend
 - Java
 - Spring Boot
 - Spring Data JPA
 - Hibernate
 - MySQL
- DevOps & Deployment
 - Docker
 - Azure App Service
 - GitHub

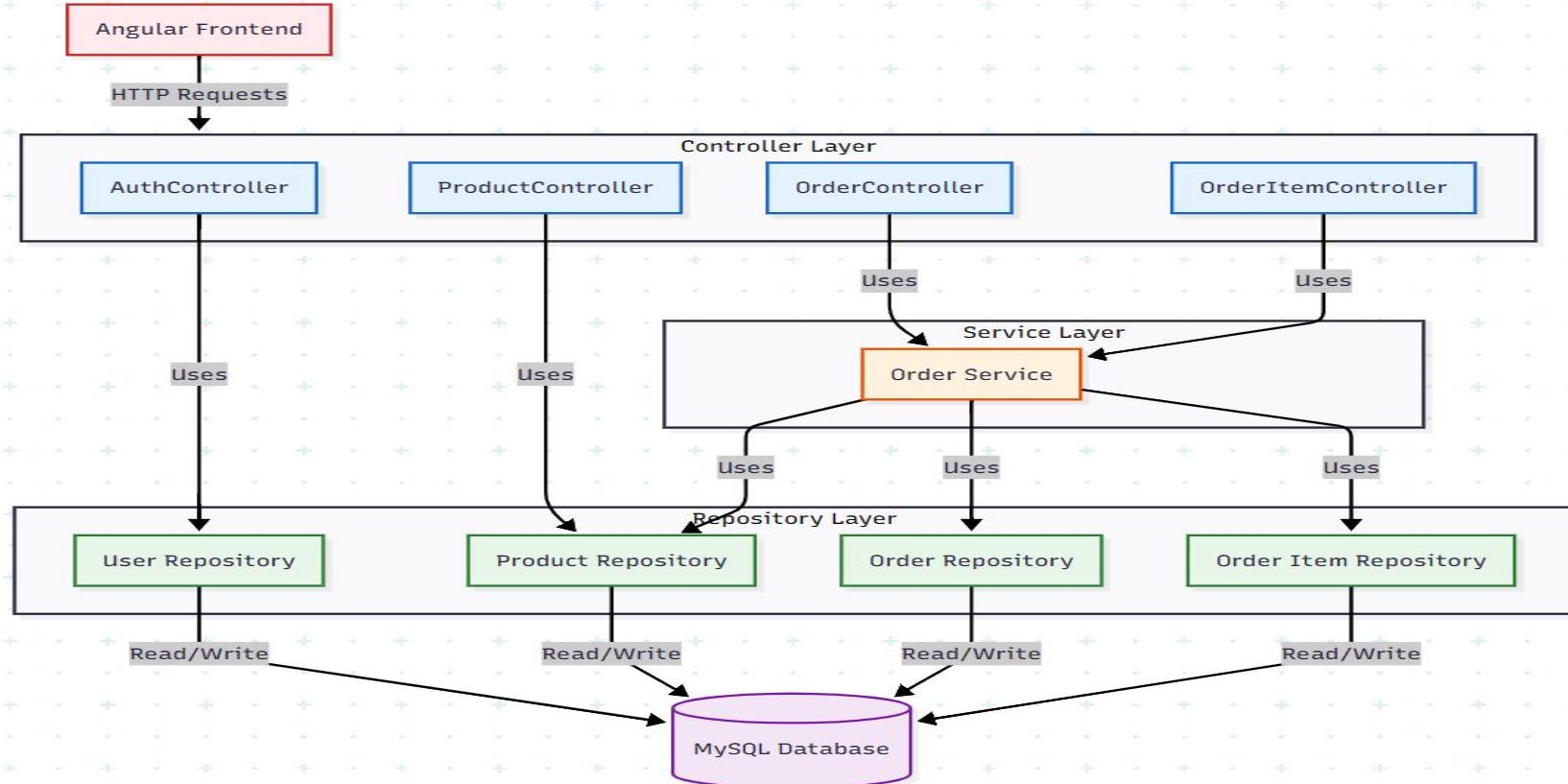
Implementation:

- **Project Setup:** Initialized the Angular frontend and Spring Boot backend to establish the full-stack architecture.
- **Database Configuration:** Configured MySQL and defined JPA entities to model Products, Users, and Order data.
- **Backend Development:** Implemented secure REST APIs for authentication, product management, and order processing logic.
- **Frontend Design:** Built responsive Angular components for Login, Admin Dashboard, and User Shopping interfaces.
- **Integration:** Connected the frontend to backend services using HttpClient to enable real-time data flow.
- **Deployment:** Containerized the application with Docker and deployed it to Azure for public accessibility.

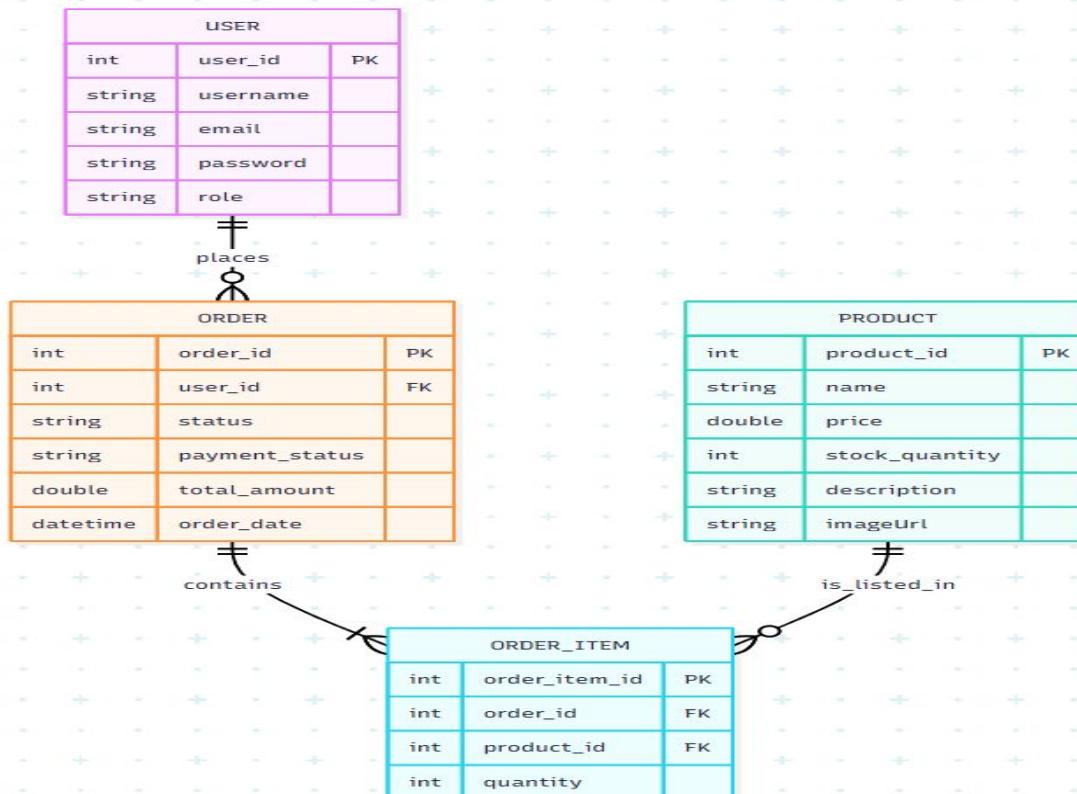
Frontend Architecture:



Backend Architecture:



Database Implementation:



Docker Implementation:

Ask Gordon BETA

Containers

Images

Volumes

Kubernetes

Builds

Models

MCP Toolkit BETA

Docker Hub

Docker Scout

Extensions

Images [Give feedback](#)

Local My Hub

1.29 GB / 7.53 GB in use 3 images

Last refresh: 36 minutes ago

Search

<input type="checkbox"/>	Name	Tag	Image ID	Created	Size	Actions
<input type="checkbox"/>	mysql	8.0	99d774bf02a4	4 days ago	1.08 GB	
<input type="checkbox"/>	integration-backend	latest	aa6db6b9ed30	12 hours ago	621.67 MB	
<input type="checkbox"/>	integration-frontend	latest	8ea5100505e4	12 hours ago	93 MB	

Showing 3 items

Engine running

RAM 2.02 GB CPU 23.85% Disk: 9.65 GB used (limit 1006.85 GB)

> Terminal ✓ v4.57.0

Docker Implementation:

The screenshot shows the Docker Hub interface for the user 'nandyalasivasaidanush'. The left sidebar includes options like 'Repositories' (selected), 'Hardened Images', 'Collaborations', 'Settings', 'Default privacy', 'Notifications', 'Billing', 'Usage', 'Pulls', and 'Storage'. The main area displays a list of repositories under the heading 'Repositories'. The table has columns for 'Name', 'Last Pushed', and 'Contains'. The repositories listed are:

Name	Last Pushed	Contains
nandyalasivasaidanush/ecommerce-frontend	about 4 hours ago	IMAGE
nandyalasivasaidanush/ecommerce-backend	about 4 hours ago	IMAGE
nandyalasivasaidanush/order-backend	about 14 hours ago	IMAGE
nandyalasivasaidanush/order-frontend	about 14 hours ago	IMAGE

A search bar at the top right allows users to search for Docker Hub content. A sidebar on the right provides links to 'What's new', 'My profile', 'Account settings', and a 'Sign out' option. The Docker Hub logo is visible in the top left corner.

Azure Deployment:

Microsoft Azure Search resources, services, and docs (G+ /) Copilot 2 ? ? ? traininguser111@labass... ZIPPYOPS CONSULTING SERVICE...

Home

App Services

Identify apps with high CPU usage | Collect memory dump for selected apps | Access event logs for a web app

ZippyOPS Consulting Services LLP (labasservice.onmicrosoft.com)

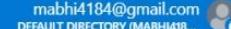
+ Create Manage Deleted Apps Manage view Refresh Export to CSV Open query | Assign tags Start Restart Stop Delete Add to service group Group by none

ⓘ You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Type equals all Location equals all Add filter

<input type="checkbox"/> Name ↑	Status	Location	Pricing Tier	App Service Plan	Subscription	App Type
<input type="checkbox"/> ecom-backend-v2	...	Running	Central US	Free	 EcommerceServicePlan-1 labs111	Web App
<input type="checkbox"/> ecom-frontend-v2	...	Running	Central US	Free	 EcommerceServicePlan-1 labs111	Web App

Azure Deployment:

Microsoft Azure [Upgrade](#) [Copilot](#)     

Home

ecom-backend-app   

Overview 

Your app is configured with Docker Compose, which is set to retire on March 31, 2027. For multi-container support, please update your app to support sidecar containers.

Essentials

Resource group (move)	: EcommerceRG	Default domain	: ecom-backend-app.azurewebsites.net
Status	: Running	App Service Plan	: ecom-app-plan-central (B1: 1)
Location (move)	: Central US	Operating System	: Linux
Subscription (move)	: Azure subscription 1	Health Check	: Not Configured
Subscription ID	: 6a7e9cd8-9252-4fe3-9f1b-6862bc2392e5		
Tags (edit)	: Add tags		

Properties [Monitoring](#) [Logs](#) [Capabilities](#) [Notifications \(2\)](#)  [Recommendations](#)

Web app

Name	ecom-backend-app	Deployment logs	View logs
Publishing model	Code	Last deployment	 No deployments found Refresh
Runtime Stack	Compose - dmVyc2lvbjogJzMuO... Show More	Deployment provider	None
Runtime status	Healthy		

Deployment Center

 Deployment Center	
Deployment logs	View logs
Last deployment	
Deployment provider	None

Application Insights

Name	Not supported. Learn more
------	---

Add or remove favorites by pressing **Ctrl+Shift+F**

[Domains](#)

Azure Deployment:

Home > MySqlFlexibleServer_ab4f30bae10a42ce907de2724b18f545 | Overview

 ecommerce-mysql-db ⚡ ⭐ ...  Show me performance metrics for this Azure Database for MySQL flexible server.  List access control settings for this Azure Database for MySQL flexible server. +1 X

Azure Database for MySQL flexible server

Search Connect View process list Delete Reset password Restore Restart Upgrade Stop Refresh Feedback

Overview

Essentials

Subscription (move) : labs111 Endpoint : ecommerce-mysql-db.mysql.database.azure.com

Subscription ID : 2a5c8a32-af21-46bd-9978-10f4e773ee78 Administrator login : adminuser

Resource group (move) : ecommerce-rg Configuration : General Purpose_D4ads v5, 4 vCores, 16 GiB RAM, 64 storage, 492 IOPS

Status : Ready MySQL version : 8.0 Upgrade

Location : Central US Availability zone : 3

Created on : 2026-02-10 04:20:09.3953333 UTC

Tags (edit) : Add tags JSON View

Getting started Properties Recommendations Monitoring Tutorials

We've prepared a checklist to get you started



Get ready for migration

- ① Learn about Azure Database Migration Service 
- ② Create migration service 

HTTP <http://ecom-backend-app.azurewebsites.net/api/products/4> Save Share

GET http://ecom-backend-app.azurewebsites.net/api/products/4 Send

Docs Params Authorization Headers (10) Body Scripts Settings Cookies

none form-data x-www-form-urlencoded raw binary GraphQL JSON Schema Beautify

```
1 {  
2   "price": 150.99  
3 }  
4  
5 }
```

Body Cookies (1) Headers (6) Test Results 200 OK 382 ms 423 B [View Response](#)

{ } JSON Preview Visualize

```
1 {  
2   "product_id": 4,  
3   "name": "FitTrack Smart Watch",  
4   "price": 149.99,  
5   "stock_quantity": 100,  
6   "description": "Water-resistant fitness tracker with heart rate monitor and GPS.",  
7   "imageUrl": "https://images.example.com/smartwatch.jpg"  
8 }
```

HTTP <http://ecom-backend-app.azurewebsites.net/api/auth/register>

POST <http://ecom-backend-app.azurewebsites.net/api/auth/register>

Docs Params Authorization Headers (10) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary JSON

```
1 {  
2   "username": "john_doe",  
3   "password": "password123",  
4   "email": "john@example.com"  
5 }
```

Body Cookies (1) Headers (6) Test Results

Raw Preview Visualize

```
1 User registered successfully
```

POST http://ecom-backend-app.azurewebsites.net/api/auth/login

Docs Params Authorization Headers (10) **Body** Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL **JSON**

```
1  {
2    "username": "john_doe",
3    "password": "password123"
4 }
```

Body Cookies (1) Headers (6) Test Results

{ } **JSON** Preview Visualize

```
1  {
2    "user_id": 1,
3    "username": "john_doe",
4    "email": "john@example.com",
5    "role": "ROLE_USER"
6 }
```

HTTP <http://ecom-backend-app.azurewebsites.net/api/orders/place>

POST <http://ecom-backend-app.azurewebsites.net/api/orders/place>

Docs Params Authorization Headers (10) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL [JSON](#) ▾

```
    quantity : 1
  7   },
  8   {
  9     "productId": 2,
 10     "quantity": 2
 11   }
 12 ],
 13   "shippingAddress": "RS Road, Nandyala, Andhra Pradesh"
14 }
```

Body Cookies (1) Headers (6) Test Results

Raw ▾ Preview Visualize ▾

```
1 Order placed successfully! Order ID: 1
```



http://ecom-backend-app.azurewebsites.net/api/order-items

GET

http://ecom-backend-app.azurewebsites.net/api/order-items



Params

Authorization

Headers (8)

Body

Scripts

Settings

Body

Cookies (1)

Headers (6)

Test Results

200 C

{ } JSON ▾

▷ Preview Visualize ▾

```
1   [  
2     {  
3       "order_item_id": 1,  
4       "product": {  
5         "product_id": 1,  
6         "name": "ProStream Gaming Laptop",  
7         "price": 1299.99,  
8         "stock_quantity": 14,  
9         "description": "High-performance laptop with 16GB RAM, 512GB SSD, and RTX 3060 graphics.",  
10        "imageUrl": "https://images.example.com/laptop-gaming.jpg"  
11      },  
12      "quantity": 1  
13    },  
14    {  
15      "order_item_id": 2,  
16      "product": {  
17        "product_id": 2,  
18        "name": "Noise-Canceling Headphones",  
19        "price": 149.99  
20      }  
21    }  
22  ]
```

GET http://ecom-backe ● POST http://ecom-backe ● POST http://ecom-backe ● POST http://ecom-backe ● GET http://ecom-backe ● GET http://ecom-backe + ▾

HTTP <http://ecom-backend-app.azurewebsites.net/api/products> Sa

GET <http://ecom-backend-app.azurewebsites.net/api/products>

Docs Params Authorization Headers (8) Body Scripts Settings

Query Params

Key	Value	Description
Body	Cookies (1) Headers (6) Test Results ⏱	200 OK • 547

{ } JSON ▶ Preview Visualize ▾

```
1 [  
2 {  
3   "product_id": 1,  
4   "name": "ProStream Gaming Laptop",  
5   "price": 1299.99,  
6   "stock_quantity": 14,  
7   "description": "High-performance laptop with 16GB RAM, 512GB SSD, and RTX 3060 graphics.",  
8   "imageUrl": "https://images.example.com/laptop-gaming.jpg"  
9 },  
10 {  
11   "product_id": 2,  
12   "name": "Noise-Canceling Headphones",  
13   "price": 150.99,  
14   "stock_quantity": 43,  
15   "description": "Premium over-ear headphones with active noise cancellation and 30-hour battery.",  
16   "imageUrl": "https://images.example.com/headphones.jpg"
```

Application Walkthrough:

Login Page:

The screenshot shows the login page of an E-Commerce System. At the top, there is a blue header bar with a house icon and the text "E-Commerce System". The main content area has a purple background. In the center, there is a white login form with rounded corners. The form starts with the word "Welcome" followed by a waving hand emoji. Below that are two input fields: one for "Username" with the placeholder "Enter your username" and another for "Password" with the placeholder "Enter your password". Underneath these fields is a large blue "Login" button. Below the button is a horizontal line and the text "Don't have an account?". Underneath this text is a blue "Register Now" button.

Application Walkthrough:

Registration Page:

The screenshot shows a registration form titled "Create Account" within a white card-like container on a purple background. The form includes fields for "Username", "Email", and "Password", each with a placeholder text. A large blue "Register" button is at the bottom, followed by a link to log in if already registered.

E-Commerce System

Create Account

Username

Email

Password

Register

Already have an account?

Login Here

Admin Dashboard:

E-Commerce System

admin Logout

Admin Panel Products Orders

Manage Products

+ Add New Product

ID	Name	Price (₹)	Stock	Description	Actions
#8	Apple MacBook Air 13.3" Retina (2018)	₹51,621.00	20	The new thinner and lighter Ma...	<button>Edit</button> <button>Delete</button>
#9	Samsung Galaxy S25 Ultra	₹129,999.00	4	It features a durable titanium fr...	<button>Edit</button> <button>Delete</button>
#10	Fossil Townsman Automatic Skeleton Watch	₹21,995.00	7	The top-of-the-hour Townsman...	<button>Edit</button> <button>Delete</button>
#12	Sony WH-1000XM4	₹22,990.00	6	Industry-Leading Noise Cancel...	<button>Edit</button> <button>Delete</button>
#13	mobile	₹20,000.00	1		<button>Edit</button> <button>Delete</button>

Admin Dashboard:

E-Commerce System

admin Logout

Admin Panel Products Orders

Admin Dashboard - All Orders

Filter by User ID or Order ID...

Total Orders: 2

Total Revenue: ₹43,990.00

Total Items Sold: 2

Order ID	User ID	Date	Total Length	Total Amount	Status
26	12	2/10/26, 1:41 PM	1 items	₹21,995.00	SHIPPED Deliver Payment: PENDING Mark as Paid
27	10	2/10/26, 1:48 PM	1 items	₹21,995.00	PLACED Ship Payment: PENDING Mark as Paid

User Dashboard:

Available Products



Apple MacBook Air 13.3" Retina (2018)

The new thinner and lighter MacBook Air features a brilliant Retina display, Touch ID, the latest-generation keyboard and a Force Touch trackpad. The iconic wedge is created from 100 percent recycled aluminum, making it the greenest Mac ever. MacBook Air is your perfectly portable, do-it-all



Samsung Galaxy S25 Ultra

It features a durable titanium frame. It sports a 6.9-inch QHD+ AMOLED 2X display. The phone is powered by a Snapdragon 8 Elite chipset. It includes a 200MP camera and integrated Galaxy AI features.



Fossil Townsman Automatic Skeleton Watch

The top-of-the-hour Townsman automatic takes its design cues from vintage timepieces. It features a distinctive skeleton dial that reveals the intricate inner mechanical workings of the watch. The refined case houses an automatic movement, eliminating the need for a battery. This model



Sony WH-1000XM4

Industry-Leading Noise Cancellation: They feature dual noise sensor technology and the HD Noise Cancelling Processor QN1 to effectively capture and cancel ambient noise, from airplane engines to voices. Exceptional Sound Quality: The headphones support High-Resolution Audio and High-

User Dashboard:

E-Commerce System

sivasaidanush Logout

Available Products Cart 3 My Orders

Your Shopping Cart

Apple MacBook Air 13.3" Retina (2018) ₹51621	<input type="button" value="-"/> 1 <input type="button" value="+"/> <input type="button" value="Delete"/>	₹51,621.00
Samsung Galaxy S25 Ultra ₹129999	<input type="button" value="-"/> 1 <input type="button" value="+"/> <input type="button" value="Delete"/>	₹129,999.00
Fossil Townsman Automatic Skeleton Watch ₹21995	<input type="button" value="-"/> 1 <input type="button" value="+"/> <input type="button" value="Delete"/>	₹21,995.00

Total: ₹203,615.00

Checkout

RPS
learn..evolve

General - RPS
Data

2024 - RPS Consulting all rights reserved

24

User Dashboard:

 E-Commerce System

 sivasaidanush 

 Available Products  Cart  My Orders

My Orders

Session ID: 10

Order ID	Date	Status	Items	Total
29	Feb 10, 2026, 5:14:26 PM	SHIPPED	1 items	₹129,999.00
28	Feb 10, 2026, 4:41:04 PM		3 items	₹203,615.00
27	Feb 10, 2026, 1:48:07 PM	DELIVERED	1 items	₹21,995.00


learn..evolve

General - RPS
Data

2024 - RPS Consulting all rights reserved

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Git Deployment:

The screenshot shows the GitHub Actions interface for a repository named 'Capstone-project_Wipro'. The 'Actions' tab is selected, displaying a workflow named 'Docker Build & Publish' defined in 'docker-publish.yml'. The workflow has four runs listed:

Event	Status	Branch	Actor	
Update frontend env with Azure Backend URL	Success	main	Docker Build & Publish #5: Commit 7da041e pushed by Danushnandyala	Today at 10:17 AM 1m 46s
Restored frontend, added Dockerfile & Nginx config	Success	main	Docker Build & Publish #4: Commit d23d687 pushed by Danushnandyala	Today at 9:30 AM 2m 17s
Fix workflow with username	Success	main	Docker Build & Publish #2: Commit 36005fd pushed by Danushnandyala	Today at 8:22 AM 1m 11s
initial commit	Success	main	Docker Build & Publish #1: Commit 5808c82 pushed by Danushnandyala	Today at 3:23 AM 26s

A sidebar on the left provides navigation links for management tasks like Caches, Attestations, Runners, Usage metrics, and Performance metrics.

Outcome:

- Full-Stack Proficiency: Successfully built and integrated a complete web application using Angular (Frontend) and Spring Boot (Backend).
- Scalable Deployment: Demonstrated cloud readiness by deploying the system on Azure App Service, ensuring accessibility and high availability.
- Secure Architecture: Implemented Role-Based Access Control (RBAC) to secure sensitive administrative data while providing a seamless shopping experience for users.
- Real-World Simulation: Delivered a functional E-Commerce platform that handles the complete order lifecycle, solving practical business requirements.

Conclusion:

- **Mission Accomplished:** The project successfully delivers a robust, end-to-end E-Commerce solution, bridging the gap between product management and customer satisfaction.
- **Modern Architecture:** By leveraging Angular, Spring Boot, and Azure, the system is built on industry-standard technologies that ensure performance, security, and scalability.
- **Future-Ready:** The modular design allows for easy integration of advanced features like AI-driven recommendations and multiple payment gateways in future updates.
- **Closing thought:** "This project not only solidified my full-stack development skills but also provided a scalable platform ready for real-world deployment."