

WIPRO NGA Program – 25SUB4530_CP_JAVA

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

E-commerce Order Management System

Batch - 11

Presented by -

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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.

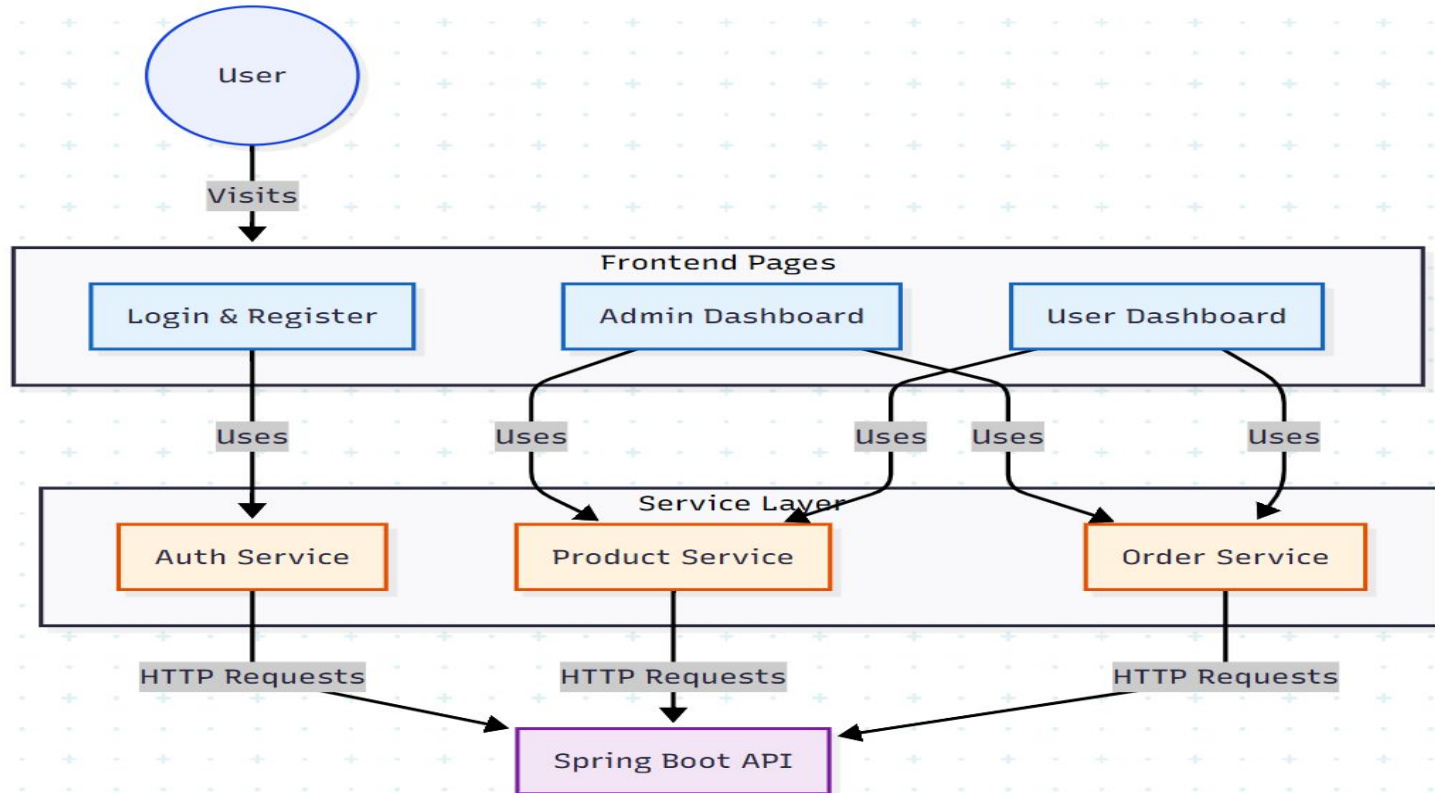
Technologies Used:

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

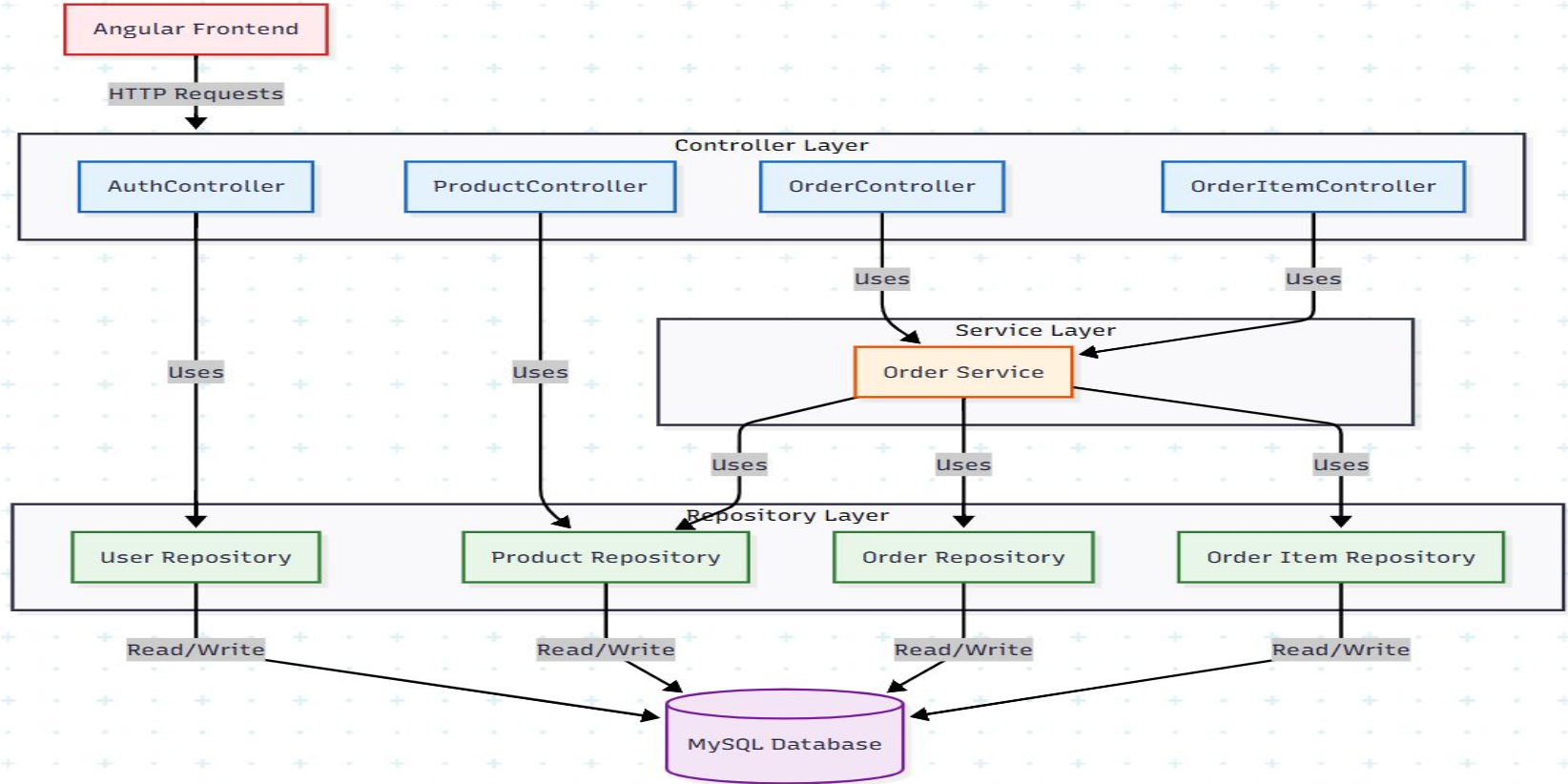
Implementation:

- **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.

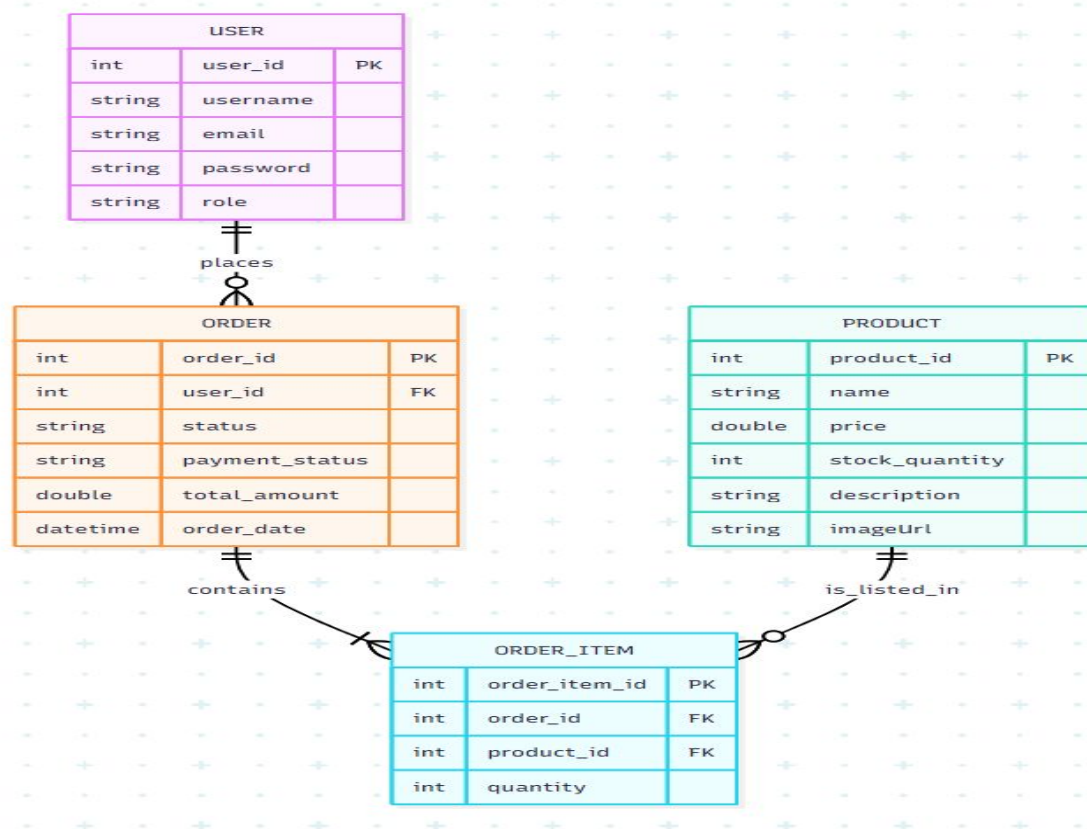
Frontend Architecture:



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

Search

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

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 user's profile is visible on the right, showing a blue circle with the letter 'N' and the username **nandyalasivasaidanush**. Below the profile, there are links for 'What's new', 'My profile', and 'Account settings', along with a 'Sign out' button. The main content area displays the 'Repositories' section, stating 'All repositories within the nandyalasivasaidanush namespace.' Below this, there is a search bar and a dropdown menu set to 'All content'. A table lists the repositories:

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

At the bottom right of the repository list, it shows '1-4 of 4' with navigation arrows.

Azure Deployment:

Microsoft Azure

Search resources, services, and docs (G+/I)

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

▼

①

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-\	labs111	Web App
<input type="checkbox"/>	 ecom-frontend-v2	⋮ Running	Central US	Free	 EcommerceServicePlan-\	labs111	Web App

Azure Deployment:

Home

Microsoft Azure Upgrade

Search resources, services, and docs (G+/)

Copilot

mabhi4184@gmail.com
DEFAULT DIRECTORY (MABHI418...

ecom-backend-app
Web App

Search

Browse Stop Swap Restart Delete Refresh Download publish profile Reset publish profile Share to mobile Send us your feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Microsoft Defender for Cloud

Events (preview)

Log stream

Resource visualizer

Deployment

Deployment slots

Deployment Center

Settings

Environment variables

Configuration (preview)

Instances

Add or remove favorites by pressing Ctrl+Shift+F

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.

JSON View

Essentials

Resource group (move) : EcommerceRG

Status : Running

Location (move) : Central US

Subscription (move) : Azure subscription 1

Subscription ID : 6a7e9cd8-9252-4fe3-9f1b-6862bc2392e5

Tags (edit) : Add tags

Default domain : ecom-backend-app.azurewebsites.net

App Service Plan : ecom-app-plan-central (B1: 1)

Operating System : Linux

Health Check : Not Configured

Properties Monitoring Logs Capabilities Notifications (2) Recommendations

Web app

Name	ecom-backend-app
Publishing model	Code
Runtime Stack	Compose - dmVyc2lvbjogJzMuO... Show More
Runtime status	Healthy

Deployment Center

Deployment logs View logs

Last deployment No deployments found Refresh

Deployment provider None





Application Insights











Name Not supported. Learn more

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. 

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

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Learning center
- Resource visualizer
- Settings
- Power Platform
- Security
- Monitoring
- Automation
- Help

Essentials [JSON View](#)


Subscription [\(move\)](#) : [labs111](#)

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

Resource group [\(move\)](#) : [ecommerce-rg](#)


Status : Ready

Location : Central US

Endpoint : ecommerce-mysql-db.mysql.database.azure.com 

Administrator login : adminuser

Configuration : [General Purpose, D4ads, v5.4 vCores, 16 GiB RAM, 64 storage, 492 IOPS](#)

MySQL version : [8.0 Upgrade](#) 


Availability zone : 3

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



Tags [\(edit\)](#) : [Add tags](#)

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

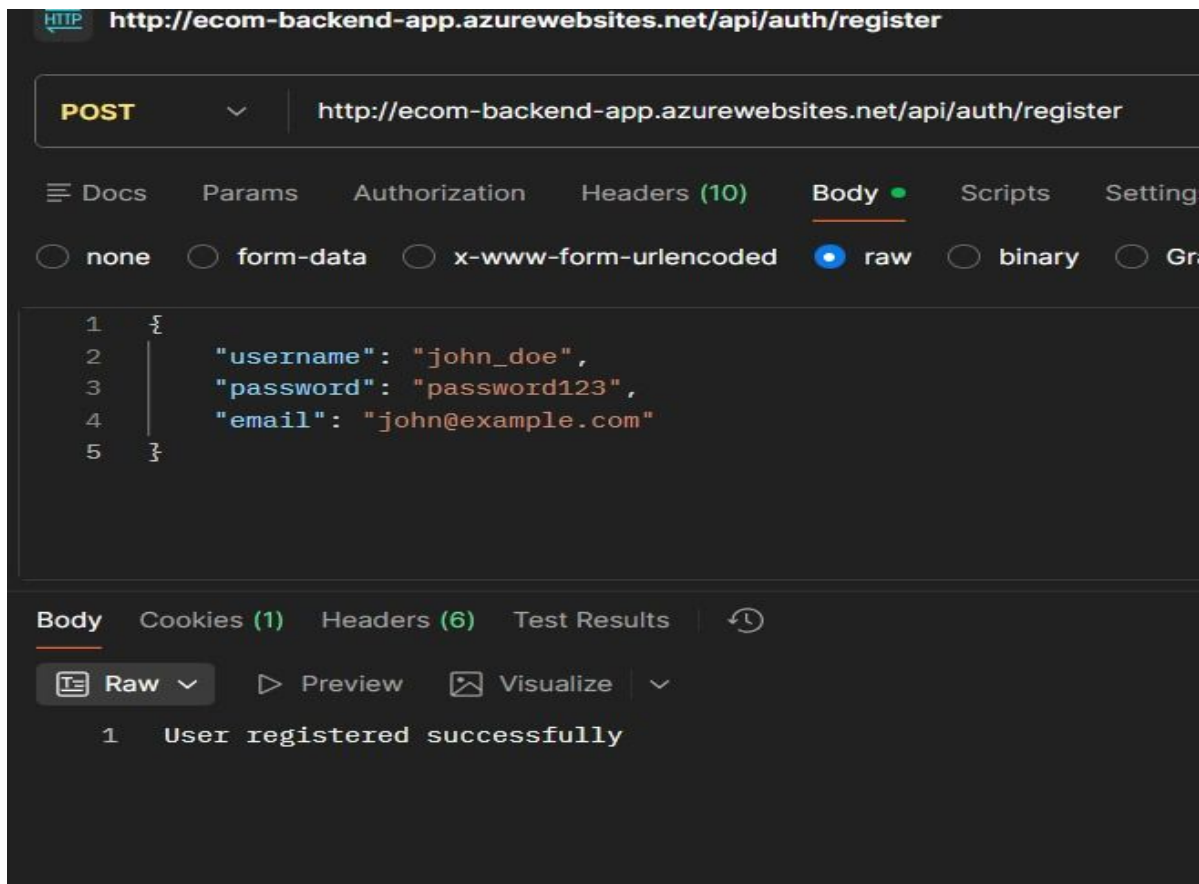
☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL JSON Schema Beautify

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

Body Cookies (1) Headers (6) Test Results 200 OK • 382 ms • 423 B

{ 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   }
```



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** ▾

```
0      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

Docs 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,
```

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

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

Docs Params Authorization Headers (8) Body Scripts Settings

Query Params

Key	Value	Description
-----	-------	-------------

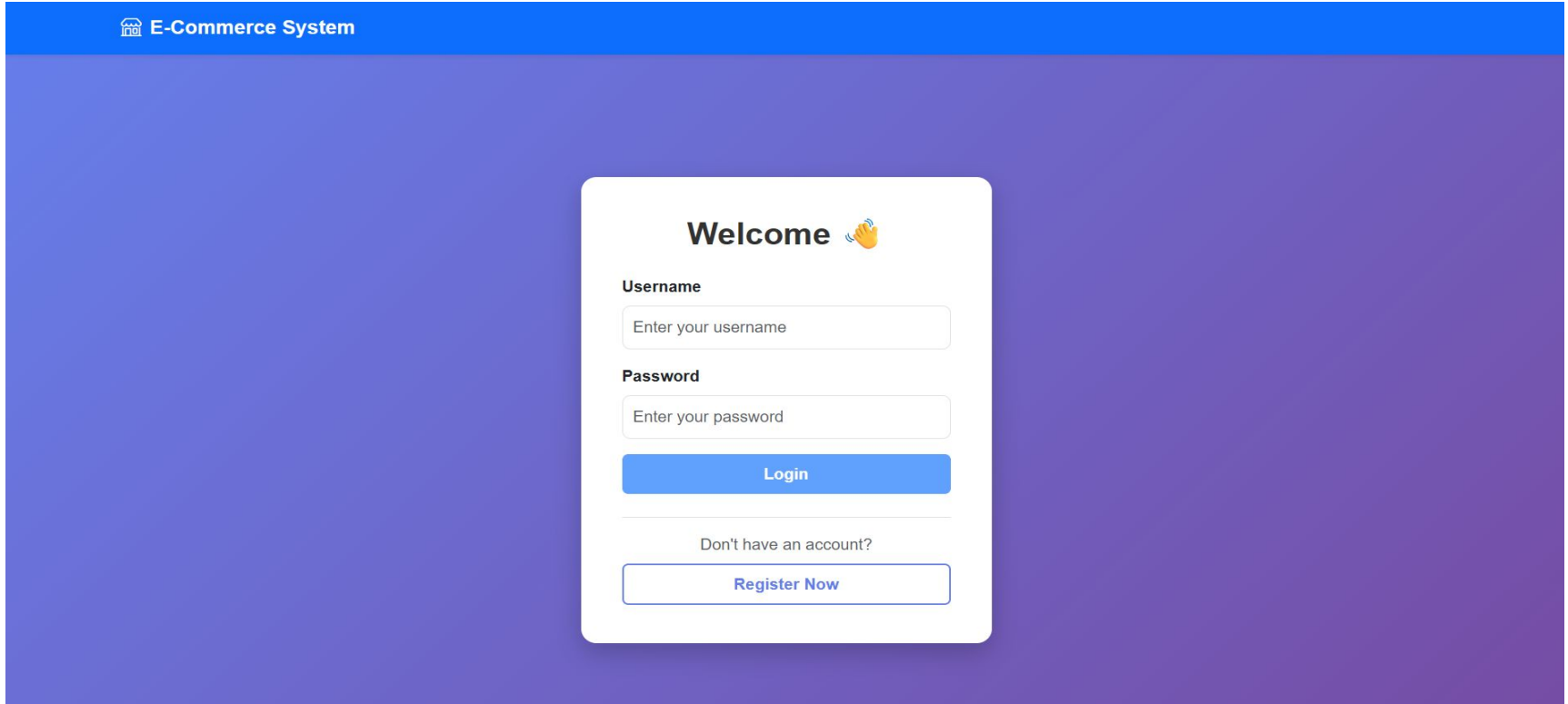
Body Cookies (1) Headers (6) Test Results 200 OK 547

{ } 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 displays the login interface of an E-Commerce System. At the top, a blue header bar contains a storefront icon and the text "E-Commerce System". The main area has a purple-to-blue gradient background. Centered on this background is a white login card with rounded corners. The card begins with the text "Welcome" followed by a waving hand emoji. Below this, there are two input fields: "Username" with the placeholder "Enter your username" and "Password" with the placeholder "Enter your password". A solid blue "Login" button is positioned below the password field. A horizontal line separates the login section from the registration section, which includes the text "Don't have an account?" and a blue-outlined "Register Now" button.

E-Commerce System

Welcome 🖐️

Username
Enter your username

Password
Enter your password

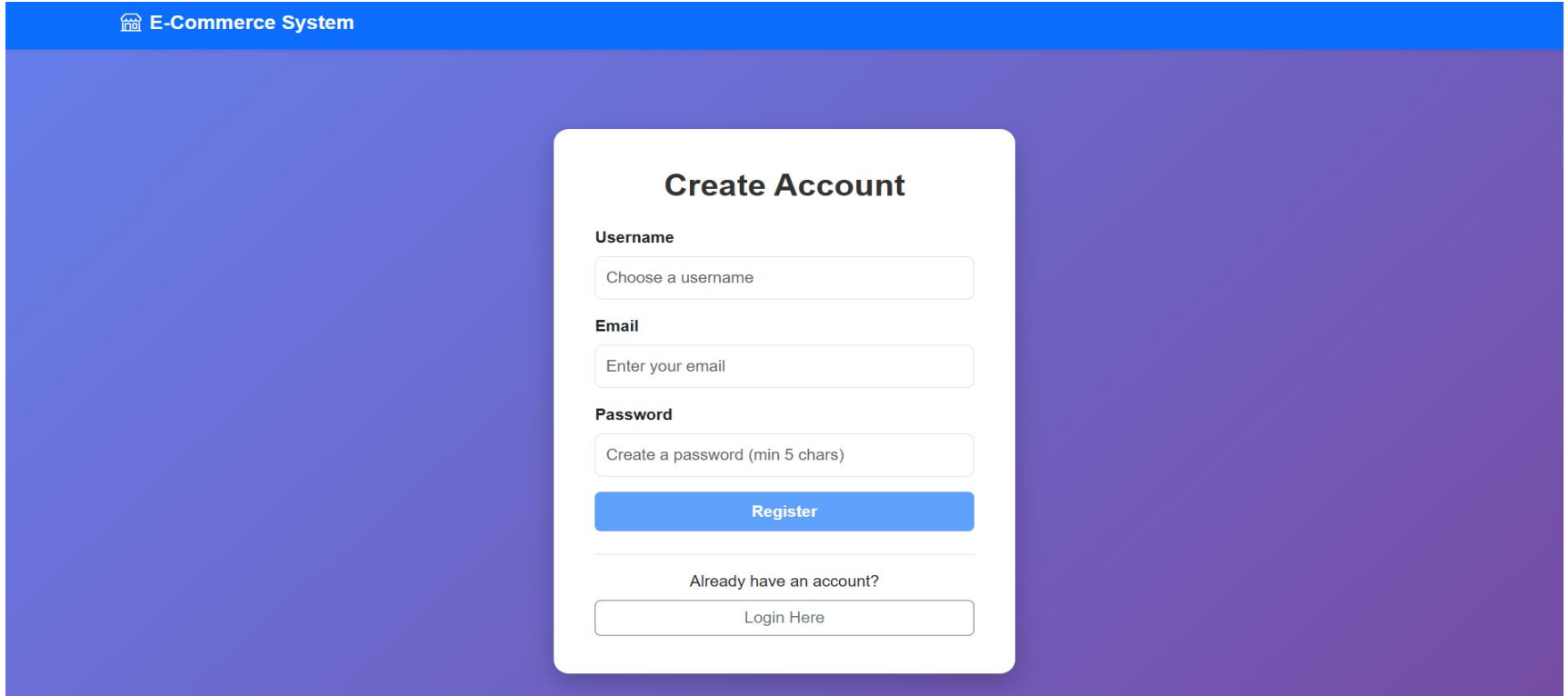
Login

Don't have an account?

[Register Now](#)

Application Walkthrough:

Registration Page:



The screenshot displays the registration interface of an E-Commerce System. The page has a blue header with the system name and a purple gradient background. A central white card contains the 'Create Account' form. The form includes three input fields for Username, Email, and Password, each with a placeholder text. Below these fields is a blue 'Register' button. At the bottom of the card, there is a link 'Login Here' preceded by the text 'Already have an account?'.

E-Commerce System

Create Account

Username

Email

Password

Register

Already have an account?

Admin Dashboard:

E-Commerce System

adminLogout

Admin Panel

ProductsOrders

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...	Edit Delete
#9	Samsung Galaxy S25 Ultra	₹129,999.00	4	It features a durable titanium fr...	Edit Delete
#10	Fossil Townsman Automatic Skeleton Watch	₹21,995.00	7	The top-of-the-hour Townsman...	Edit Delete
#12	Sony WH-1000XM4	₹22,990.00	6	Industry-Leading Noise Cancel...	Edit Delete
#13	mobile	₹20,000.00	1		Edit Delete

Admin Dashboard:

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	<div>SHIPPED <button>Deliver</button></div> <div>Payment: PENDING Mark as Paid</div>
27	10	2/10/26, 1:48 PM	1 items	₹21,995.00	<div>PLACED <button>Ship</button></div> <div>Payment: PENDING Mark as Paid</div>

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

-

1

+

🗑

₹51,621.00

Samsung Galaxy S25 Ultra

₹129999

-

1

+

🗑

₹129,999.00

Fossil Townsman Automatic Skeleton Watch

₹21995

-

1

+

🗑

₹21,995.00

Total: ₹203,615.00

Checkout

RPS

learn..evolve

General - RPS

Data

2024 - RPS Consulting all rights reserved

24

User Dashboard:

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

Git Deployment:

Danushnandyal

Capstone-project_Wipro

Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

Workflow run deleted successfully.

Actions

New workflow

All workflows

Docker Build & Publish

Management

Caches

Attestations

Runners

Usage metrics

Performance metrics

Docker Build & Publish

docker-publish.yml

4 workflow runs

Event

Status

Branch

Actor

Update frontend env with Azure Backend URL

main

Today at 10:17 AM

1m 46s

...

Docker Build & Publish #5: Commit 7da041e pushed by Danushnandyal

Restored frontend, added Dockerfile & Nginx config

main

Today at 9:30 AM

2m 17s

...

Docker Build & Publish #4: Commit d23d687 pushed by Danushnandyal

Fix workflow with username

main

Today at 8:22 AM

1m 11s

...

Docker Build & Publish #2: Commit 36005fd pushed by Danushnandyal

initial commit

main

Today at 3:23 AM

26s

...

Docker Build & Publish #1: Commit 5808c82 pushed by Danushnandyal

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."