

FRESHBASKET: SCALABLE E-COMMERCE PLATFORM USING FLASK ON AWS EC2 AND RDS

AWS PROJECT PRESENTATION

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PROBLEM STATEMENT

The demand for fresh fruits and vegetables through online platforms has been rising, but many existing e-commerce systems face challenges in scalability, efficient data management, and seamless user experience during high traffic periods. Small to medium-scale businesses often struggle with adopting cloud-native solutions due to complexity and cost, resulting in poor performance, downtime, and dissatisfied users. There is a need for a scalable, reliable, and cost-effective e-commerce platform that ensures high availability, efficient operations, and an intuitive user experience for both customers and administrators.

OBJECTIVES

The primary objectives of this project are as follows:

- Develop a scalable e-commerce platform for fresh produce using Flask for the backend.
- Deploy the application on AWS EC2 for high availability and scalability.
- Use Amazon RDS for efficient and secure database management.
- Demonstrate the benefits of cloud-native architecture for handling dynamic traffic and operational demands.

TECHNOLOGIES USED

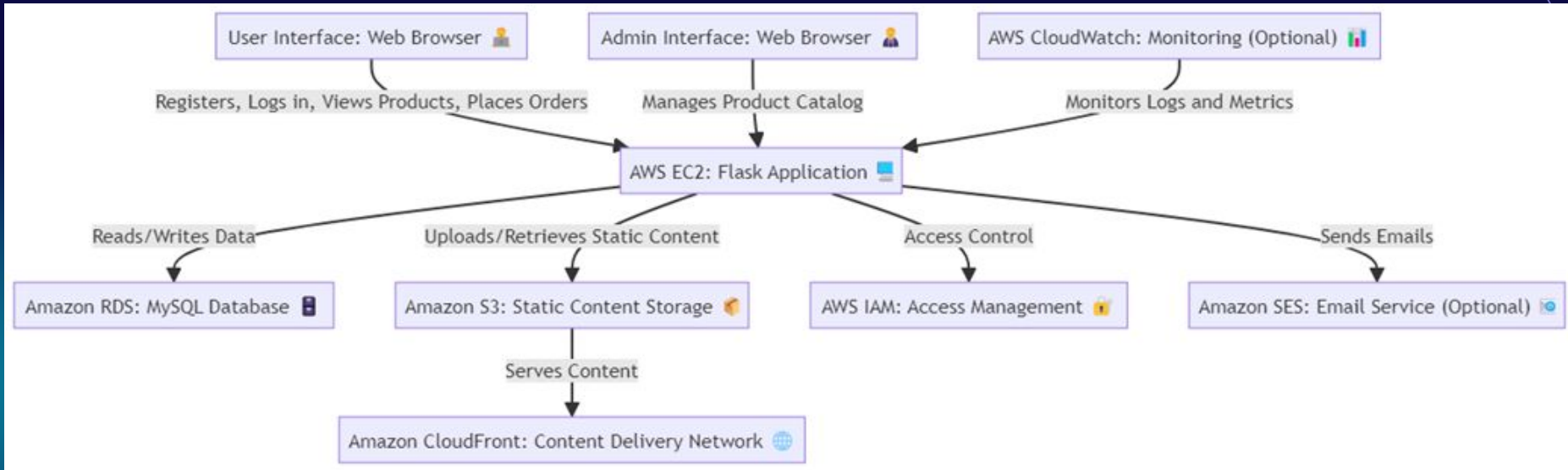
- **Flask:** Lightweight backend web framework for managing user sessions, catalog data, and order processes.
- **AWS EC2:** Scalable cloud-based virtual server for hosting the platform.
- **Amazon RDS:** Managed database service for storing and retrieving product and user data efficiently.
- **MySQL Workbench:** Tool for database design, querying, and management.

MODULES

The FreshBasket platform is composed of the following modules:

- **User Authentication:** Enables user registration and login for secure access.
- **Product Catalog Management:** Displays available fruits and vegetables, along with prices and details.
- **Shopping Cart:** Allows users to add, update, and remove items from their cart.
- **Order Processing:** Handles checkout operations, including order confirmation and payment integration.
- **Admin Dashboard:** For managing inventory, tracking orders, and updating product details.

ARCHITECTURE



CONCEPTS

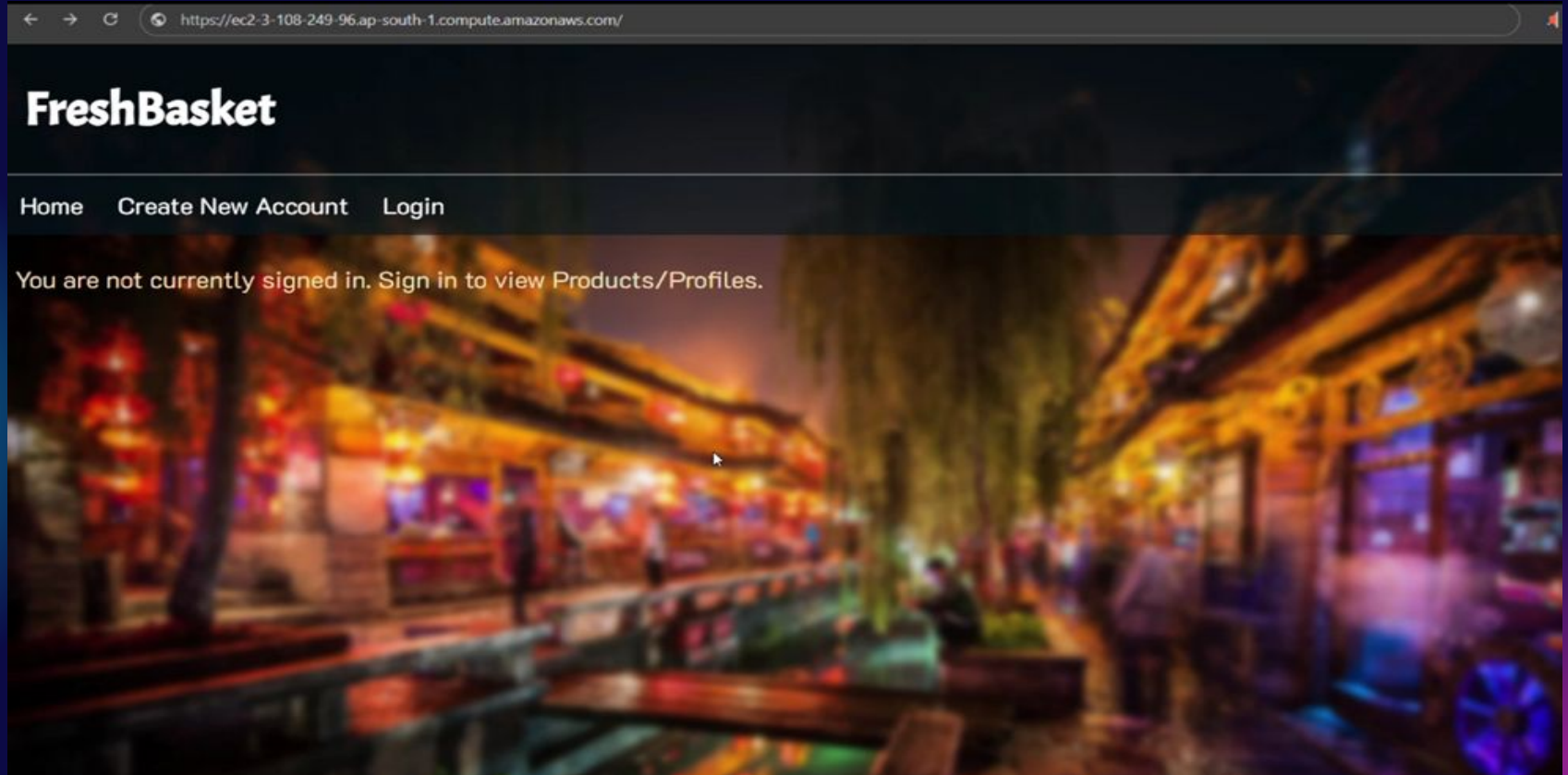
- **Scalable Web Architecture:** Designed to handle increasing traffic with minimal performance impact.
- **Cloud-Native Deployment:** Utilizing AWS services like EC2 and RDS ensures reliability and flexibility.
- **Database Integration:** MySQL Workbench supports efficient data management and query execution.
- **Backend Efficiency:** Flask's lightweight nature enables fast response times and seamless operations.

GESTURES IMPLEMENTED

- **Responsive Navigation:** User-friendly design with intuitive menus and buttons.
- **Real-Time Cart Updates:** Changes in the shopping cart reflect instantly on the user interface.
- **Dynamic Search and Filtering:** Allows users to quickly find products using keywords or categories.
- **Order Confirmation Feedback:** Displays order status and details after successful checkout.

OUTPUT SCREENSHOTS

Home Page



Login Page

← → ↻ 🔒 https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/

FreshBasket

[Home](#) > [Login](#)

Login

☒ Customer ☐ Seller

EMAIL:	<input type="text" value="abcd1234@gmail.com"/>
PASSWORD:	<input type="password" value="....."/>

User Profile Page

← → ↻ <https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/>

FreshBasket

[Home](#) > [View Profiles](#) > [User Profile](#)

User Profile

Customer Account

NAME :	Abcd 1234
EMAIL :	abcd1234@gmail.com
PHONE :	1234567890
ADDRESS :	abc, abcde, Delhi, delhi, India
ZIPCODE :	110059

Edit Profile

Editing the Address as Chennai

← → ↻ https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/

EMAIL : abcd1234@gmail.com

FreshBasket

[Home](#) > [Edit Profile](#)

1234567890

ADDRESS :

LANDMARK/AREA : abc

LOCALITY : abcde

CITY : Chennai

STATE : Chennai

COUNTRY : India

ZIPCODE : 110059

Save Changes

Searching a product by its category

← → ↻ https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/

FreshBasket

Home > Buy

• Search by keyword

Search Products My Orders My Cart My Purchases

• Search by category

Educational Utilities

• Both

SEARCH

SNo.	Name	Category	Price	
1	HP Notebook 1120	Electronics and Tech	₹ 35700	View
2	Apple iPhone 7	Electronics and Tech	₹ 61200	View

Adding a product to cart

← → ↻ https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/

Product Information

FreshBasket

Home > Buy > View Product > HP Notebook 1120

Name :	HP Notebook 1120
In Stock :	26
Category :	Electronics and Tech
Price :	₹ 35700
Sold By :	<u>Varun Sharma</u>
About :	Exclusive laptop by Hewlett Packard Ltd. Suitable for college students and professionals Intel core i3 6th gen, 8GB RAM, 1TB HDD

Buy Product

Add to Cart

Buying the product

← → ↻ <https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/>

FreshBasket

[Home](#) > [Buy](#) > [HP Notebook 1120](#)

HP Notebook 1120

CATEGORY :	Electronics and Tech
DESCRIPTION :	Exclusive laptop by Hewlett Packard ltd. Suitable for college students and professionals Intel core i3 6th gen, 8GB RAM, 1TB HDD
QUANTITY (select quantity):	<input type="text" value="2"/>
PRICE/UNIT :	₹ 35700

PROCEED

Confirming the order

← → ↻ https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/ 🔊

FreshBasket

[Home](#) > [Buy](#) > [Confirm](#)

Confirm Order Placement

SNo.	NAME	QUANTITY	AMOUNT
1	HP Notebook 1120	2	₹ 71400.0
TOTAL AMOUNT :			₹ 71400.0

[PLACE ORDER](#)

[CANCEL](#)

Viewing my orders

← → ↻ <https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/>

FreshBasket

[Home](#) > [Buy](#) > [My Orders](#)

My Orders

SNO.	PRODUCT	QUANTITY	AMOUNT	DATE-TIME	STATUS	
1	HP Notebook 1120	2	₹ 71400	2024-12-08 05:58:30	PLACED	Cancel Order
2	Raymond Cotton Shirt	1	₹ 3060	2019-04-16 08:47:04	PLACED	Cancel Order

Cancelling a confirmed order

← → ↻ <https://ec2-3-108-249-96.ap-south-1.compute.amazonaws.com/>

FreshBasket

[Home](#) > [Buy](#) > [My Orders](#)

My Orders

SNO.	PRODUCT	QUANTITY	AMOUNT	DATE-TIME	STATUS	
1	HP Notebook 1120	2	₹ 71400	2024-12-08 05:58:30	PLACED	<button>Cancel Or</button>
2	Raymond Cotton Shirt	1	₹ 3060	2019-04-16 08:47:04	CANCELLED	

FreshBasket Instance is running in the AWS EC2

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Instances:instanceState=running

aws Search [Alt+S] Mumbai

Instances (1/2) Info

Last updated less than a minute ago [Refresh](#) [Connect](#) [Instance state](#) [Actions](#) [Launch instance](#)

[All states](#)

[Instance state = running](#) [Clear filters](#)

<input type="checkbox"/>	Name ↗	Instance ID	Instance state ↕	Instance type ↕	Status check	Alarm status	Availability Zone ↕	Public IPv4 DNS ↕
<input checked="" type="checkbox"/>	FreshBasket	i-037b98d1d7c884ea9	Running ↕ ↕	t2.micro	2/2 checks passed	View alarms +	ap-south-1b	ec2-3-108-249-96.ap-s...
<input type="checkbox"/>	Bloodbridge	i-0e89288d4c35e1d7c	Running ↕ ↕	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	ec2-13-232-245-79.ap-...

i-037b98d1d7c884ea9 (FreshBasket)

[Details](#) [Status and alarms](#) [Monitoring](#) [Security](#) [Networking](#) [Storage](#) [Tags](#)

▼ Instance summary Info

Instance ID

[↗](#) i-037b98d1d7c884ea9

IPv6 address

-

Hostname type

Public IPv4 address

[↗](#) 3.108.249.96 | [open address](#) [↗](#)

Instance state

Running

Private IP DNS name (IPv4 only)

Private IPv4 addresses

[↗](#) 172.31.12.240

Public IPv4 DNS

[↗](#) ec2-3-108-249-96.ap-south-1.compute.amazonaws.com | [open address](#) [↗](#)

CONCLUSION

The FreshBasket project demonstrates the effectiveness of a cloud-based e-commerce platform, leveraging Flask for its simplicity in backend development and AWS's robust infrastructure for scalability and performance. By utilizing AWS EC2, the platform ensures high availability and can efficiently handle fluctuating user traffic. The integration of Amazon RDS guarantees secure and reliable database management for crucial data like product catalogs and user information. The modular design of the platform allows for easy scaling, ensuring that it can grow with increasing demand. This project showcases the advantages of cloud-native architecture, providing a flexible, cost-effective solution for the online retail of fresh produce. In conclusion, FreshBasket is a modern, efficient, and scalable e-commerce solution, prepared for the challenges of the ever-evolving digital marketplace. Future enhancements could focus on incorporating AI-based recommendations and expanding its product range.