HomeMade Pickles & Snacks: Taste the Best

Hardware Required:

Processor: Intel i5 or equivalent (minimum). RAM: 4 GB (8 GB recommended for Full Stack MERN). per system). Additional: Audio-visual setup for interactive sessions (microphone, speakers, etc.).

Software Required:

Processor: Intel i5 or equivalent (minimum). RAM: 4 GB (8 GB recommended for Full Stack MERN). Storage: 128 GB SSD or 128 GB HDD. Internet Connectivity: High-speed internet (minimum 10 Mbps per system). Additional: Audio-visual setup for interactive sessions (microphone, speakers, etc.).

System Required:

Projector and Audio System for presentations in all labs/classrooms Classrooms/Labs are equipped with systems or provisions for students to join sessions with their own laptops.

Description:

Home Made Pickles & Snacks — Taste the Best is a cloud-based culinary platform revolutionizing access to authentic, handcrafted pickles and snacks. Addressing the growing demand for preservative-free, traditional recipes, this initiative combines artisanal craftsmanship with cutting-edge technology to deliver farm-fresh flavors directly to consumers. Built on Flask for backend efficiency and hosted on AWS EC2 for scalable performance, the platform offers seamless browsing, ordering, and subscription management. DynamoDB ensures real-time inventory tracking and personalized user experiences, while fostering sustainability through partnerships with local farmers and eco-friendly packaging. From tangy regional pickles to wholesome snacks, every product celebrates heritage recipes, nutritional integrity, and convenience—proving that tradition and innovation can coexist deliciously. "Preserving Traditions, One Jar at a Time."

Scenarios:

Scenario 1: Scalable Order Management for High Demand

A cloud-based system ensures seamless order processing during peak user activity. For instance, during a promotional event, hundreds of users simultaneously access the platform to place orders. The backend efficiently processes requests, updates inventory in real-time, and manages user sessions. The cloud infrastructure handles traffic spikes without performance degradation, ensuring smooth transactions and minimizing wait times.

Scenario 2: Real-Time Inventory Tracking and Updates

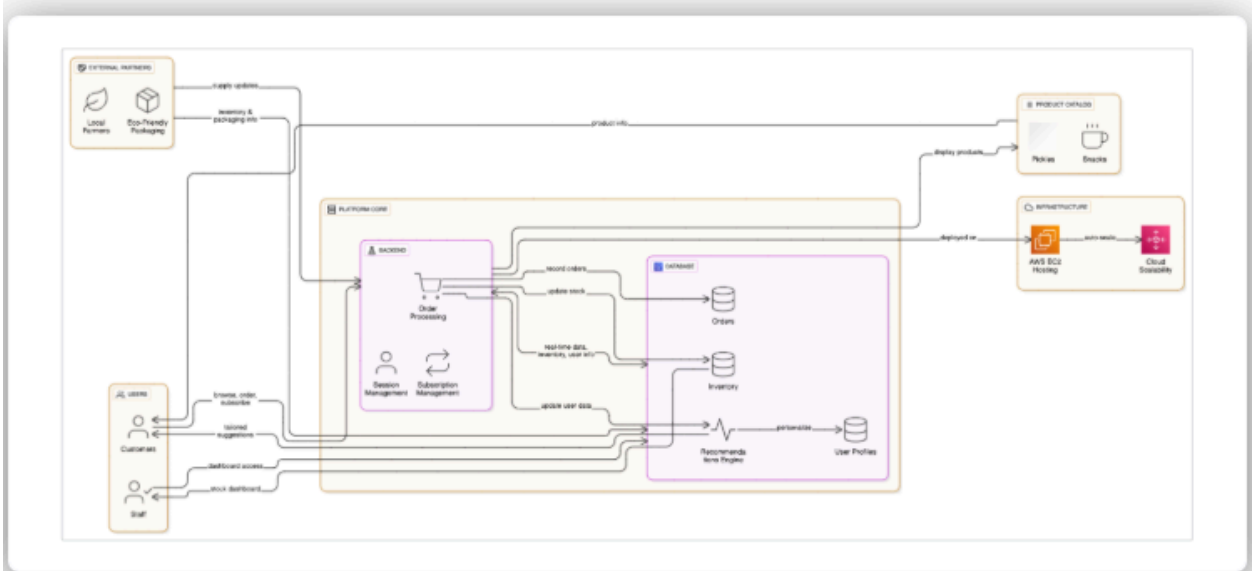
When a customer places an order for a product, the system instantly updates stock levels and records transaction details. For example, a user purchases an item, triggering automatic inventory deduction and order confirmation. Staff members receive updated dashboards to monitor stock availability and fulfillment progress, ensuring timely restocking and minimizing overselling risks.

Scenario 3: Personalized User Experience and Recommendations

The platform leverages user behavior data to enhance engagement. A returning customer, for instance, views tailored recommendations based on past purchases and browsing history. The system dynamically adjusts suggestions in real-time, while maintaining fast response rates even during high traffic, creating a frictionless and intuitive shopping experience.

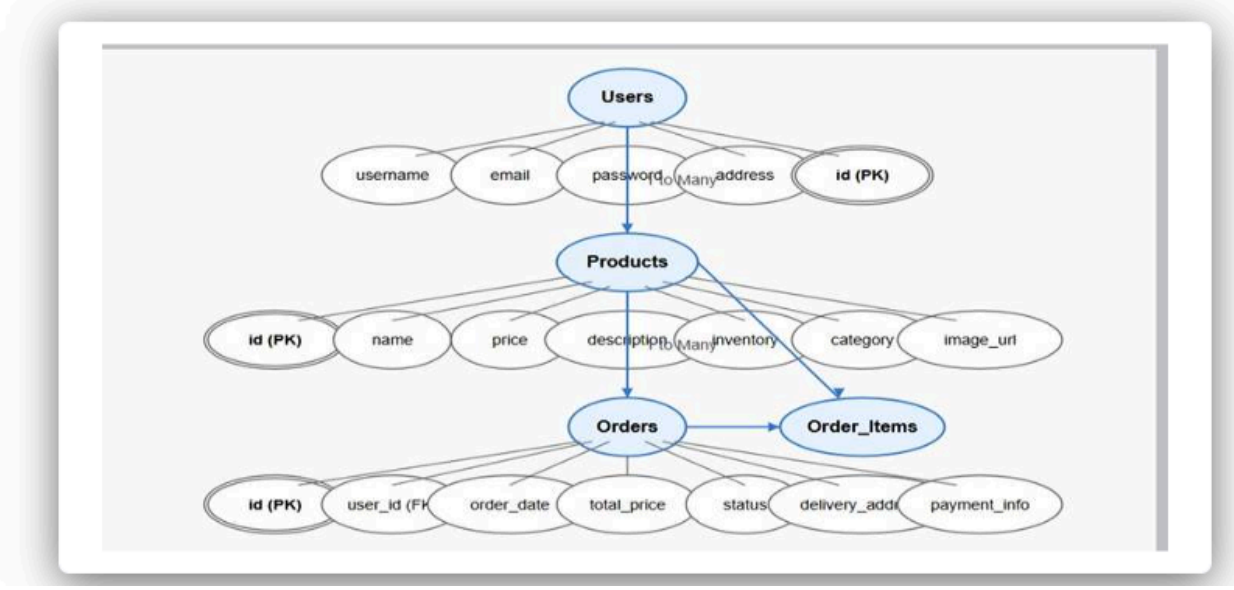
Architecture

This AWS-based architecture powers a scalable and secure web application using Amazon EC2 for hosting the backend, with a lightweight framework like Flask handling core logic. Application data is stored in Amazon DynamoDB, ensuring fast, reliable access, while user access is managed through AWS IAM for secure authentication and control. Real-time alerts and system notifications are enabled via Amazon SNS, enhancing communication and user engagement.



Entity Relationship (ER)Diagram

An ER (Entity-Relationship) diagram visually represents the logical structure of a database by defining entities, their attributes, and the relationships between them. It helps organize data efficiently by illustrating how different components of the system interact and relate. This structured approach supports effective database normalization, data integrity, and simplified query design.



Pre-requisites

- AWS Account Setup: https://docs.aws.amazon.com/accounts/latest/reference/getting-started.html
- AWS IAM (Identity and Access Management): https://docs.aws.amazon.com/IAM/latest/UserGuide/introduction.html
- AWS EC2 (Elastic Compute Cloud): https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/concepts.html
- AWS DynamoDB: https://docs.aws.amazon.com/amazondynamodb/Introduction.html
- Git Documentation: https://git-scm.com/doc
- VS Code Installation: (download the VS Code using the below link or you can get that in Microsoft store) https://code.visualstudio.com/download

Project WorkFlow

Milestone 1. Backend Development and Application Setup

- Develop the Backend Using Flask.
- Integrate AWS Services Using boto3.

Milestone 2. AWS Account Setup and Login

- Set up an AWS account if not already done.
- Log in to the AWS Management Console

Milestone 3. DynamoDB Database Creation and Setup

- Create a DynamoDB Table.
- Configure Attributes for User Data and Book Requests.

Milestone 4. SNS Notification Setup

- Create SNS topics for book request notifications.
- Subscribe users and library staff to SNS email notifications.

Milestone 5. IAM Role Setup

- Create IAM Role
- Attach Policies

Milestone 6. EC2 Instance Setup

- Launch an EC2 instance to host the Flask application.
- Configure security groups for HTTP, and SSH access.

Milestone 7. Deployment on EC2

- Upload Flask Files
- Run the Flask App

Milestone 8. Testing and Deployment

- Conduct functional testing to verify user signup, login, buy/sell stocks and notifications.

Milestone 1 : Web Application Development and Setup

Backend Development and Application Setup focuses on establishing the core structure of the application. This includes configuring the backend framework, setting up routing, and integrating database connectivity. It lays the groundwork for handling user interactions, data management, and secure access.

Important Instructions:

- Start by creating the necessary HTML pages and Flask routes (app.py) to build the core functionality of your application.

- During the initial development phase, store and retrieve data using Python dictionaries or lists locally. This will allow you to design, test, and validate your application logic without external database dependencies.

- Ensure your app runs smoothly with local data structures before integrating any cloud services.

Post Troven Access Activation:

- Once Troven Labs access is provided (valid for 3 hours), you must immediately proceed with Milestone 1 of your Guided Project instructions.

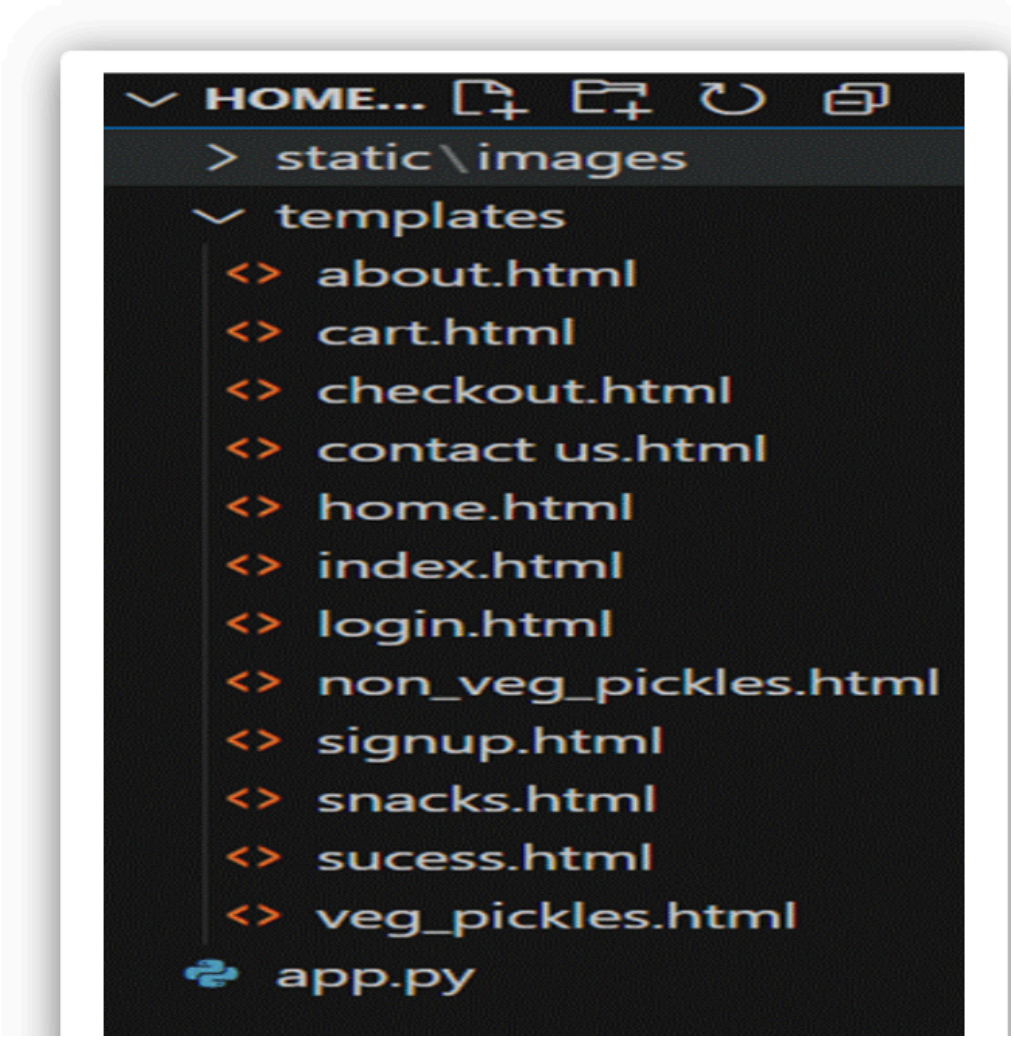
- At this point, modify your app.py and replace local dictionary/list operations with AWS services (such as DynamoDB, RDS, or others as per project requirements).

- Using the temporary credentials provided by Troven Labs, securely connect your application to AWS resources.

- Since the AWS configuration is lightweight and already instructed in the milestones, you should be able to complete the cloud integration efficiently within the allotted time.

LOCAL DEPLOYMENT

- File Explorer Structure




```python
from flask import Flask, render_template, request, redirect, url_for, session, flas
import boto3
import uuid
import smtplib
from email.mime.text import MIMEText
from email.mime.multipart import MIMEMultipart
import os
```

```python
import os

app = Flask(__name__)
app.secret_key = os.urandom(24)

```

```python
# AWS Configuration
dynamodb = boto3.resource('dynamodb', region_name='us-east-1')
user_table = dynamodb.Table('Users')
orders_table = dynamodb.Table('Orders')

# Email Configuration
EMAIL_ADDRESS = 'avanthiakki@gmail.com'
EMAIL_PASSWORD = 'inpq fkgo tmku bwhf' # Replace with your actual Gmail App Passwords
```

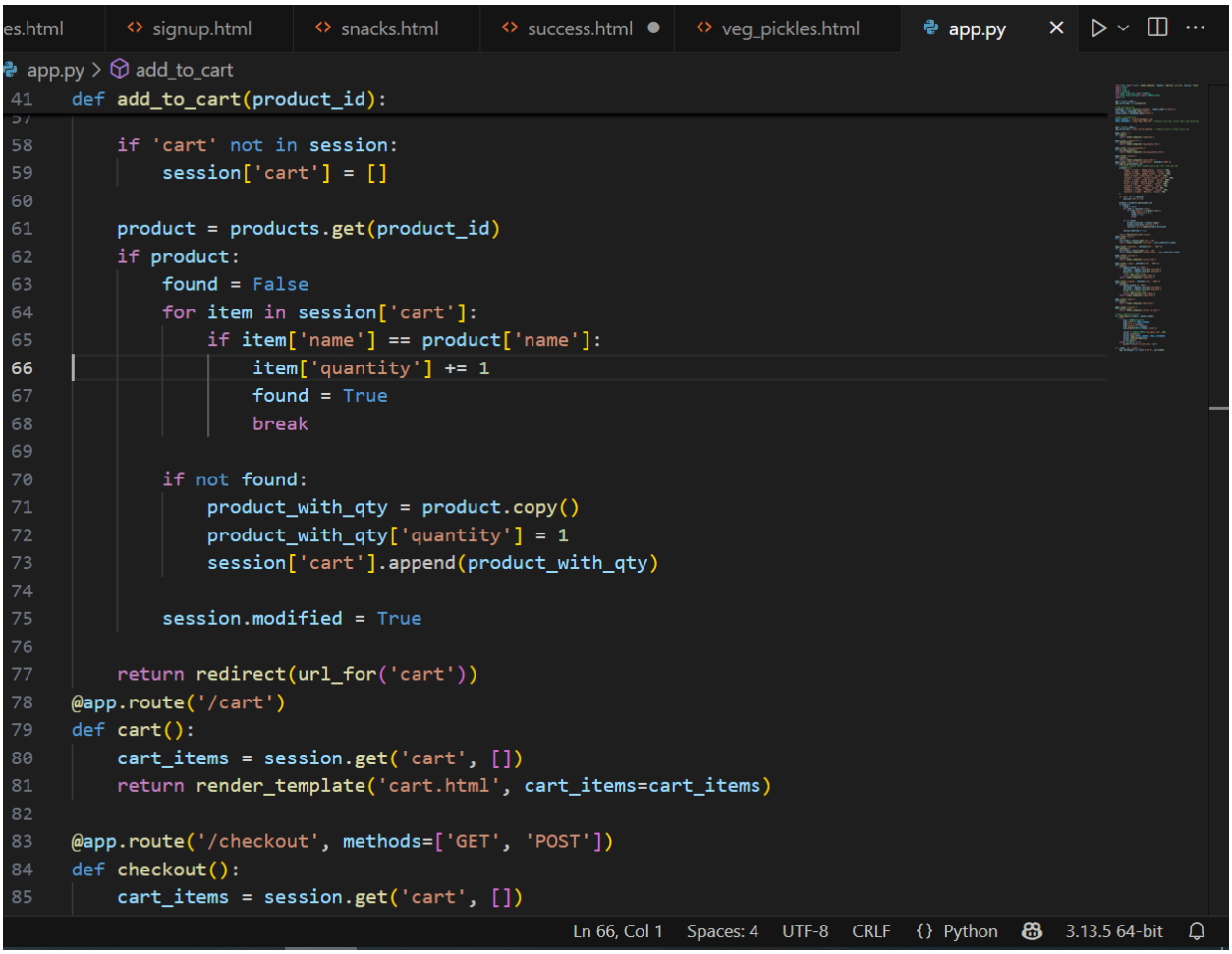
```python

app = Flask(__name__)
app.secret_key = 'your_secret_key_here'  # Replace with a strong secret key

```

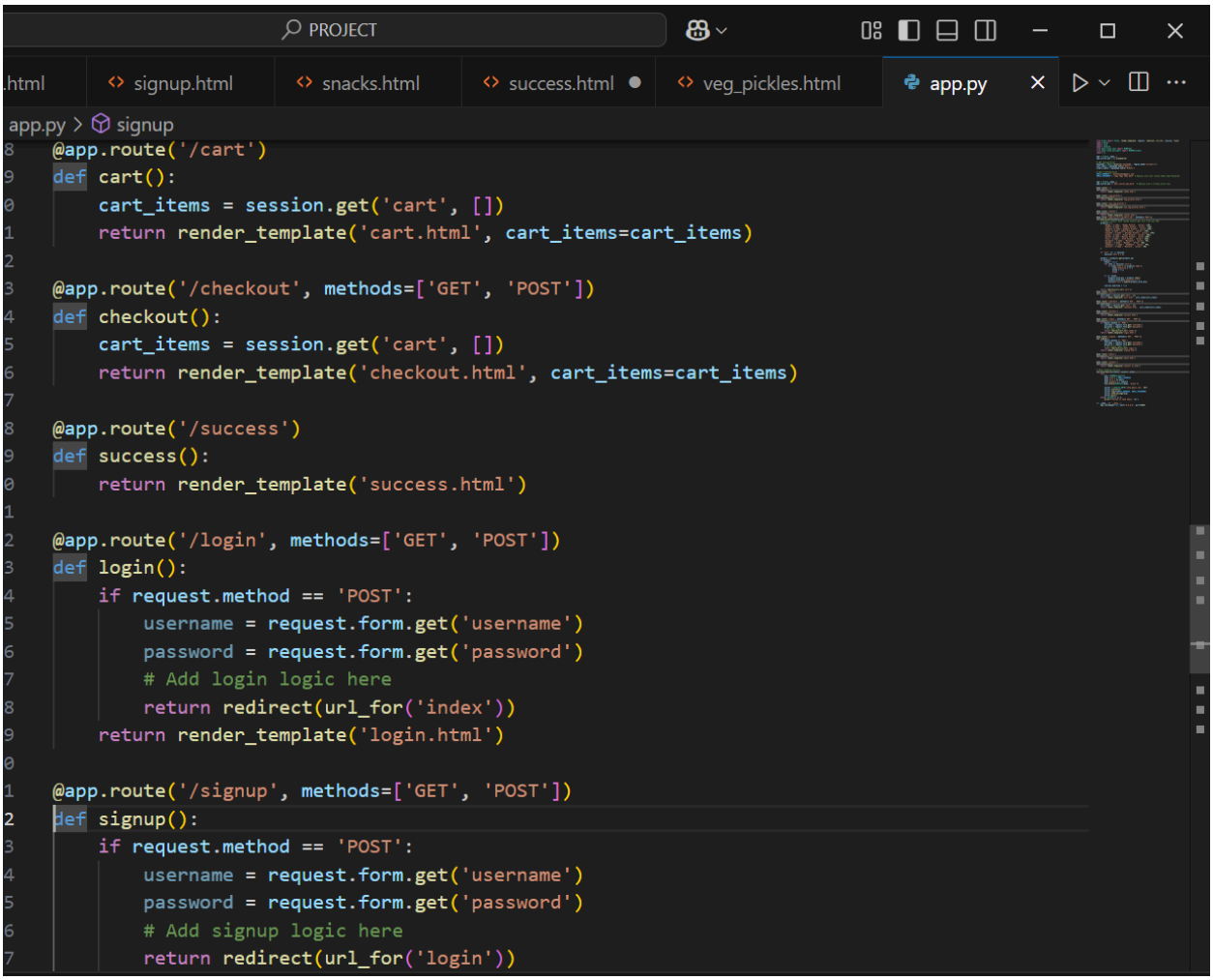
```python
@app.route('/')
def index():
    return render_template('index.html')

@app.route('/veg_pickles')
def veg_pickles():
```

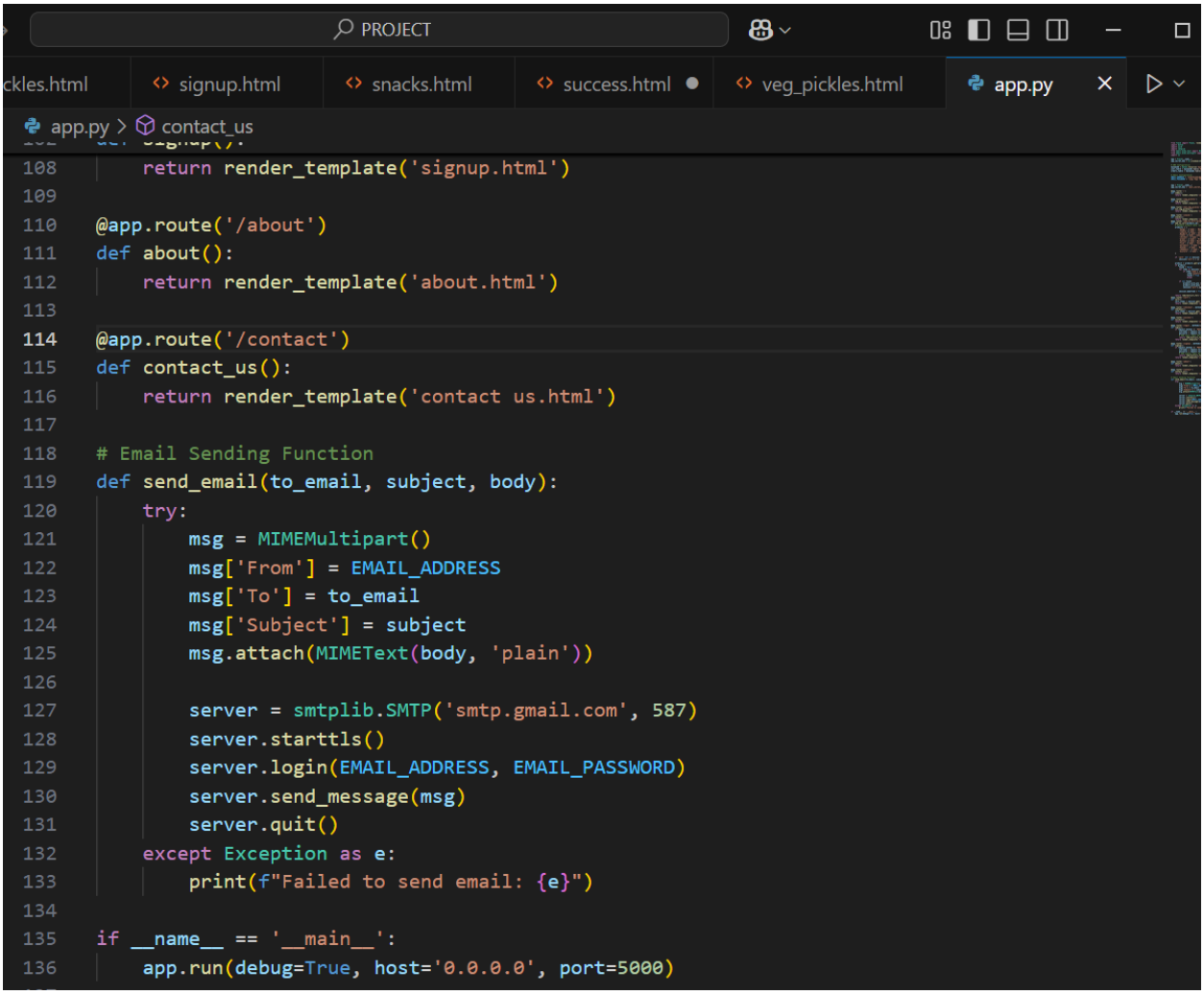
app.py > add_to_cart

```python

@app.route('/veg_pickles')
def veg_pickles():
    return render_template('veg_pickles.html')

@app.route('/non_veg_pickles')
def non_veg_pickles():
    return render_template('non_veg_pickles.html')

@app.route('/snacks')
def snacks():
    return render_template('snacks.html')
@app.route('/add_to_cart/<product_id>', methods=['POST'])
def add_to_cart(product_id):
    # Example product data (you'd usually get this from your DB)
    products = {
        'mango': {'name': 'Mango Pickle', 'price': 130},
        'tomato':{'name': 'Tomato Pickle', 'price': 120},
        'gongura':{'name':'Gongura Pickle', 'price':150},
        'lemon':{'name':'Lemon Pickle', 'price': 140},
        'chicken': {'name': 'Chicken Pickle', 'price': 250},
        'prawn': {'name': 'Prawn Pickle', 'price': 300},
        'mutton':{'name':'Mutton Pickle', 'price':300},
        'fish': {'name': 'Fish Pickle', 'price': 260},
        'murukulu': {'name': 'Murukulu', 'price': 50},
        'boondi': {'name': 'Boondi', 'price': 80},
        'chekkalu': {'name': 'Chekkalu', 'price': 90},
        'mixture': {'name': 'Mixture', 'price': 90}
    }
```

Milestone 2 : AWS Account Setup




PROJECT
.html
signup.html
snacks.html
success.html
veg_pickles.html
app.py
app.py > signup
@app.route('/cart')
def cart():
cart_items = session.get('cart', [])
return render_template('cart.html', cart_items=cart_items)
@app.route('/checkout', methods=['GET', 'POST'])
def checkout():
cart_items = session.get('cart', [])
return render_template('checkout.html', cart_items=cart_items)
@app.route('/success')
def success():
return render_template('success.html')
@app.route('/login', methods=['GET', 'POST'])
def login():
if request.method == 'POST':
username = request.form.get('username')
password = request.form.get('password')
# Add login logic here
return redirect(url_for('index'))
return render_template('login.html')
@app.route('/signup', methods=['GET', 'POST'])
def signup():
if request.method == 'POST':
username = request.form.get('username')
password = request.form.get('password')
# Add signup logic here
return redirect(url_for('login'))



Milestone 2 : AWS Account Setup

Important Notice: Use Troven Labs for AWS Access

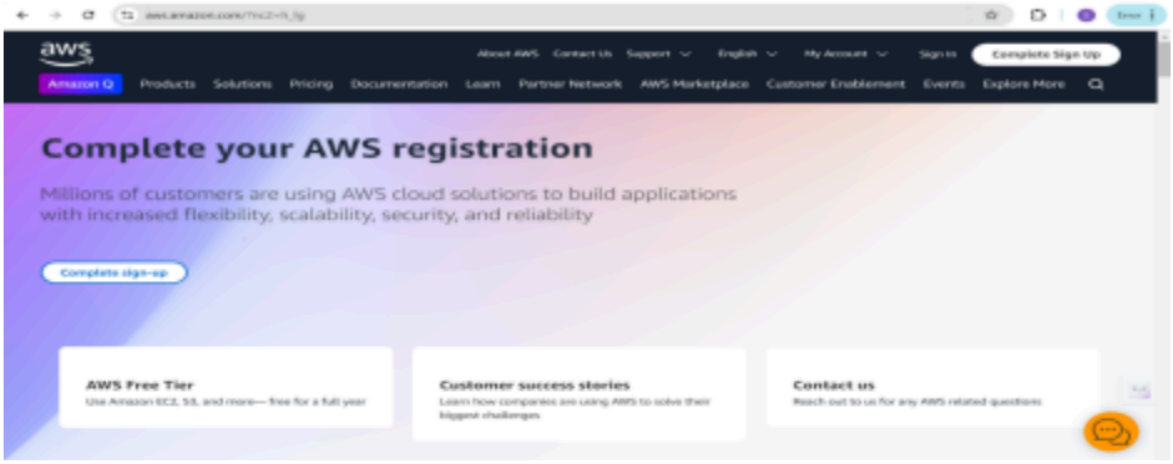
Students are strictly advised not to create their own AWS accounts, as doing so may incur charges. Instead, we have set up a dedicated section called "Labs" on the Troven platform, which provides temporary and cost-free access to AWS services.

Once your website is locally deployed and fully functional, you must proceed with integrating AWS services only through the Troven Labs environment. This ensures secure, controlled access to AWS resources without any risk of personal billing.

All steps involving AWS (such as deploying to EC2, connecting to DynamoDB, or using SNS) must be carried out within the Troven Labs platform, as we've configured temporary credentials for each student.

This is for your understanding only, please refrain from creating an AWS account. A temporary account will be provided via Troven.

- Go to the AWS website (https://aws.amazon.com/).
- Click on the "Create an AWS Account" button.
- Follow the prompts to enter your email address and choose a password.
- Provide the required account information, including your name, address, and phone number.
- Enter your payment information. (Note: While AWS offers a free tier, a credit card or debit card is required for verification.)
- Complete the identity verification process.
- Choose a support plan (the basic plan is free and sufficient for starting).
- Once verified, you can sign in to your new AWS accounts.

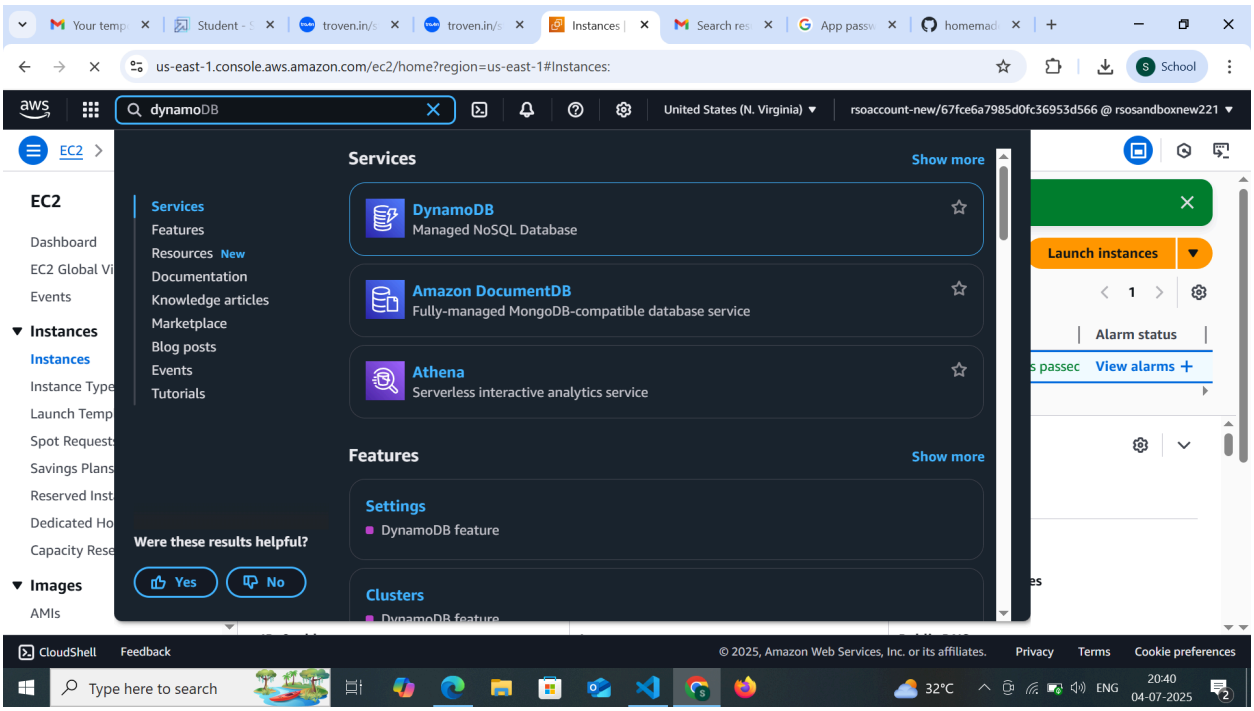


Milestone 3 : DynamoDB Database Creation and Setup

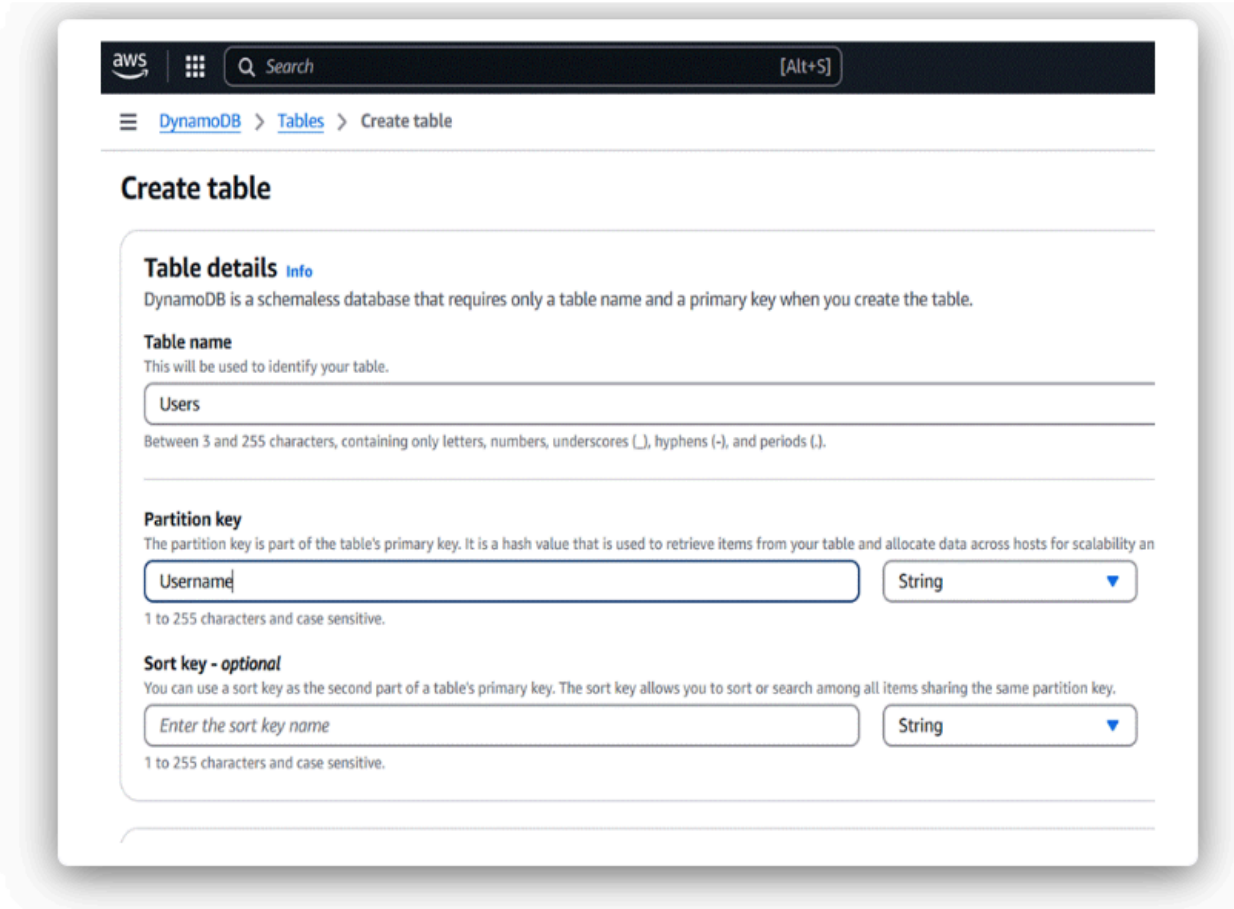
Database Creation and Setup involves initializing a cloud-based NoSQL database to store and manage application data efficiently. This step includes defining tables, setting primary keys, and configuring read/write capacities. It ensures scalable, high-performance data storage for seamless backend operations.

Navigate to the DynamoDB

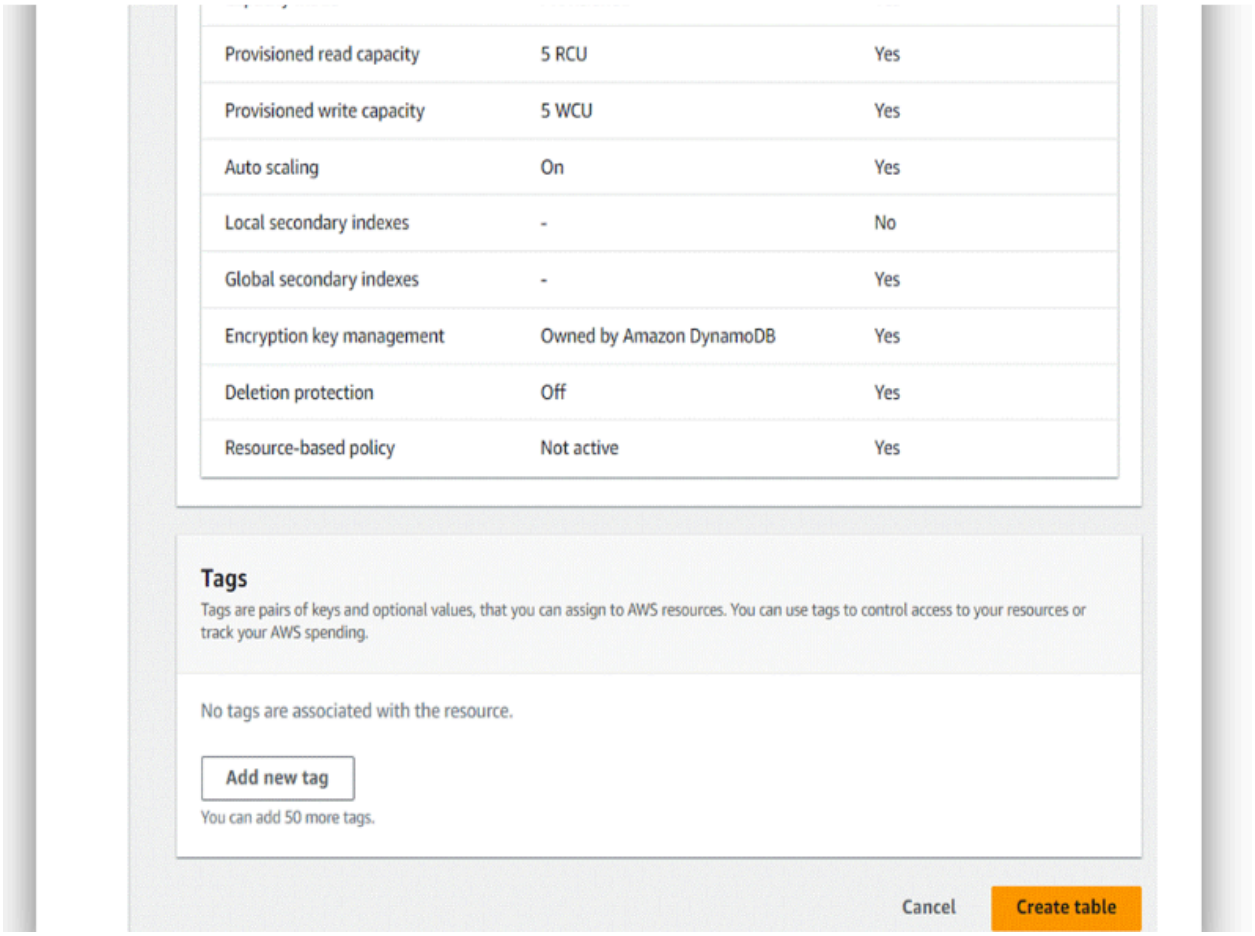
- In the AWS Console, navigate to DynamoDB and click on create tables.



Create a DynamoDB table for storing data



- Create Users table with partition key “Username” with type String and click on create tables.



Provisioned read capacity	5 RCU	Yes
Provisioned write capacity	5 WCU	Yes
Auto scaling	On	Yes
Local secondary indexes	-	No
Global secondary indexes	-	Yes
Encryption key management	Owned by Amazon DynamoDB	Yes
Deletion protection	Off	Yes
Resource-based policy	Not active	Yes

Tags

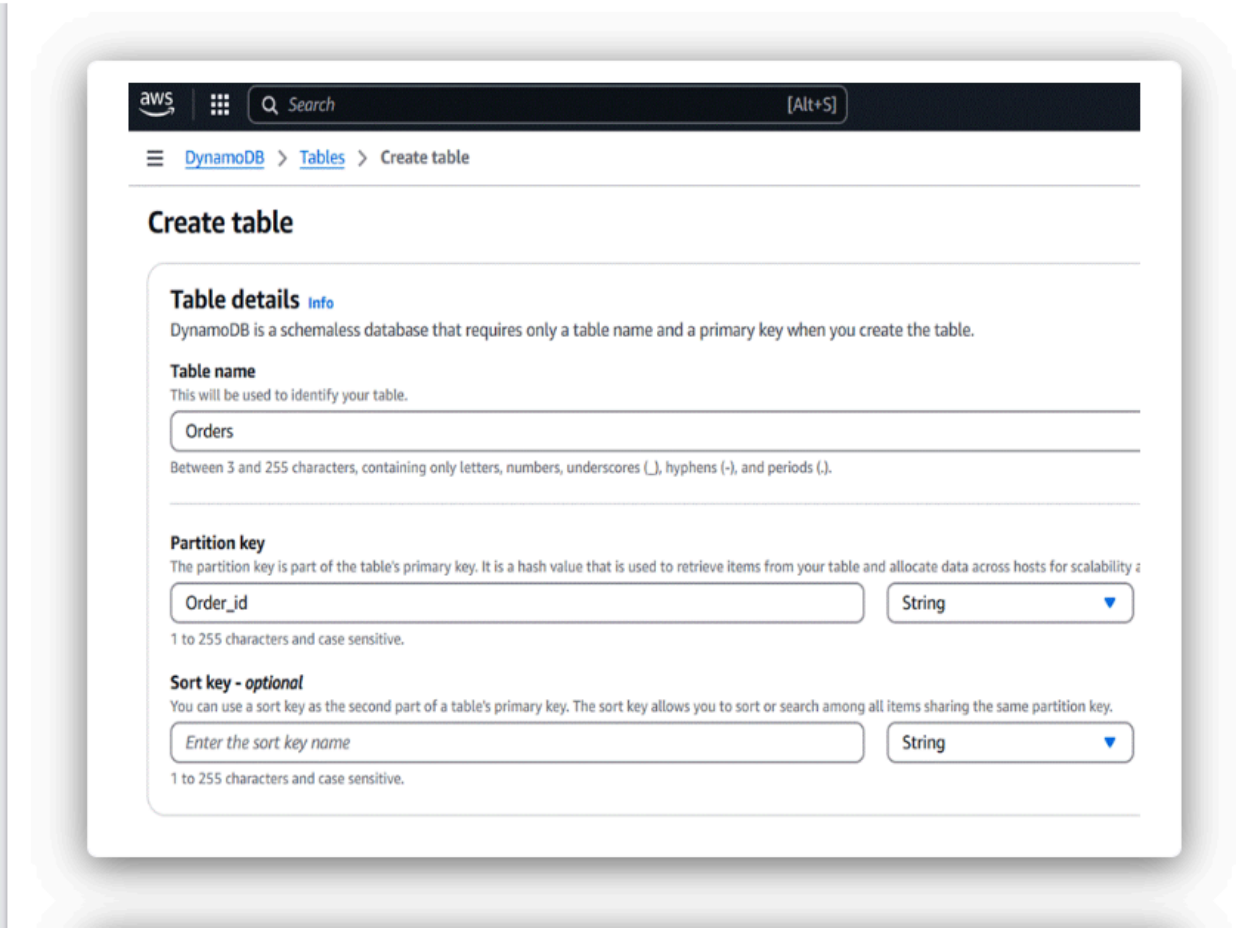
Tags are pairs of keys and optional values, that you can assign to AWS resources. You can use tags to control access to your resources or track your AWS spending.

No tags are associated with the resource.

Add new tag

You can add 50 more tags.

Cancel Create table


aws
Search
[Alt+S]
DynamoDB
Tables
Create table
Create table
Table details Info
DynamoDB is a schemaless database that requires only a table name and a primary key when you create the table.
Table name
This will be used to identify your table.
Orders
Between 3 and 255 characters, containing only letters, numbers, underscores (_), hyphens (-), and periods (.).
Partition key
The partition key is part of the table's primary key. It is a hash value that is used to retrieve items from your table and allocate data across hosts for scalability
Order_id
String
1 to 255 characters and case sensitive.
Sort key - optional
You can use a sort key as the second part of a table's primary key. The sort key allows you to sort or search among all items sharing the same partition key.
Enter the sort key name
String
1 to 255 characters and case sensitive.

Provisioned read capacity	5 RCU	Yes
Provisioned write capacity	5 WCU	Yes
Auto scaling	On	Yes
Local secondary indexes	-	No
Global secondary indexes	-	Yes
Encryption key management	Owned by Amazon DynamoDB	Yes
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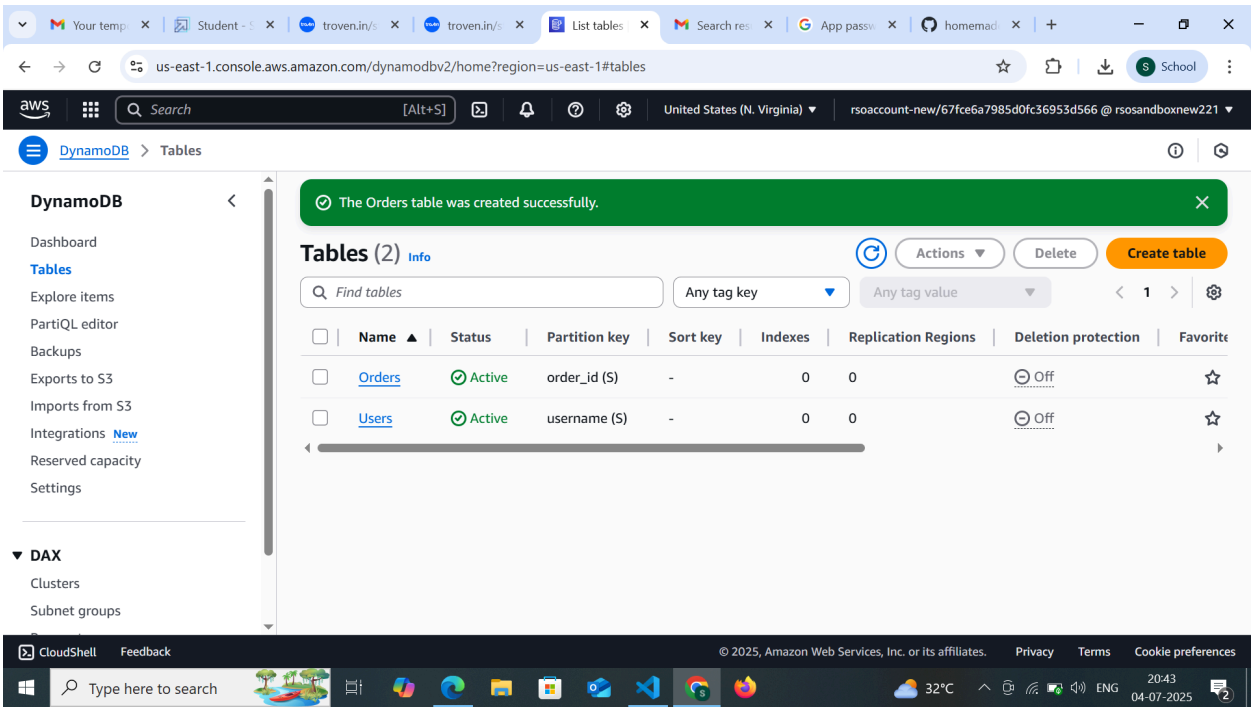
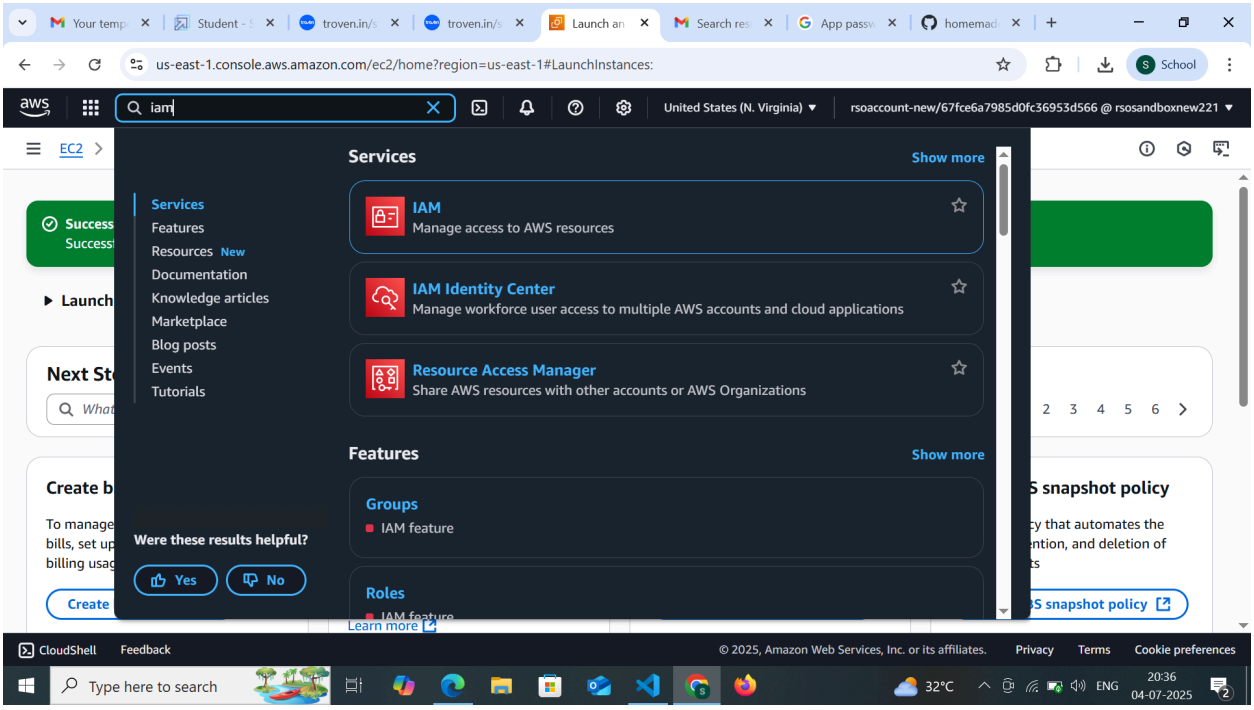


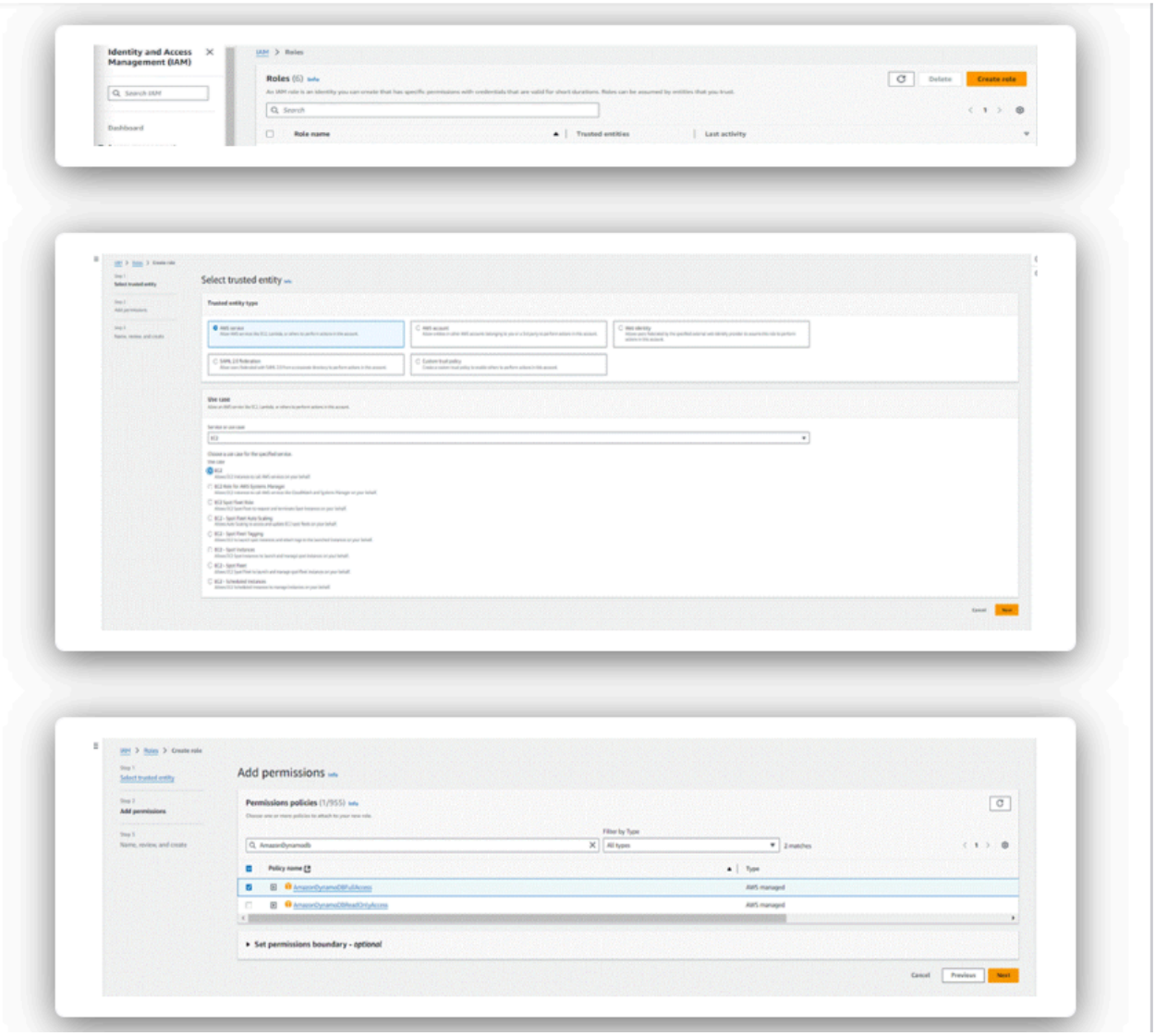
Milestone 4 : IAM Role Setup

IAM (Identity and Access Management) role setup involves creating roles that define specific permissions for AWS services. To set it up, you create a role with the required policies, assign it to users or services, and ensure the role has appropriate access to resources like EC2, S3, or RDS. This allows controlled access and ensures security best practices in managing AWS resources.

Create IAM Role.

- In the AWS Console, go to IAM and create a new IAM Role for EC2 to interact with DynamoDB.

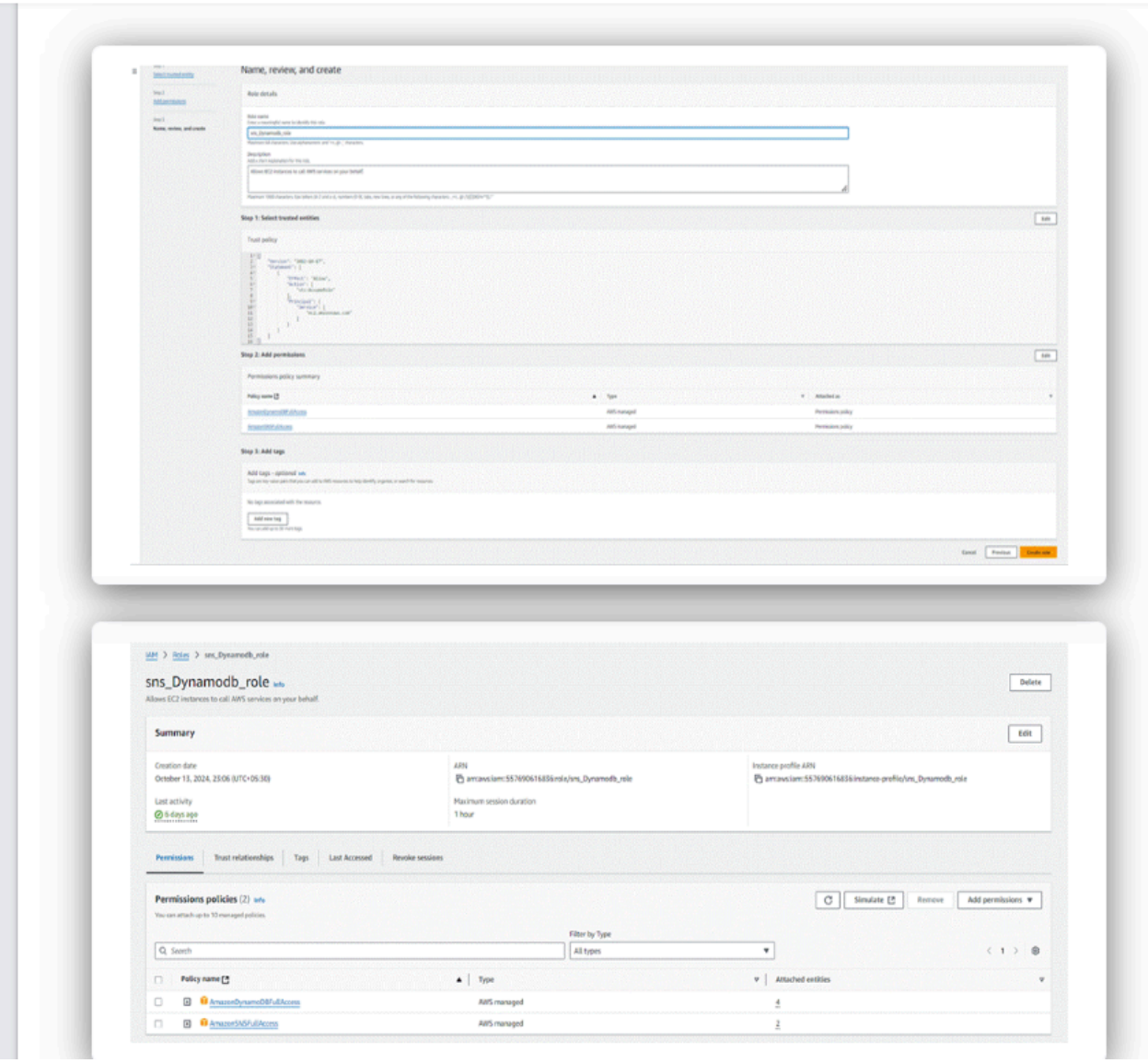




Attach Policies

Attach the following policies to the role:

- AmazonDynamoDBFullAccess: Allows EC2 to perform read/write operations on DynamoDB.

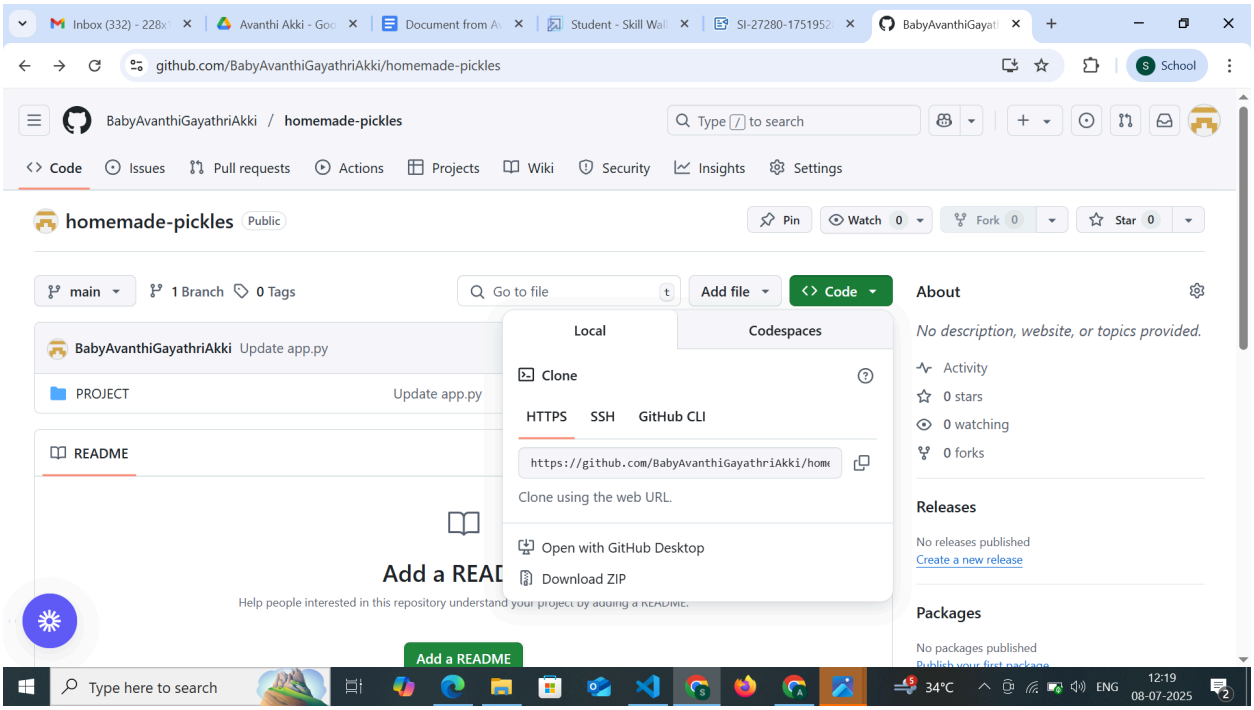


Milestone 5 : EC2 Instance Setup

To set up a public EC2 instance, choose an appropriate Amazon Machine Image (AMI) and instance type. Ensure the security group allows inbound traffic on necessary ports (e.g., HTTP/HTTPS for web applications). After launching the instance, associate it with an Elastic IP for consistent public access, and configure your application or services to be publicly accessible.

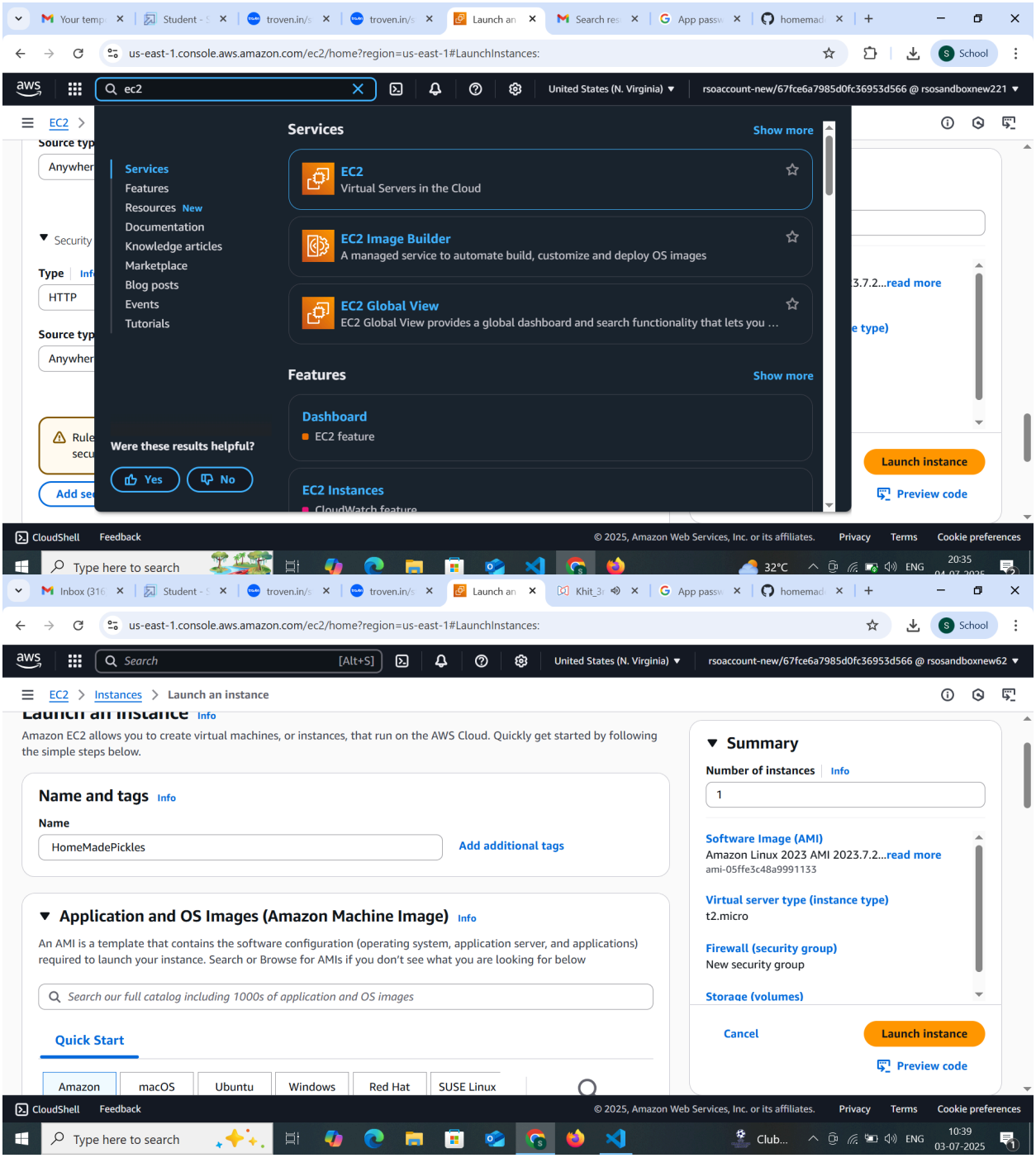
- Note: Load your Flask app and Html files into GitHub repository.

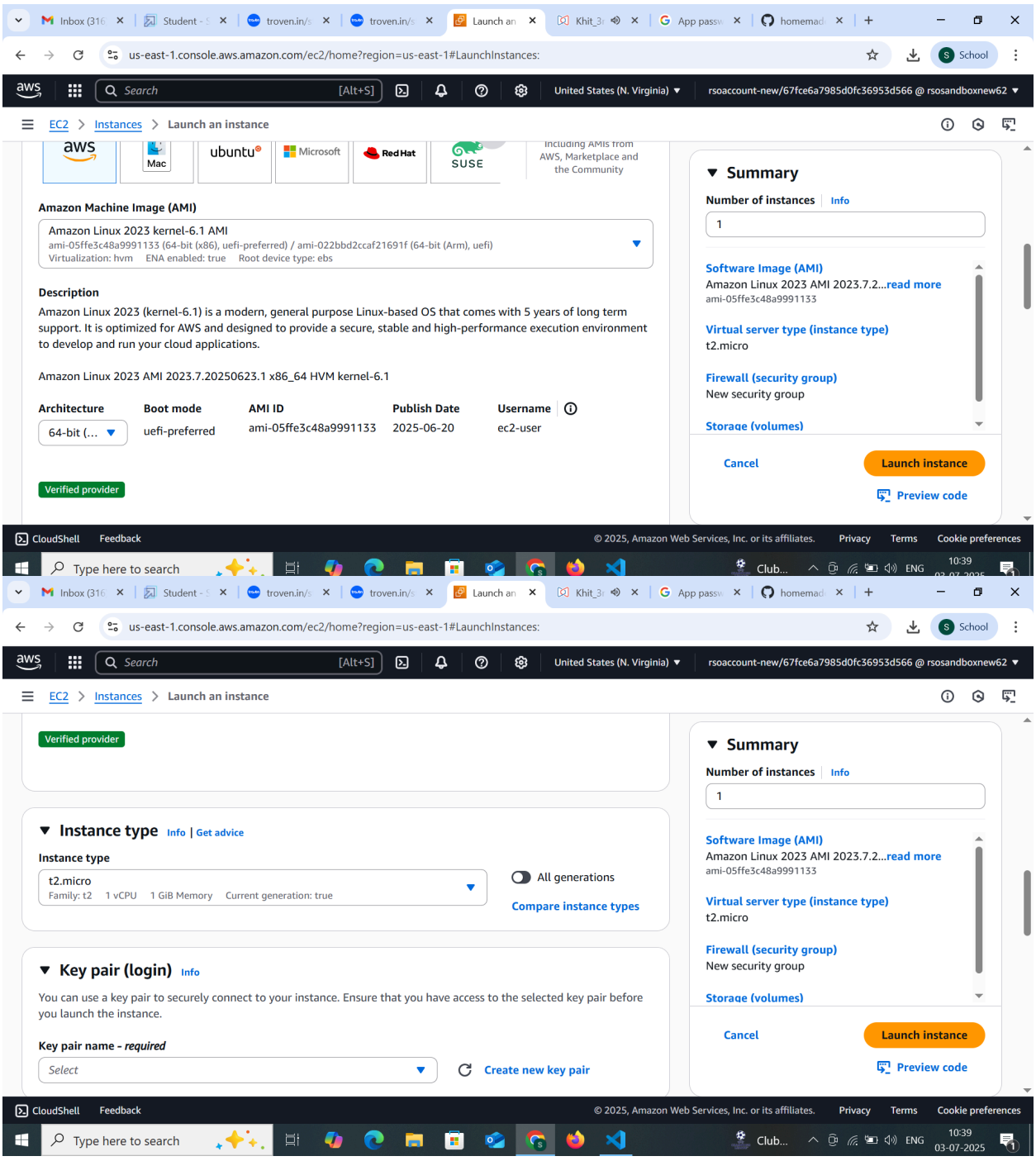
Name	Last commit message	Last commit date
..		
static	Initial project upload	last week
templates	Initial project upload	last week
app.py	Update app.py	5 days ago

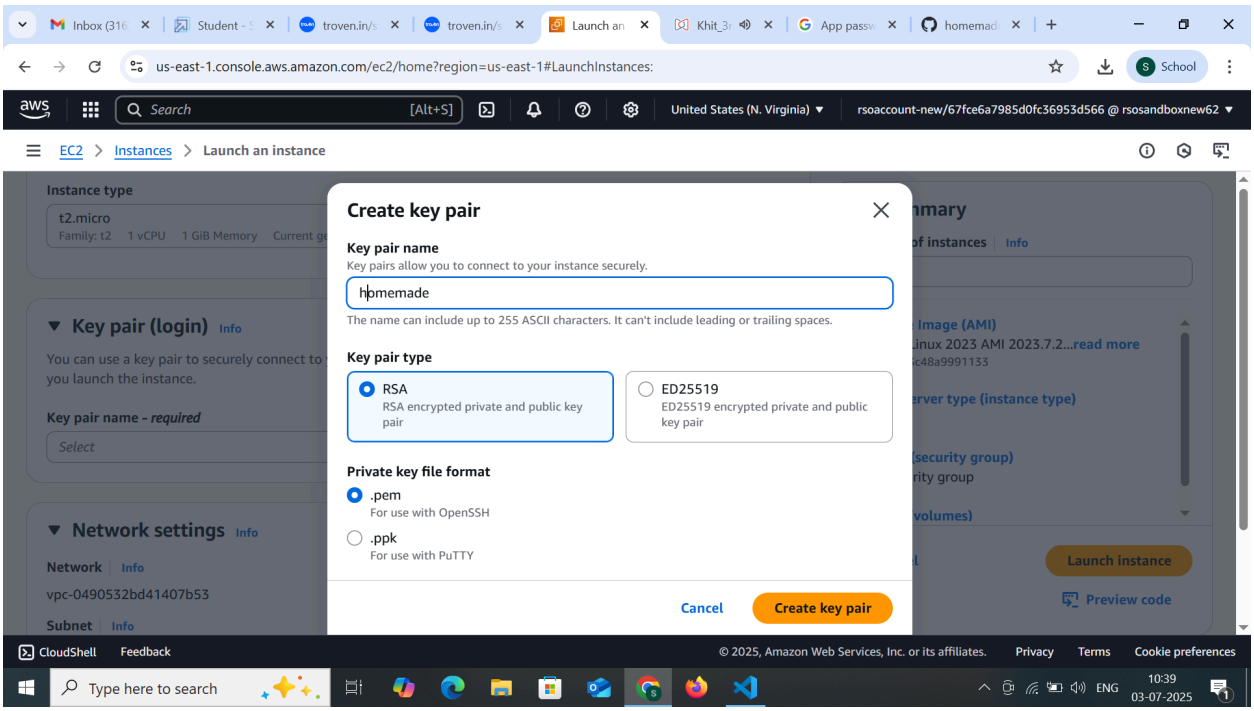


Launch an EC2 instance to host the Flask

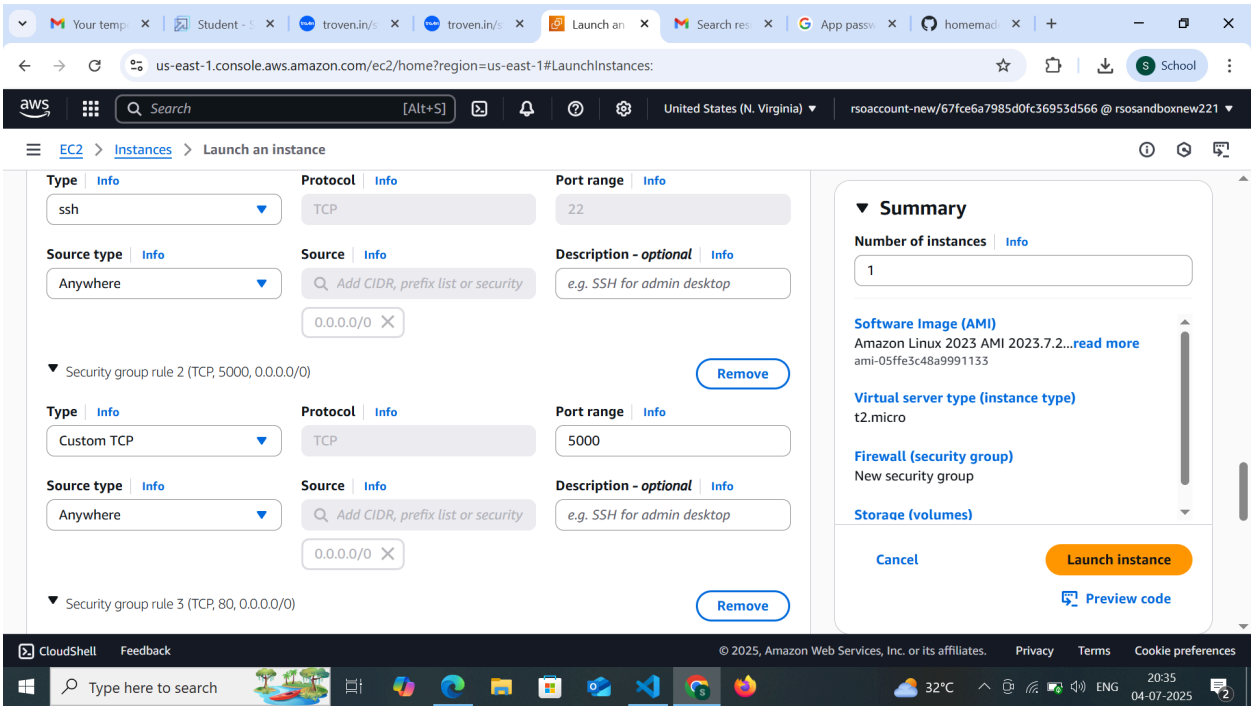
- Launch EC2 Instance
- In the AWS Console, navigate to EC2 and launch a new instance.


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
ec2
United States (N. Virginia)
Services
Show more
EC2
Virtual Servers in the Cloud
EC2 Image Builder
A managed service to automate build, customize and deploy OS images
EC2 Global View
EC2 Global View provides a global dashboard and search functionality that lets you ...
Features
Show more
Dashboard
EC2 feature
EC2 Instances
Were these results helpful?
Yes
No
Launch instance
Preview code
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Type here to search
EC2 > Instances > Launch an instance
Launch an instance Info
Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.
Name and tags Info
Name
HomeMadePickles
Add additional tags
Application and OS Images (Amazon Machine Image) Info
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
Quick Start
Amazon
macOS
Ubuntu
Windows
Red Hat
SUSE Linux
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.7.2...read more
ami-05ffe3c48a9991133
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
Cancel
Launch instance
Preview code


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Search [Alt+S]
United States (N. Virginia)
rsoaccount-new/67fce6a7985d0fc36953d566 @ rsosandboxnew62
EC2 > Instances > Launch an instance
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Amazon Linux 2023 kernel-6.1 AMI
ami-05ffe3c48a9991133 (64-bit (x86), uefi-preferred) / ami-022bbd2ccaf21691f (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs
Description
Amazon Linux 2023 (kernel-6.1) is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.
Amazon Linux 2023 AMI 2023.7.20250623.1 x86_64 HVM kernel-6.1
Architecture
Boot mode
AMI ID
Publish Date
Username
64-bit (...
uefi-preferred
ami-05ffe3c48a9991133
2025-06-20
ec2-user
Verified provider
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.7.2...read more
ami-05ffe3c48a9991133
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
Cancel
Launch instance
Preview code
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Type here to search
ENG
10:39
03-07-2025
Instance type Info | Get advice
Instance type
t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true
All generations
Compare instance types
Key pair (login) Info
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.
Key pair name - required
Select
Create new key pair

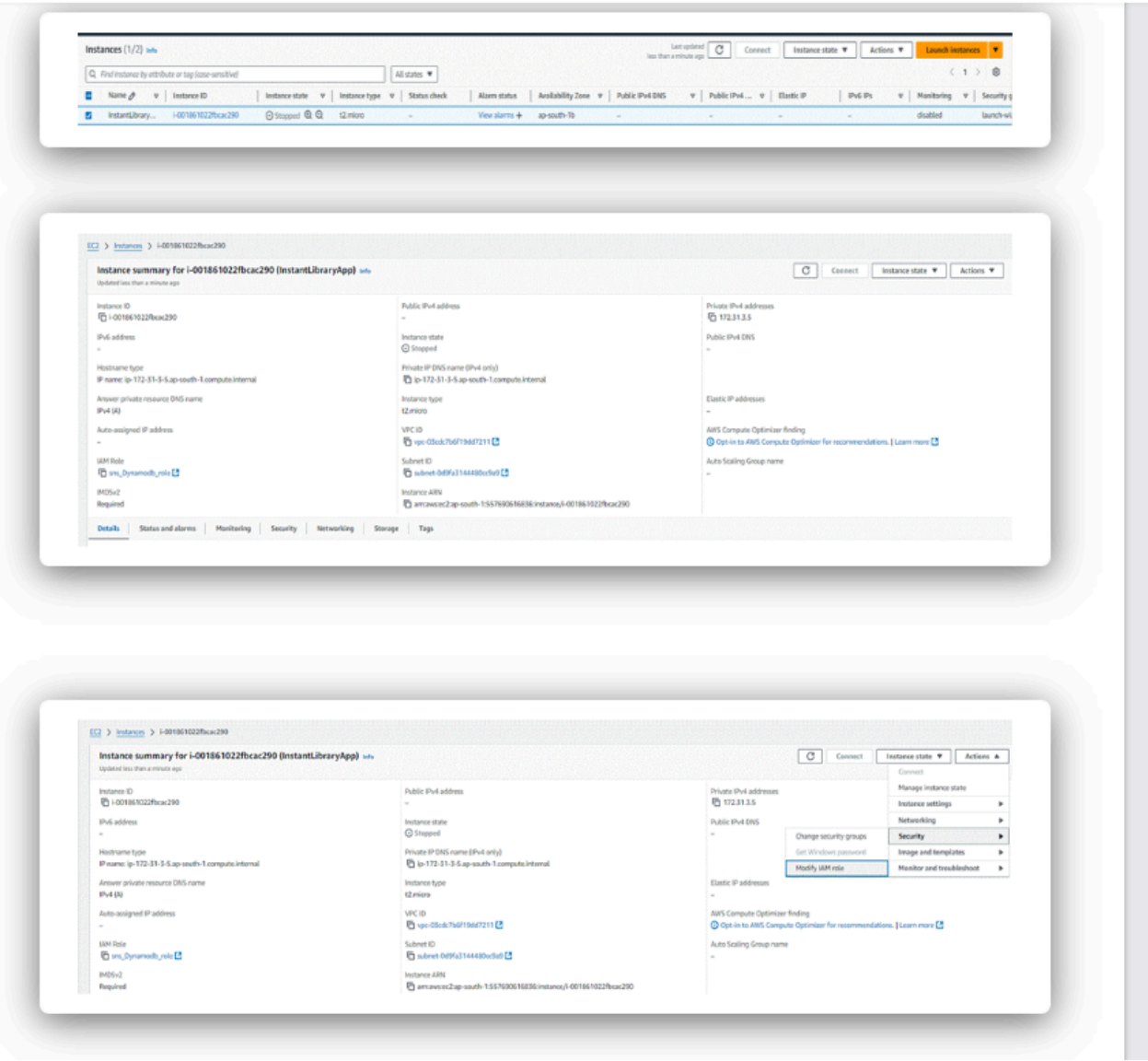


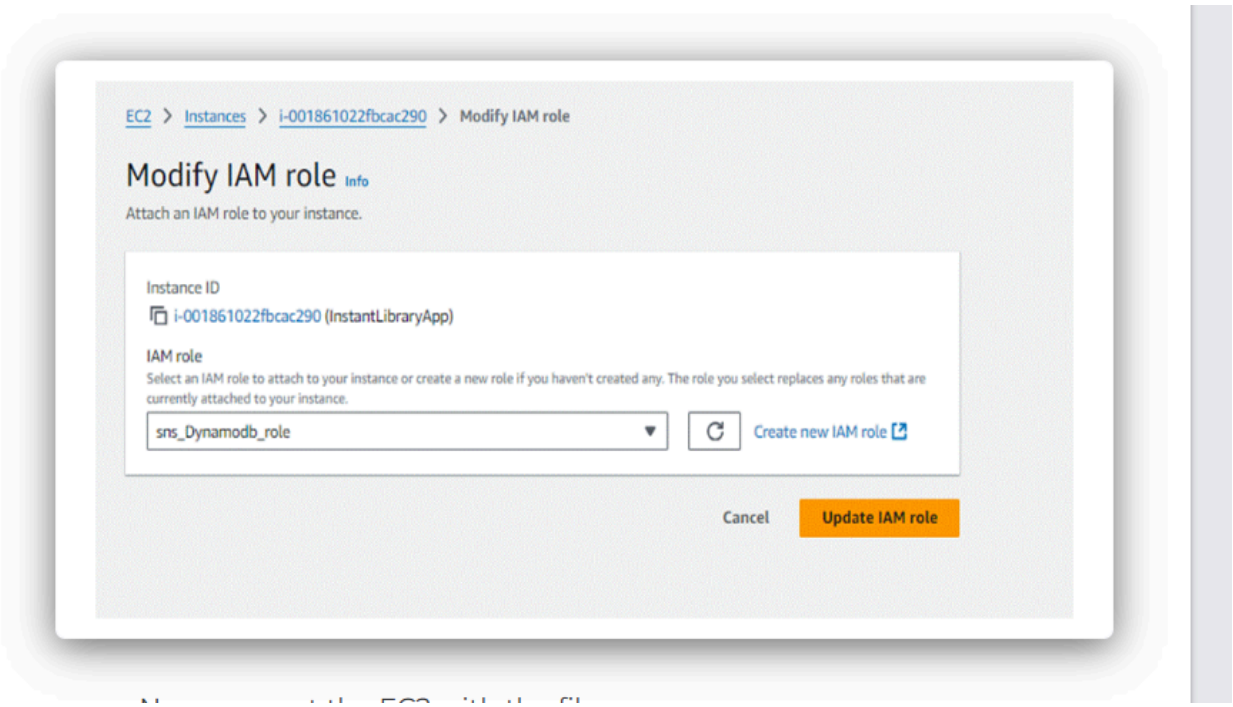
Configure security groups for HTTP, and SSH access.

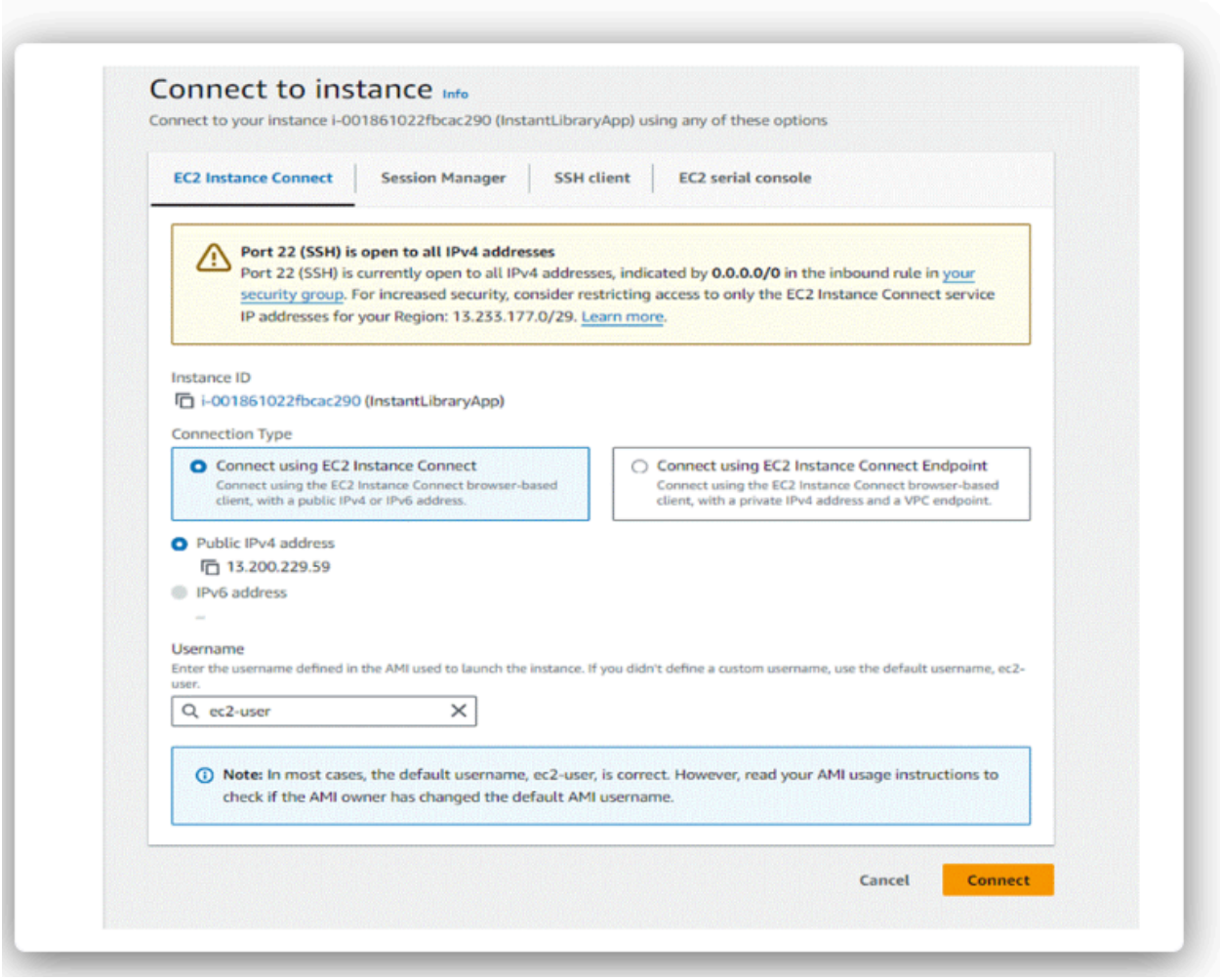


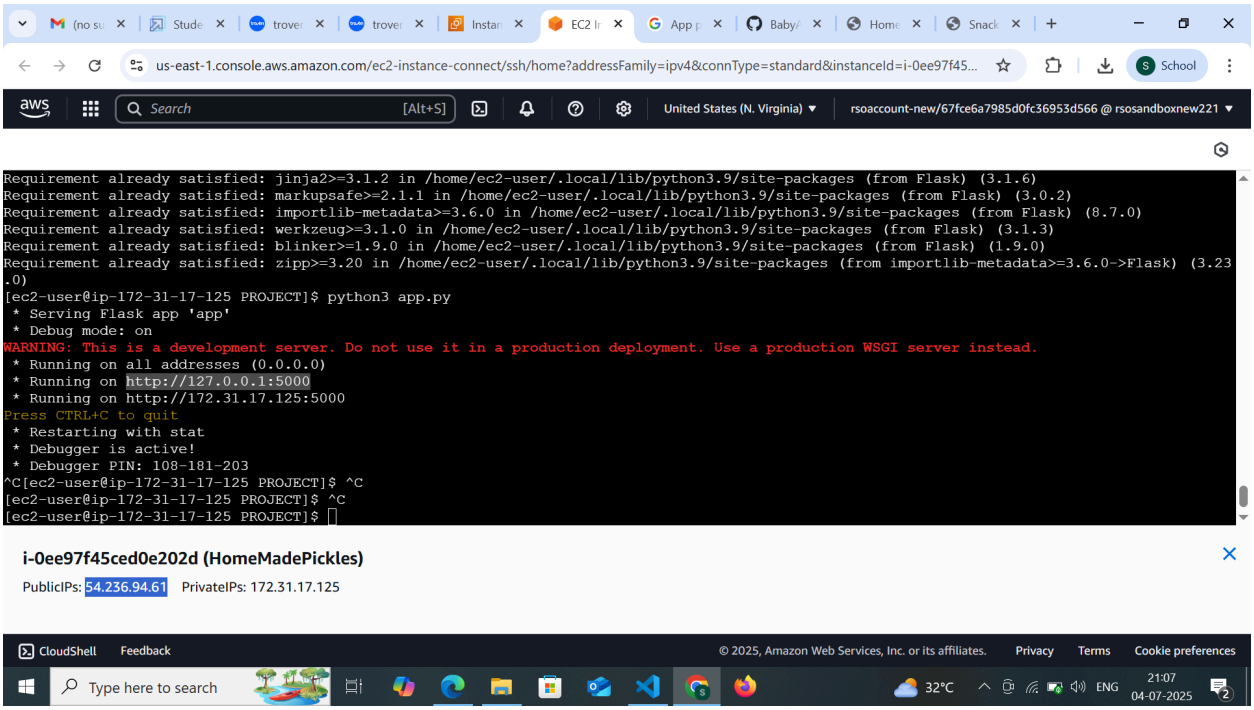
To connect to EC2 using EC2 Instance Connect, start by ensuring that an IAM role is attached to your EC2 instance. You can do this by selecting your instance, clicking on Actions, then navigating to Security and selecting Modify IAM Role to attach the appropriate role. After the IAM role is connected, navigate to the EC2 section in the AWS Management Console. Select the EC2 instance you wish to connect to. At the top of the EC2 Dashboard, click the Connect button. From

the connection methods presented, choose EC2 Instance Connect. Finally, click Connect again, and a new browser-based terminal will open, allowing you to access your EC2 instance directly from your browser.




EC2 > Instances > i-001861022fbcac290 > Modify IAM role
Modify IAM role Info
Attach an IAM role to your instance.
Instance ID
i-001861022fbcac290 (InstantLibraryApp)
IAM role
Select an IAM role to attach to your instance or create a new role if you haven't created any. The role you select replaces any roles that are currently attached to your instance.
sns_Dynamodb_role
Create new IAM role
Cancel
Update IAM role


Connect to instance Info
Connect to your instance i-001861022fbcac290 (InstantLibraryApp) using any of these options
EC2 Instance Connect
Session Manager
SSH client
EC2 serial console
Port 22 (SSH) is open to all IPv4 addresses
Port 22 (SSH) is currently open to all IPv4 addresses, indicated by 0.0.0.0/0 in the inbound rule in your security group. For increased security, consider restricting access to only the EC2 Instance Connect service IP addresses for your Region: 13.233.177.0/29. Learn more.
Instance ID
i-001861022fbcac290 (InstantLibraryApp)
Connection Type
Connect using EC2 Instance Connect
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 or IPv6 address.
Connect using EC2 Instance Connect Endpoint
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.
Public IPv4 address
13.200.229.59
IPv6 address
Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ec2-user.
ec2-user
Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.
Cancel
Connect



Milestone 6 : Deployment on EC2

Deployment on an EC2 instance involves launching a server, configuring security groups for public access, and uploading your application files. After setting up necessary dependencies and environment variables, start your application and ensure it's running on the correct port. Finally, bind your domain or use the public IP to make the application accessible online.

Install Software on the EC2 Instance

Install Python3, Flask, and Git:

On Amazon Linux 2:

- sudo yum update -y
- sudo yum install python3 git
- sudo pip3 install flask boto3

Verify Installations:

- flask --version
- git --version

Clone Your Flask Project from GitHub

Clone your project repository from GitHub into the EC2 instance using Git.

- Run: git clone https://github.com/BabyAvanthiGayathriAkki/homemade-pickles.git
- Note: change your-github-username and your-repository-name with your credentials

here:'https://github.com/BabyAvanthiGayathriAkki/homemade-pickles.git'

- This will download your project to the EC2 instance.

To navigate to the project directory, run the following command:

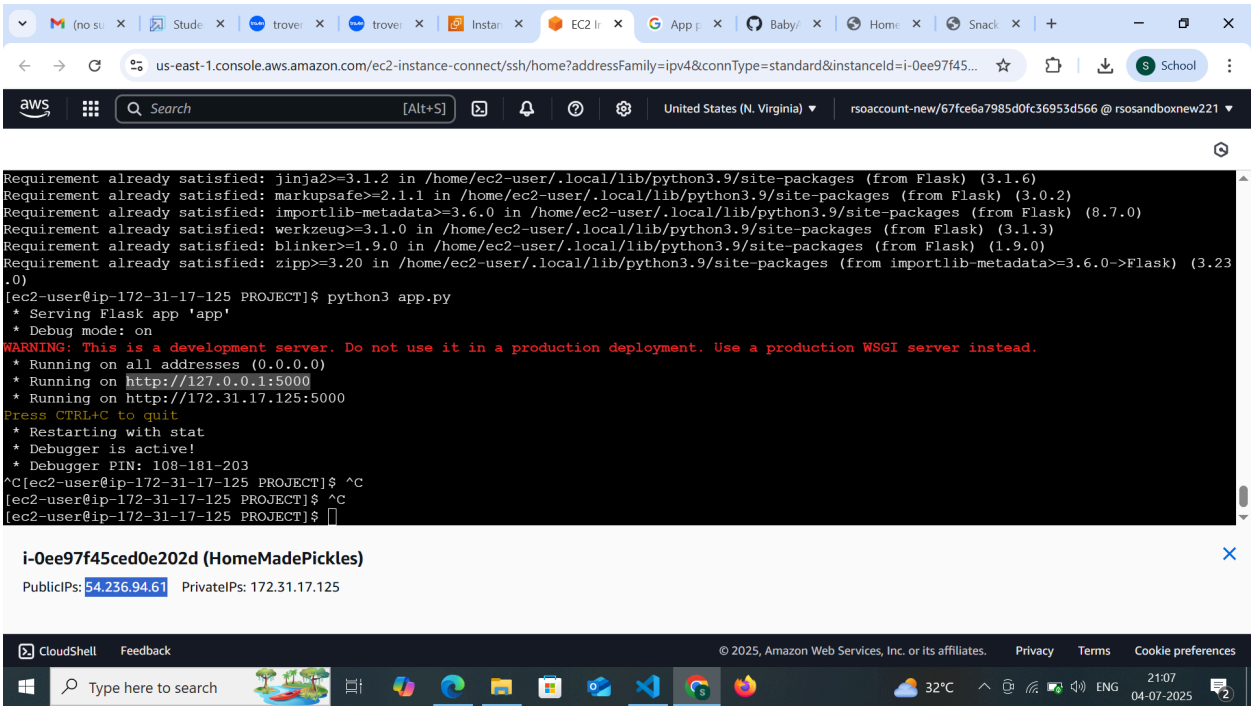
- cd Homemadepicklesandsnacks
- cd “Home Made Pickles1”

Create a Virtual Environment:

- python3 -m venv venv
- source venv/bin/activate
- sudo yum install python3 git
- sudo pip3 install flask boto3

Once inside the project directory, configure and run the Flask application by executing the following command with elevated privileges:

- Run the Flask Application
- sudo flask run --host=0.0.0.0 --port=5000



Verify the Flask app is running:

http://your-ec2-public-ip

- Run the Flask app on the EC2 instance

Access the website through:

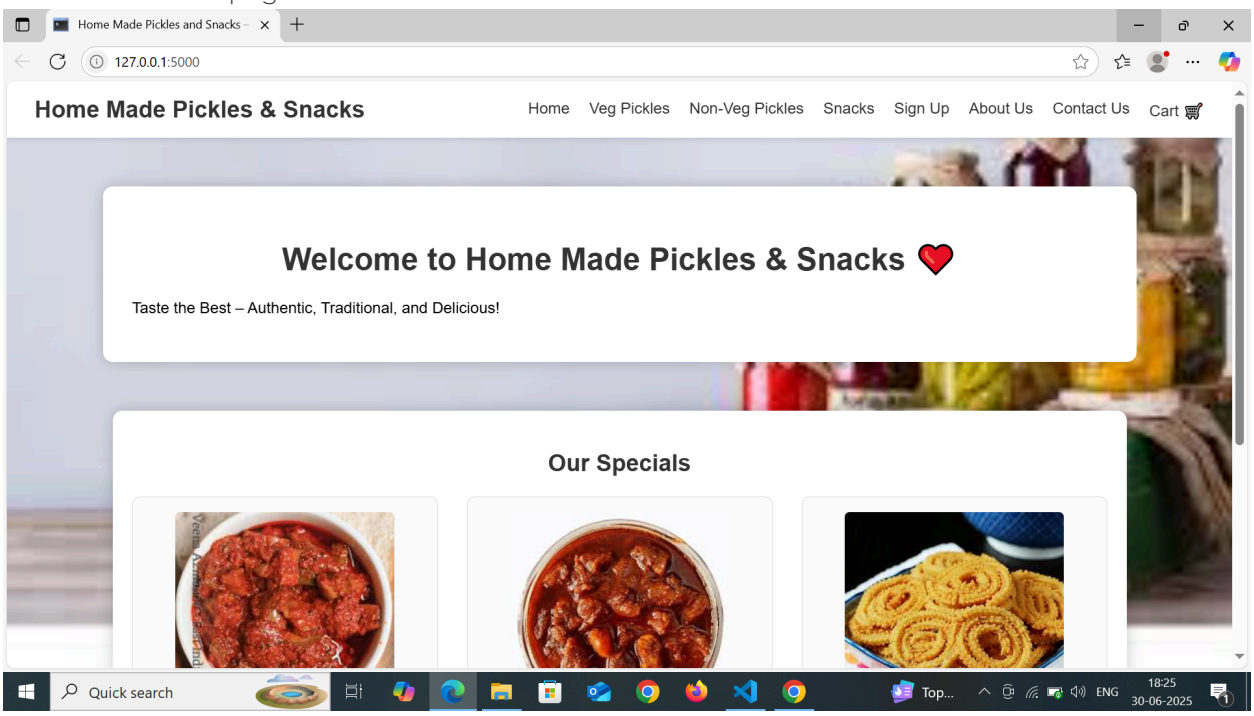
PublicIPs: http://54.236.94.61:5000

Milestone 7 : Testing and Deployment

Testing and deployment involve verifying that your application works as expected before making it publicly accessible. Start by testing locally or on a staging environment to catch bugs and ensure functionality. Once tested, deploy the application to an EC2 instance, configure necessary services, and perform a final round of live testing to confirm everything runs smoothly in the production environment.

Functional testing to verify the Project

Welcome page:



Conclusion

The Homemade Pickles and Snacks platform has been meticulously crafted to deliver a seamless and delightful experience for food enthusiasts seeking authentic, handcrafted flavors. By leveraging modern web technologies such as Flask for backend logic, secure user authentication, and dynamic cart management, the platform ensures a user-friendly interface for browsing, customizing, and ordering artisanal pickles and snacks.

The integration of cloud-ready architecture (e.g., AWS for future scalability) and robust session management allows the platform to handle high traffic efficiently while maintaining real-time updates for orders and inventory. Features like weight-based pricing, category-specific searches, and instant checkout streamline

the shopping process, empowering customers to explore a diverse range of traditional and innovative recipes with ease.

This project addresses the growing demand for homemade, preservative-free food products by bridging the gap between small-scale producers and discerning customers. The platform’s intuitive design and secure payment workflows enhance trust and convenience, while backend tools enable effortless inventory tracking and order fulfillment for administrators.

By combining time-honored recipes with modern e-commerce capabilities, this website not only preserves culinary heritage but also adapts to the digital age, ensuring that every jar of pickle or snack reaches customers with the same care and quality as a homemade meal. As the platform evolves, it stands ready to scale, introduce new product lines, and foster a community of food lovers united by a passion for authentic flavors.

In essence, this project redefines the way homemade delicacies are shared and enjoyed, offering a flavorful bridge between tradition and technology.