AWS-hosted Virtual Classroom and Learning Platform

Project Created By :

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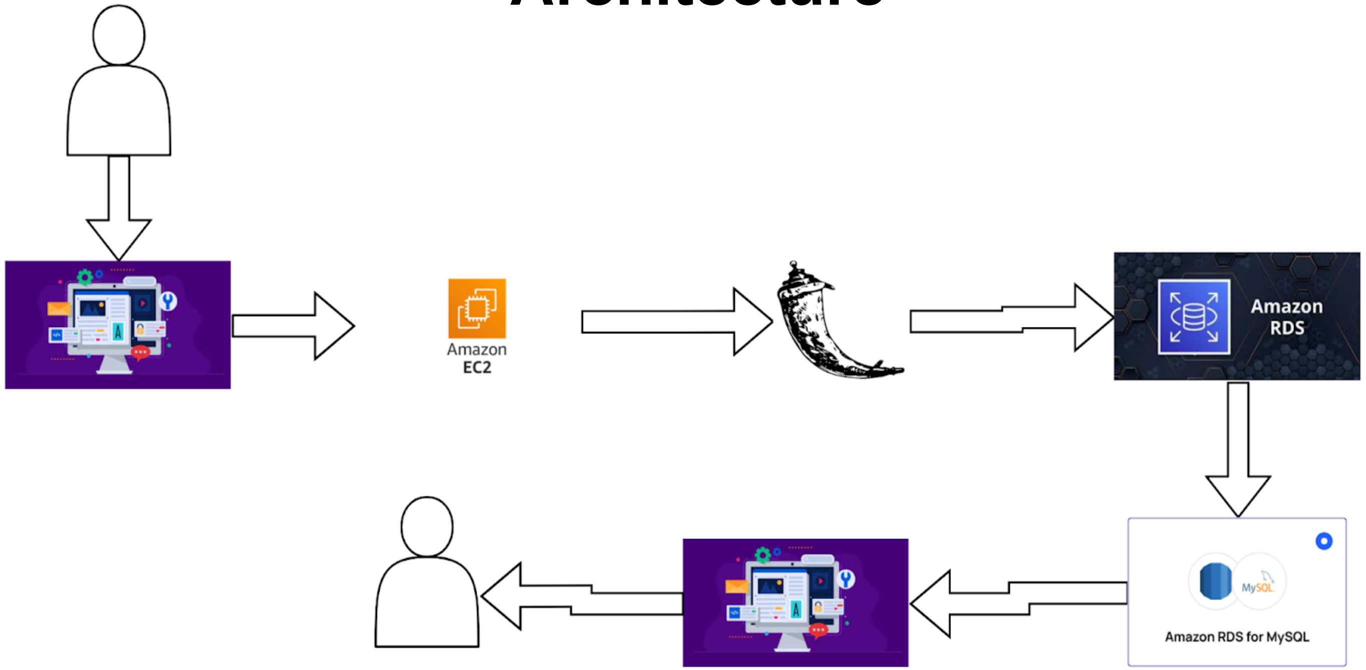
Project Flow;

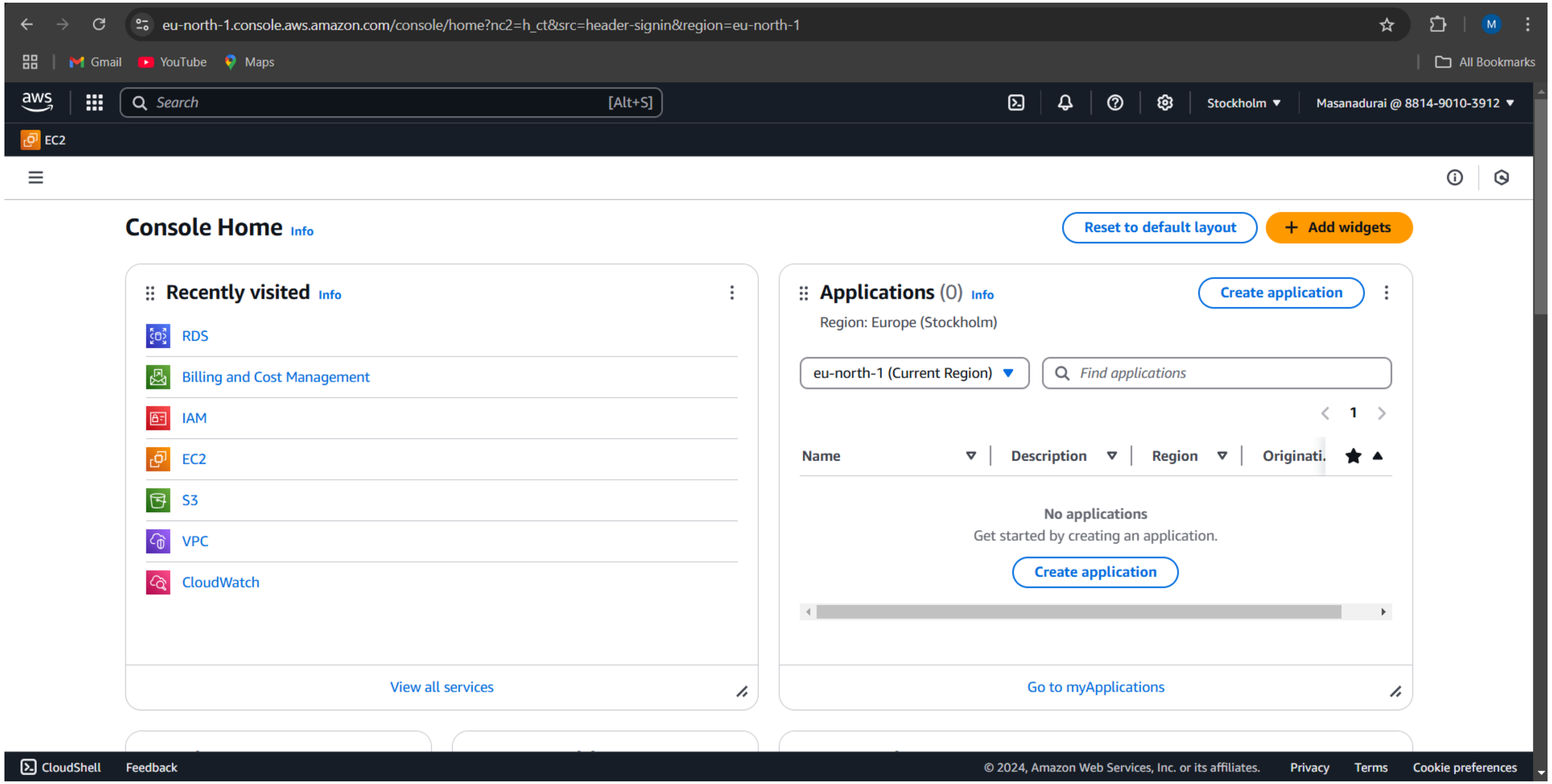
1. Create an AWS Account
2. Create an S3 Bucket and Upload Data
3. Create an RDS Instance
4. Create an EC2 Instance
5. Develop the Flask Application
6. Deploy Flask App on EC2
7. upload to Github

Architecture



Create an AWS Account

- Begin by creating an AWS account, and providing your personal and payment information.
- Complete the verification process to ensure the security of your AWS account.
- Navigate the intuitive AWS Management Console to familiarize yourself with the available services and features.



eu-north-1.console.aws.amazon.com/console/home?nc2=h_ct&src=header-signin&region=eu-north-1

Stockholm ▼

Masanadurai @ 8814-9010-3912 ▼

Region: Europe (Stockholm)

eu-north-1 (Current Region) ▼

No applications

Get started by creating an application.

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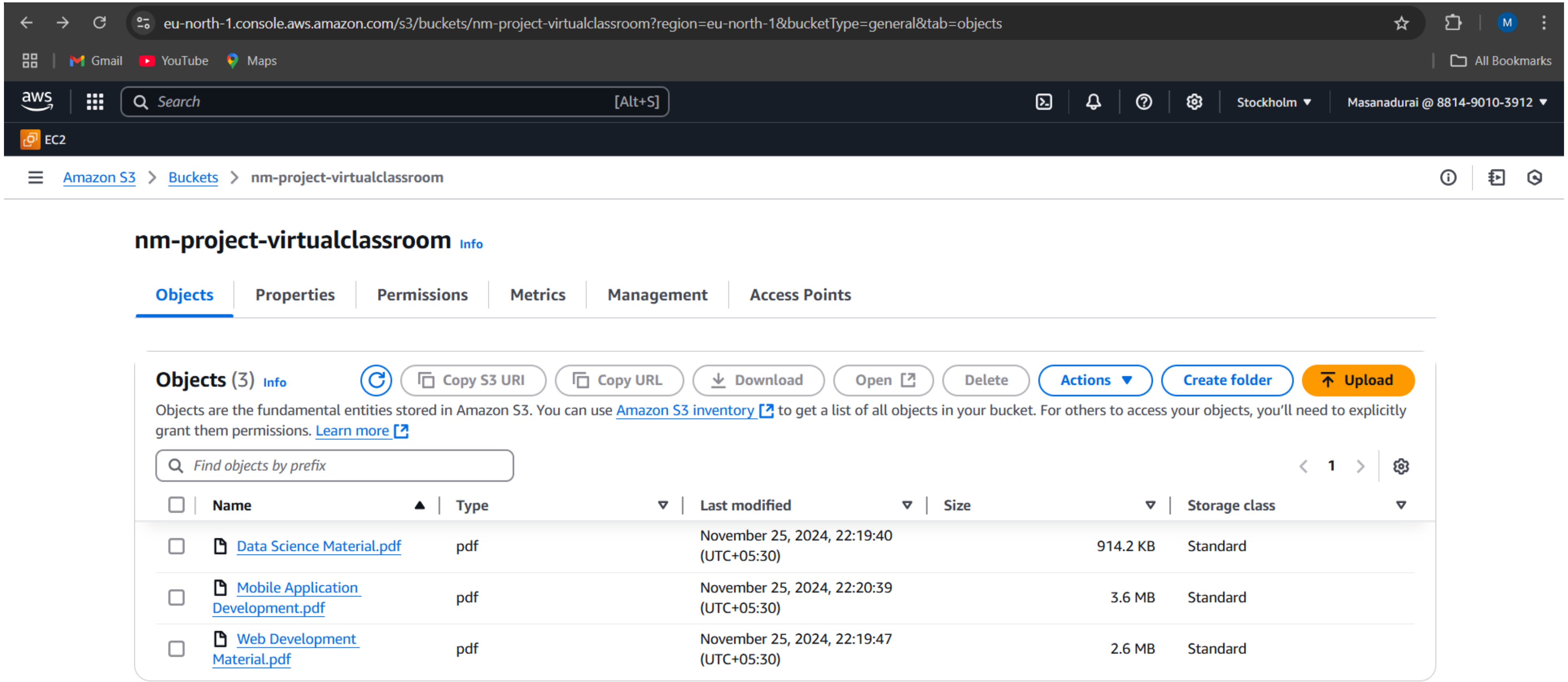
Create an S3 Bucket and Upload Data

- Provision a secure and scalable S3 bucket to store your application data.
- Seamlessly transfer your data to the S3 bucket, ensuring it's readily available for your application.
- Configure appropriate permissions and policies to control your S3 bucket and data access.



nm-project-virtualclassroom

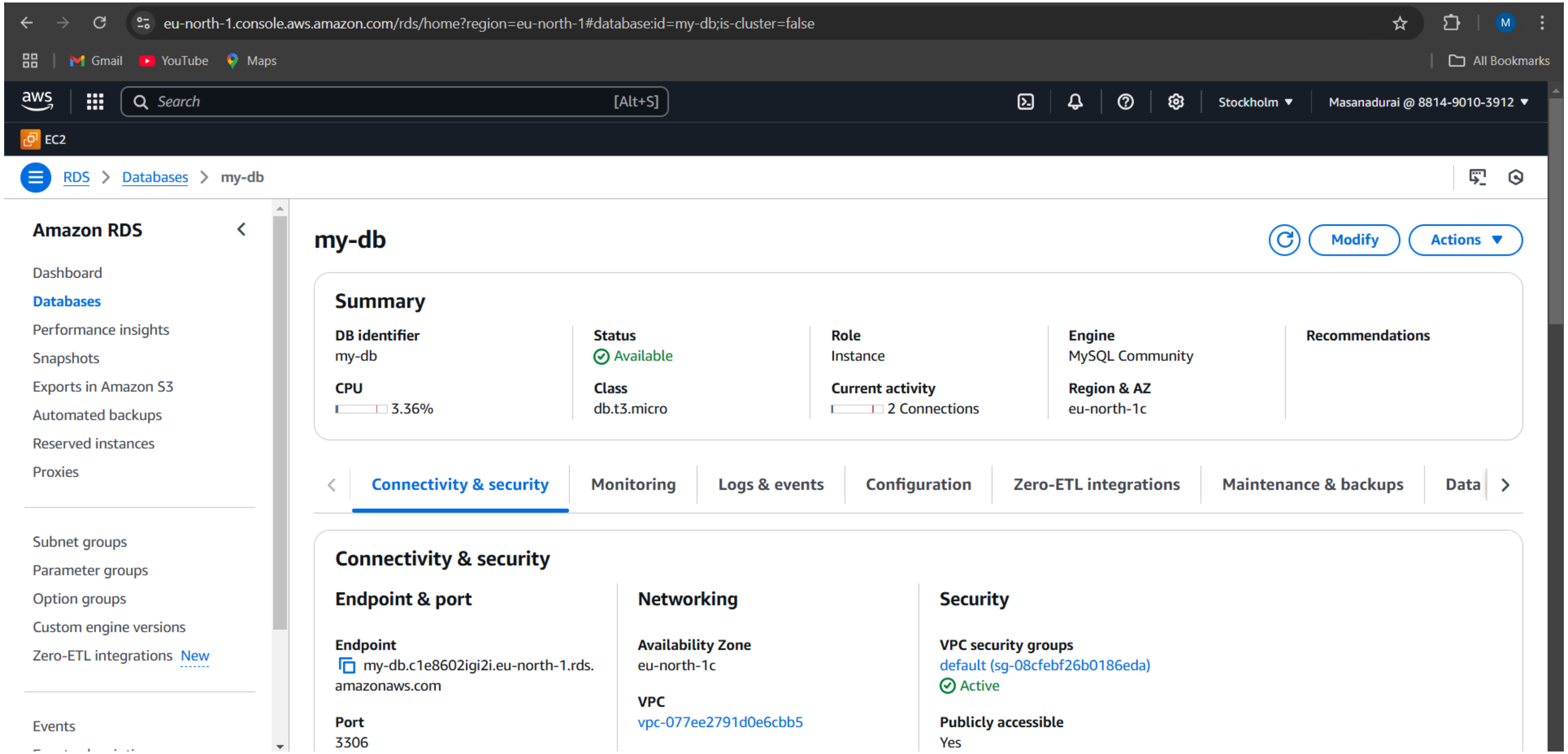
Objects (3) Info

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

□	Name ▲	Type	Last modified	Size	Storage class
□	Data Science Material.pdf	pdf	November 25, 2024, 22:19:40 (UTC+05:30)	914.2 KB	Standard
□	Mobile Application Development.pdf	pdf	November 25, 2024, 22:20:39 (UTC+05:30)	3.6 MB	Standard
□	Web Development Material.pdf	pdf	November 25, 2024, 22:19:47 (UTC+05:30)	2.6 MB	Standard

Create an RDS Instance

- Select the appropriate database engine, MySQL, based on your application's requirements.
- Customize the RDS instance size, storage, and other settings to ensure optimal performance and scalability.
- Implement robust security measures, including network access control and encryption, to protect your data.
- Set up automated backups and disaster recovery mechanisms to safeguard your data.



my-db

Summary

DB identifier	Status	Role	Engine	Recommendations
my-db	✓ Available	Instance	MySQL Community	
CPU	**Class**	**Current activity**	**Region & AZ**	
3.36%	db.t3.micro	2 Connections	eu-north-1c	

Connectivity & security

Endpoint & port

Endpoint
my-db.c1e8602igi2i.eu-north-1.rds.amazonaws.com

Port
3306

Networking

Availability Zone
eu-north-1c

VPC
vpc-077ee2791d0e6cbb5

Security

VPC security groups
default (sg-08cfebf26b0186eda)
✓ Active

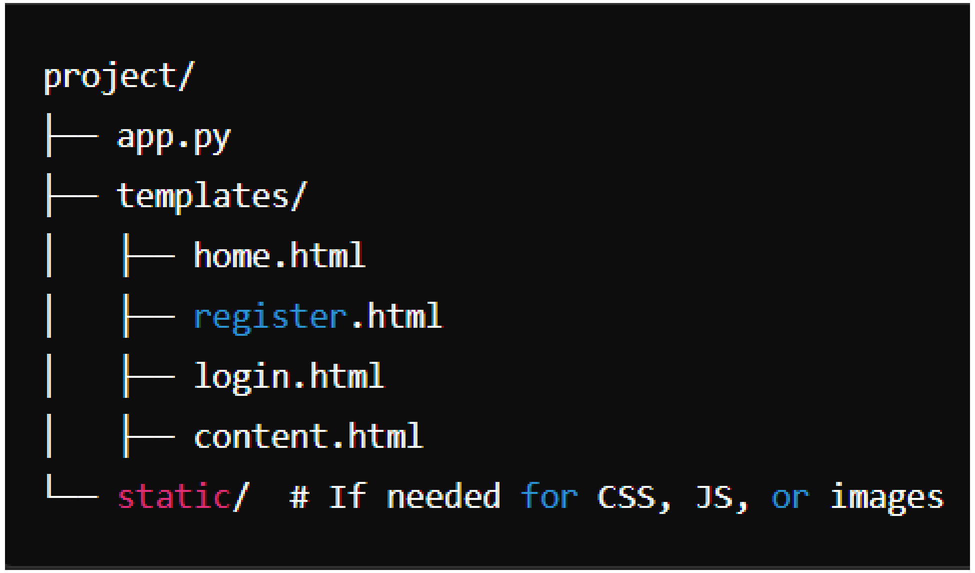
Publicly accessible
Yes

Develop the Flask Application

Action:

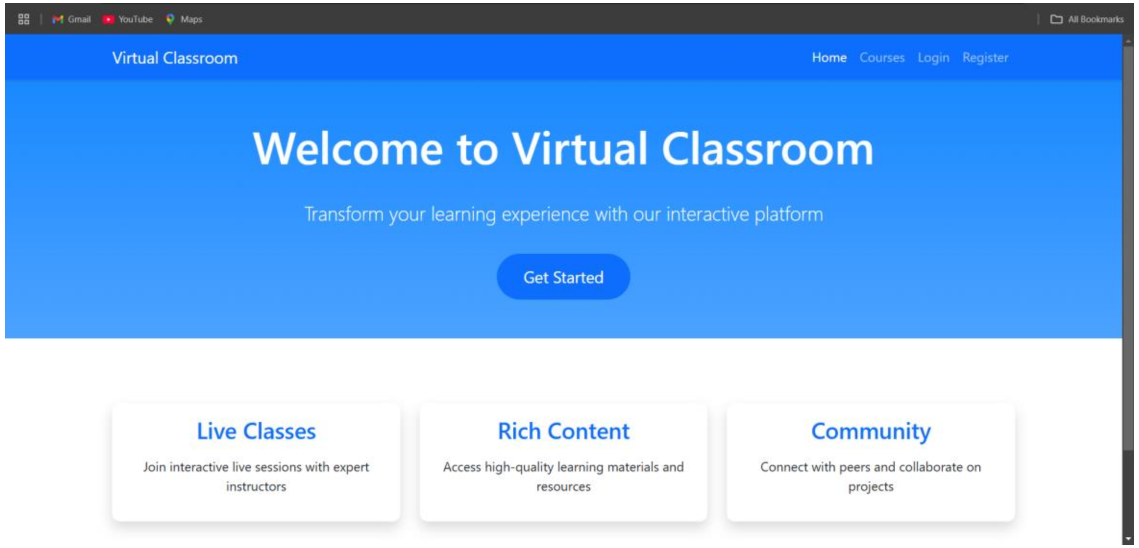
1. **Create Flask App:**
   - Develop app.py with routes for registration, login, and content.
   - Create supporting HTML files (home.html, login.html, register.html, content. html).
   - Add CSS styling using Bootstrap and custom styles.

2. **Test Locally:**
   - Run the Flask application locally to ensure functionality.



```
project/
├── app.py
├── templates/
│   ├── home.html
│   ├── register.html
│   ├── login.html
│   ├── content.html
└── static/  # If needed for CSS, JS, or images
```

Flask Application



Virtual Classroom

Home Courses Login Register

Welcome to Virtual Classroom

Transform your learning experience with our interactive platform

Get Started

Live Classes

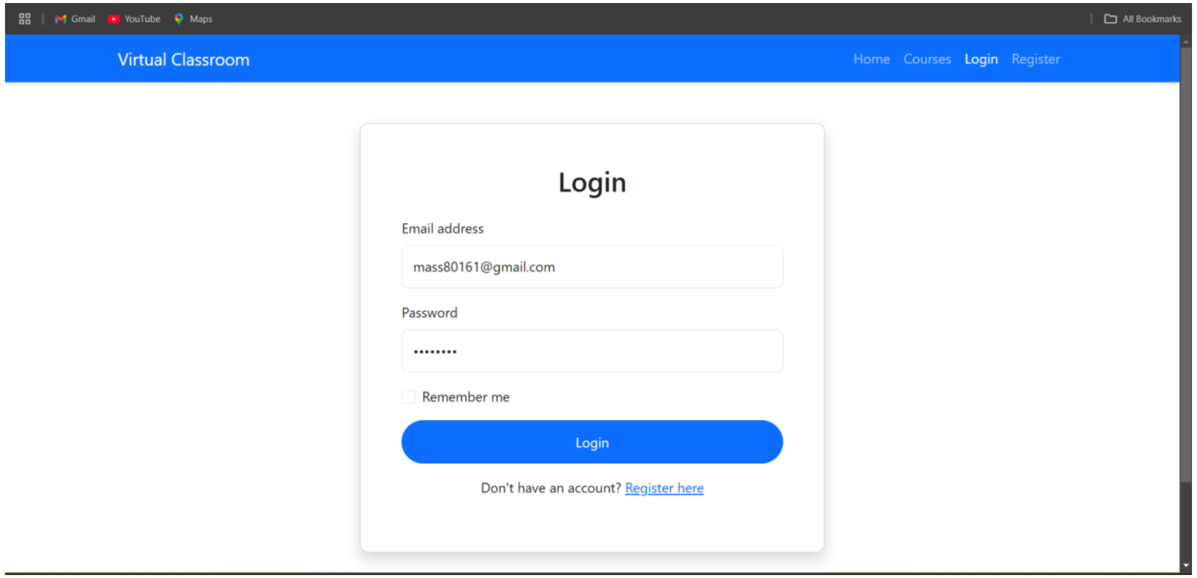
Join interactive live sessions with expert instructors

Rich Content

Access high-quality learning materials and resources

Community

Connect with peers and collaborate on projects



Virtual Classroom

Home Courses Login Register

Login

Email address

mass80161@gmail.com

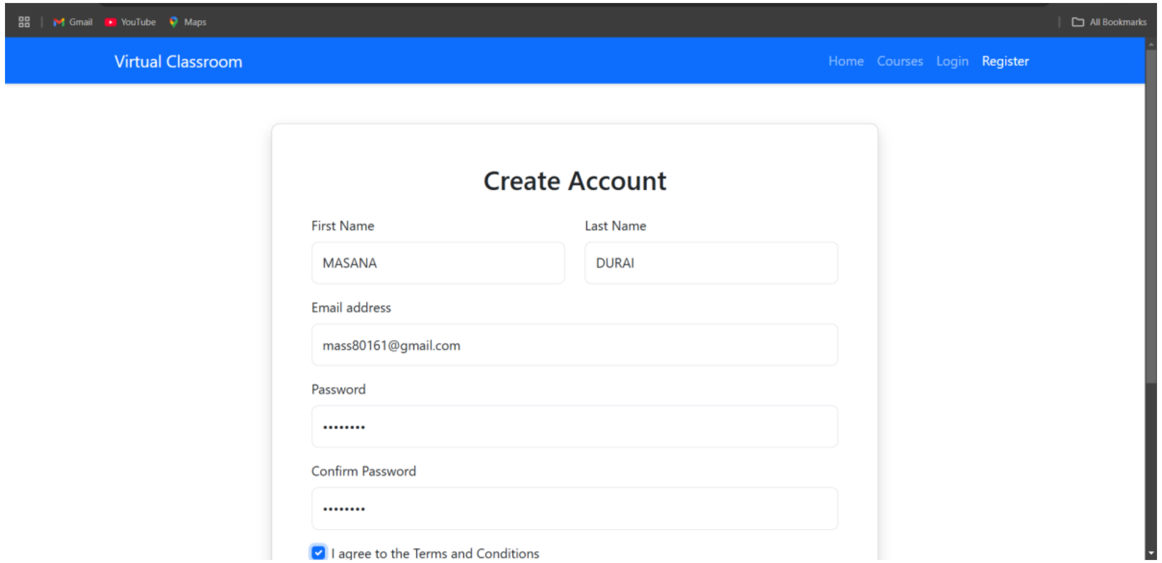
Password

••••••••

□ Remember me

Login

Don't have an account? Register here



Virtual Classroom

Home Courses Login Register

Create Account

First Name

MASANA

Last Name

DURAI

Email address

mass80161@gmail.com

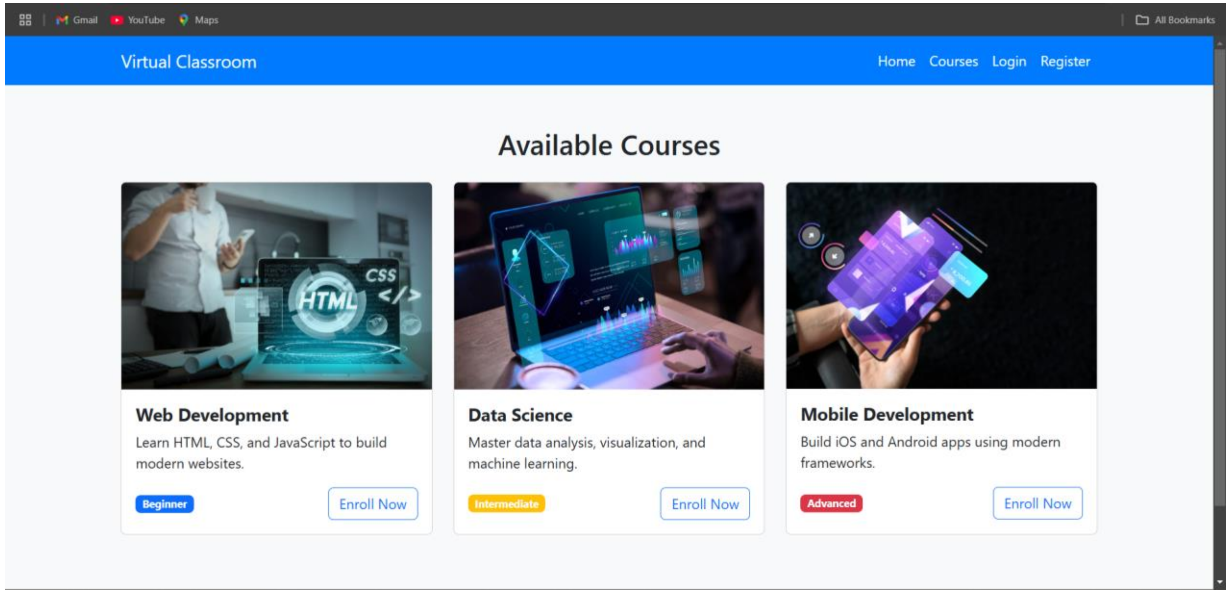
Password

••••••••

Confirm Password

••••••••

☑ I agree to the Terms and Conditions



Virtual Classroom

Home Courses Login Register

Available Courses

Web Development

Learn HTML, CSS, and JavaScript to build modern websites.

Beginner Enroll Now

Data Science

Master data analysis, visualization, and machine learning.

Intermediate Enroll Now

Mobile Development

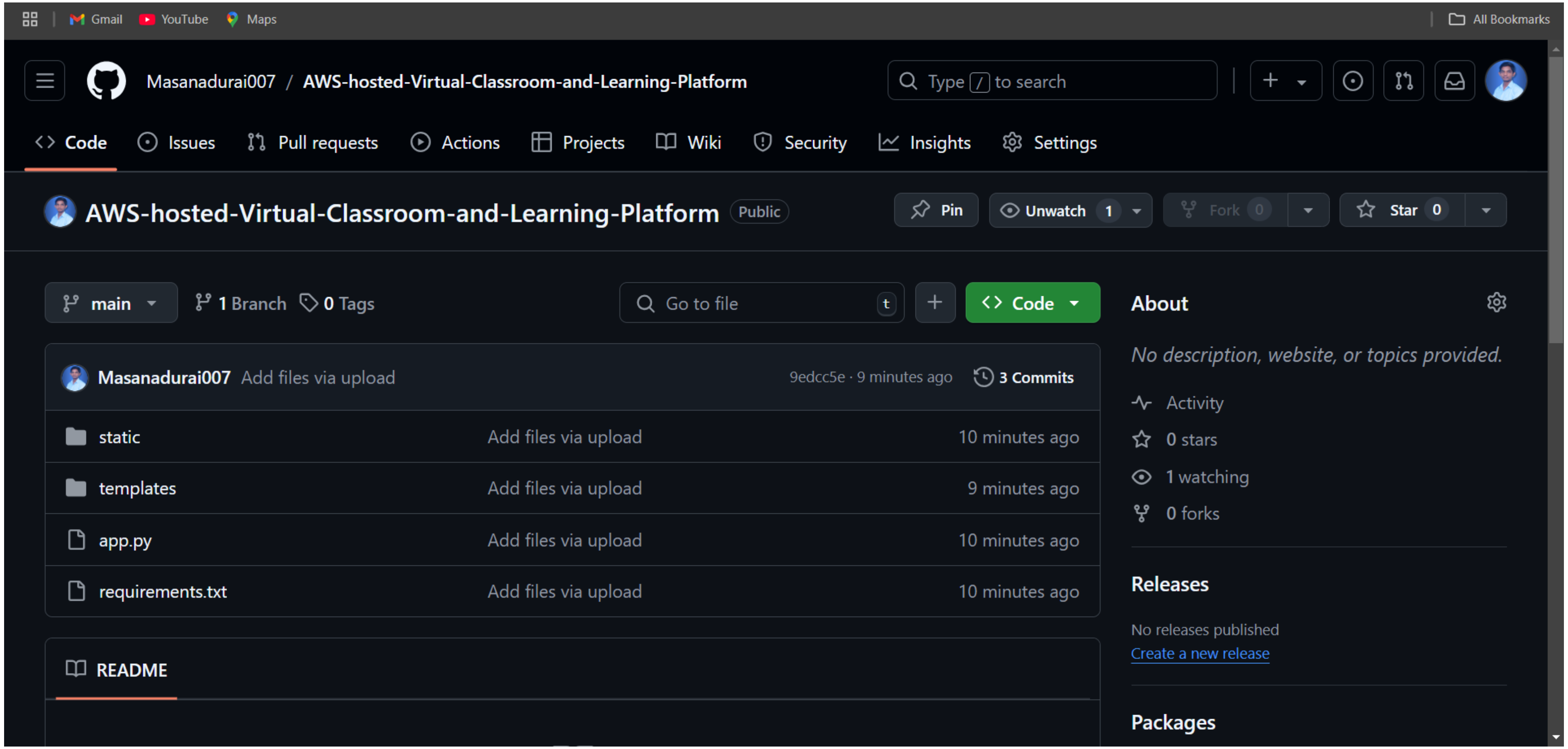
Build iOS and Android apps using modern frameworks.

Advanced Enroll Now

Upload to GitHub

Action:

- ➢ Create a new repository on GitHub.
- ➢ Commit your project files and push them to the repository.



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Masanadurai007 Add files via upload 9edcc5e · 9 minutes ago 3 Commits

static	Add files via upload	10 minutes ago
templates	Add files via upload	9 minutes ago
app.py	Add files via upload	10 minutes ago
requirements.txt	Add files via upload	10 minutes ago

About

No description, website, or topics provided.

0 stars

1 watching

0 forks

Releases

No releases published

Create a new release

Packages

Key Features;

- **Scalable Infrastructure:** AWS automatically handles increasing users.
- **Secure Data Management:** S3 and RDS ensure user data and course content are secure.
- **User-Friendly Design:** The platform provides an easy-to-use interface for students and educators.

Challenges;

- **AWS Service Configuration:** Setting up S3, RDS, and EC2 for the first time was complex and required thorough research and understanding of AWS's documentation.
- **Flask-AWS Integration:** Ensuring seamless integration between the Flask application and AWS services, particularly managing secure data storage and transfer.
- **Security Management:** Protecting sensitive user data while implementing secure login and data encryption protocols to prevent breaches.
- **Debugging and Testing:** Troubleshooting errors during development and deployment required meticulous testing and analyzing AWS logs for issue resolution.

Conclusion

Summary: The project successfully integrates Flask with AWS services to create a scalable and secure virtual classroom platform. Users can register, log in, and access course materials hosted on S3, with data managed in RDS and the application deployed on EC2. The solution leverages AWS's robust infrastructure to deliver a seamless educational experience.

THANK YOU