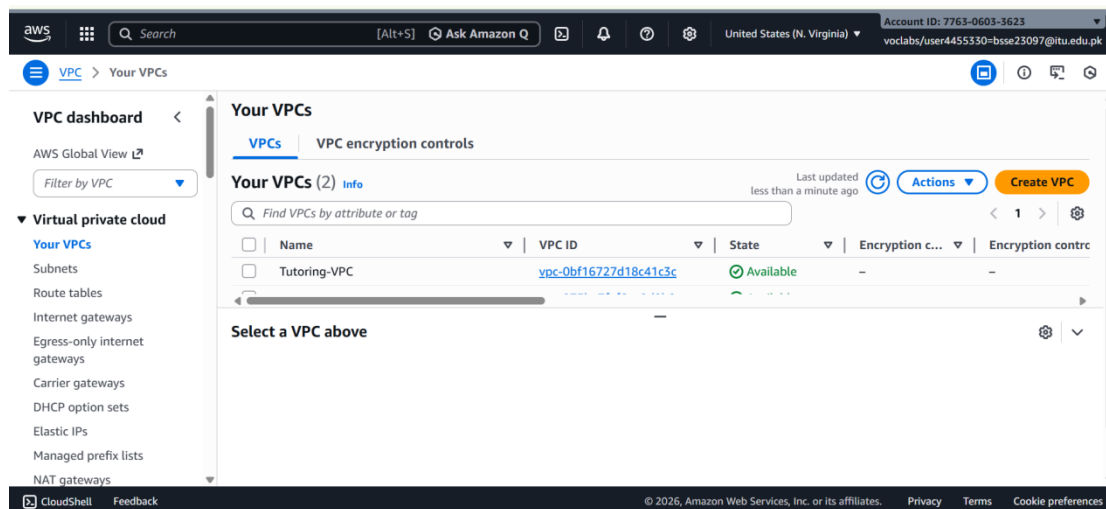


Areeba Shahbaz BSSE23097

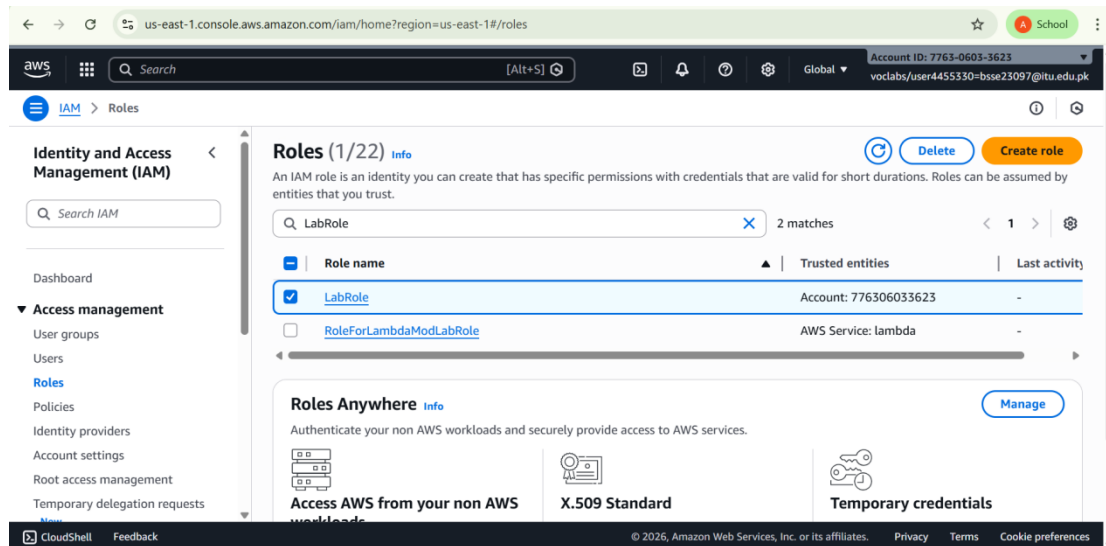
Hazira Azam BSSE23019

AWS ARCHITECTURE DESIGN, IMPLEMENTATION STEPS

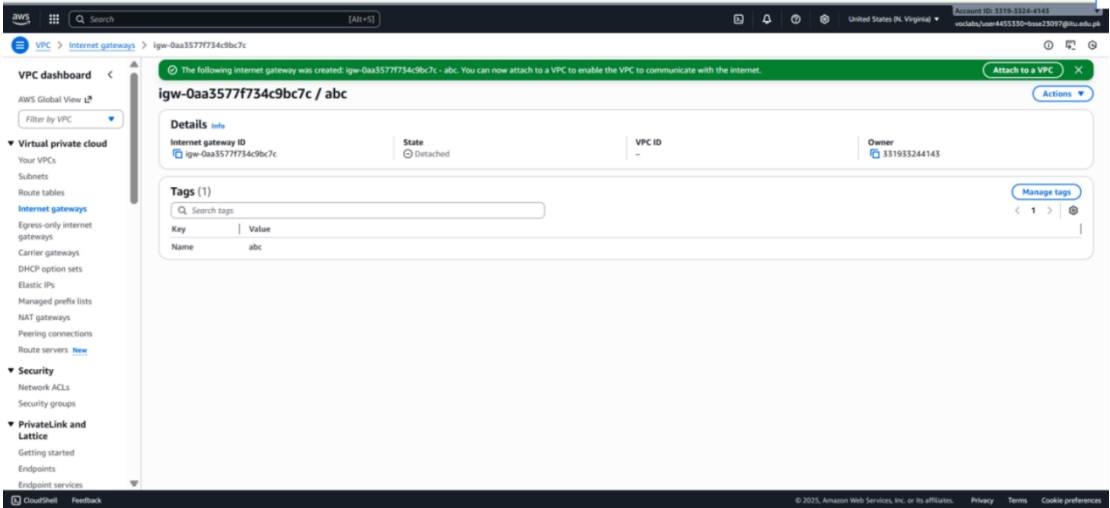
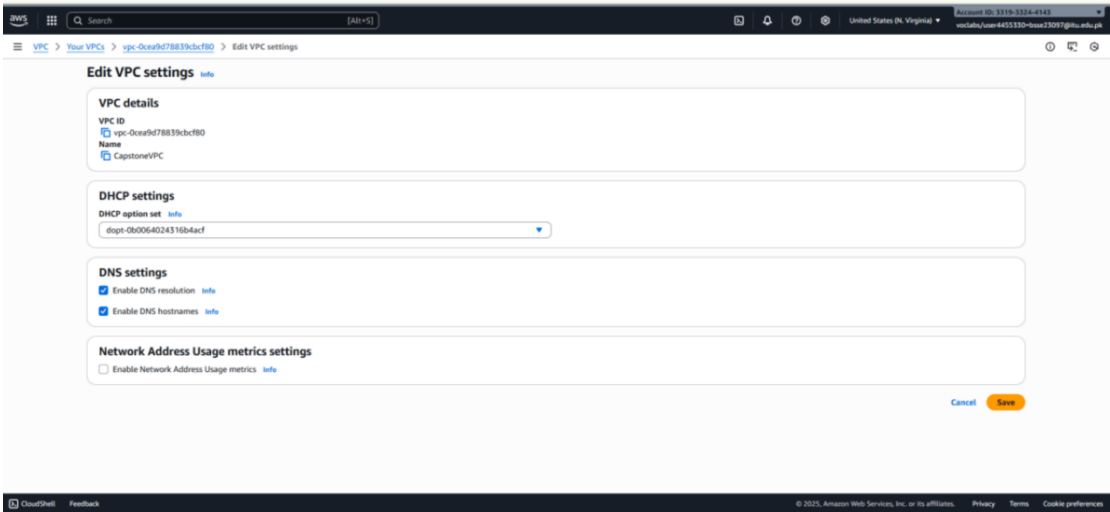
VPC CREATION



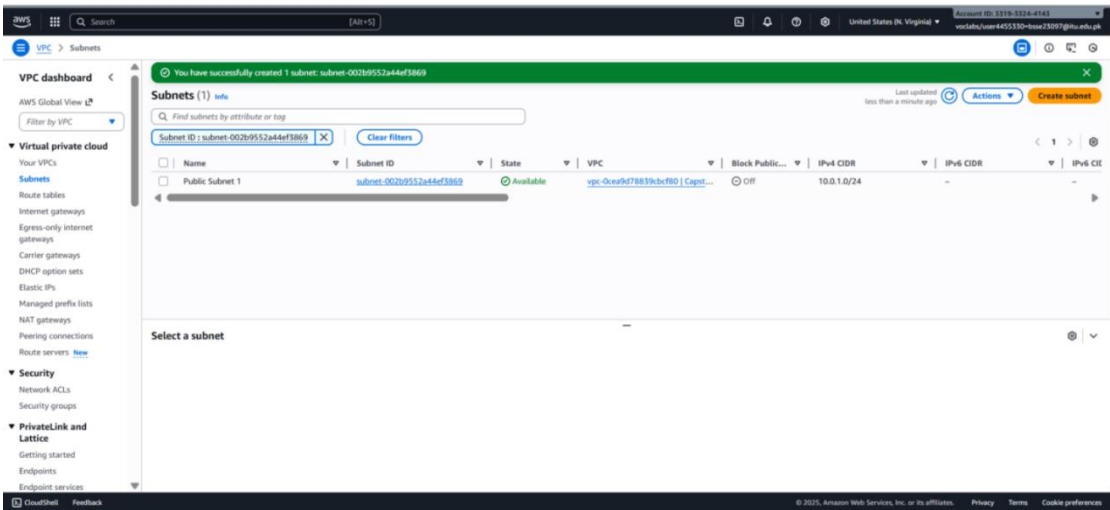
ASSOCIATING IAM ROLE



ENABLING DNS



MAKING SUBNETS



MAKING TABLES IN DB

The screenshot shows the AWS DynamoDB console. On the left is a navigation menu with options like Dashboard, Tables, Explore items, PartiQL editor, Backups, Exports to S3, Imports from S3, Integrations, Reserved capacity, and Settings. The main area is titled 'Tables (1)' and shows a table named 'TutorProfiles'. The table's configuration is as follows:

Name	Status	Partition key	Sort key	Indexes	Replication Regions	Deletion protection	Fav
TutorProfiles	Active	TutorID (S)	-	0	0	Off	

The screenshot shows the AWS Aurora and RDS console 'Create database' page. The 'Additional configuration' section is expanded, showing the following settings:

- Database options:**
 - Initial database name: STUDENTS
 - DB parameter group: default.mysql8.0
 - Option group: default.mysql-8.0
- Backup:**
 - Enable automated backup: ☒
 - Backup retention period: 1 day
 - Backup window: Choose a window

UPLOADING DATA ON REPO

The screenshot shows the Amazon ECR console. On the left is a navigation menu with options like Amazon Elastic Container Service, Private registry, and Public registry. The main area is titled 'Private repositories (1)' and shows a repository named 'tutoring-repo'. The repository's configuration is as follows:

Repository name	URI	Created at	Tag immutability	Encryption type
tutoring-repo	776306033623.dkr.ecr.us-east-1.amazonaws.com/tutoring-repo	January 01, 2026, 23:42:49 (UTC+05)	Mutable	AES-256

CONTAINERIZATION AND PUSHING IMAGES INTO THEM

The screenshot shows the AWS CloudShell interface with a terminal window. The terminal output includes the following commands and their results:

```
[1/2] FROM docker.io/library/nginx:alpine#sha256:8491795299c8e730b7fcc6285d511...
-> resolve docker.io/library/nginx:alpine#sha256:8491795299c8e730b7fcc6285d511...
-> extracting sha256:1074353ee0d2c1d81d5af2671e56e00c5f738486f576209ea33d0d...
-> sha256:de4ed0d0d0f22a6cf0843f9480d0d4e8d1edf50961805f2c7a3742b740 2.5
-> sha256:8491795299c8e730b7fcc6285d5110912c0266e07bd3dd00000a0d132295 10...
-> sha256:04da2b9513cd78d0d2d00575cef80813c5490c15a001921e47efdf0f0ba39e5 10...
-> sha256:1074353ee0d2c1d81d5af2671e56e00c5f738486f576209ea33d0d0f8012 3.00m / 3.00m
-> sha256:25f453064fd30a9754be51806c37013203bfc748fcf73f3c802d10816ae3 1.8
-> sha256:567f4daa6fd42874da5a50748540435c40a1f9a9e9e3950630d3600643a 02s
-> extracting sha256:085c5e5aa8ebd0957ecf253c74f16a6a551231de3fb7c3ac74814a6
-> sha256:0abf9e5672665202e79f26f23ef5dbd12558e2e51ac32807922ab76fdb24a00 1.4
-> sha256:da7c973d0b92a155060972c8849a32c93bfe2608c11faee2098c4cfb0e3d 953B / 953B
-> sha256:33f95a0f3229b49e777082e001b882b13fcc5b4c389410ceeb066fd58c71b9 40B
-> sha256:de5dc821236c80af11b7f7a17c40e42b3a5ad0e08c1a5ec76fb654d35f58df8 17...
-> extracting sha256:25f453064fd30a9754be51806c37013203bfc748fcf73f3c802d10816ae3
-> sha256:567f4daa6fd42874da5a50748540435c40a1f9a9e9e3950630d3600643a 02s
-> extracting sha256:da7c973d0b92a155060972c8849a32c93bfe2608c11faee2098c4cfb0e3d
-> extracting sha256:33f95a0f3229b49e777082e001b882b13fcc5b4c389410ceeb066fd58c71b9
-> extracting sha256:085c5e5aa8ebd0957ecf253c74f16a6a551231de3fb7c3ac74814a6
-> sha256:0abf9e5672665202e79f26f23ef5dbd12558e2e51ac32807922ab76fdb24a00
-> extracting sha256:de5dc821236c80af11b7f7a17c40e42b3a5ad0e08c1a5ec76fb654d3
-> [2/2] COPY --user/share/nginx/html
-> exporting layers
-> writing image sha256:c0bd29ee134687ee1573071a9f5462afef4a200963f2bf9ea023
-> naming to docker.io/library/tutoring-frontent
```

On the right side of the terminal, there are six green notification boxes indicating successful file uploads:

- File upload successful: api.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: auth.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: groups.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: sessions.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: tutoring.js was successfully uploaded to the following directory: /home/cloudshell-user.

The screenshot shows the AWS CloudShell interface with a terminal window. The terminal output includes the following commands and their results:

```
-> sha256:0abf9e5672665202e79f26f23ef5dbd12558e2e51ac32807922ab76fdb24a00 1.4
-> sha256:da7c973d0b92a155060972c8849a32c93bfe2608c11faee2098c4cfb0e3d 953B / 953B
-> sha256:33f95a0f3229b49e777082e001b882b13fcc5b4c389410ceeb066fd58c71b9 40B
-> sha256:de5dc821236c80af11b7f7a17c40e42b3a5ad0e08c1a5ec76fb654d35f58df8 17...
-> extracting sha256:25f453064fd30a9754be51806c37013203bfc748fcf73f3c802d10816ae3
-> sha256:567f4daa6fd42874da5a50748540435c40a1f9a9e9e3950630d3600643a 02s
-> extracting sha256:da7c973d0b92a155060972c8849a32c93bfe2608c11faee2098c4cfb0e3d
-> extracting sha256:33f95a0f3229b49e777082e001b882b13fcc5b4c389410ceeb066fd58c71b9
-> extracting sha256:085c5e5aa8ebd0957ecf253c74f16a6a551231de3fb7c3ac74814a6
-> sha256:0abf9e5672665202e79f26f23ef5dbd12558e2e51ac32807922ab76fdb24a00
-> extracting sha256:de5dc821236c80af11b7f7a17c40e42b3a5ad0e08c1a5ec76fb654d3
-> [2/2] COPY --user/share/nginx/html
-> exporting layers
-> writing image sha256:c0bd29ee134687ee1573071a9f5462afef4a200963f2bf9ea023
-> naming to docker.io/library/tutoring-frontent
~ $ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
tutoring-frontent latest c0bd29ee1346 32 seconds ago 53.7MB
~ $ aws ecr get-login-password --region us-east-1 | docker login --username AWS --n
WARNING! Your password will be stored unencrypted in /home/cloudshell-user/.docker/c
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
~ $
```

On the right side of the terminal, there are six green notification boxes indicating successful file uploads:

- File upload successful: api.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: auth.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: groups.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: sessions.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: tutoring.js was successfully uploaded to the following directory: /home/cloudshell-user.

The screenshot shows the AWS CloudShell interface with a terminal window. The terminal output includes the following commands and their results:

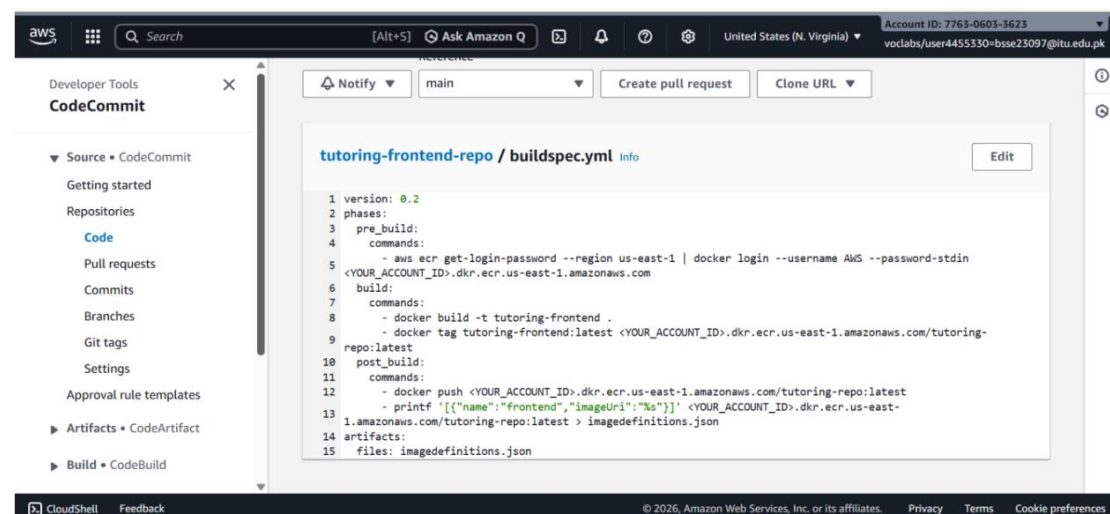
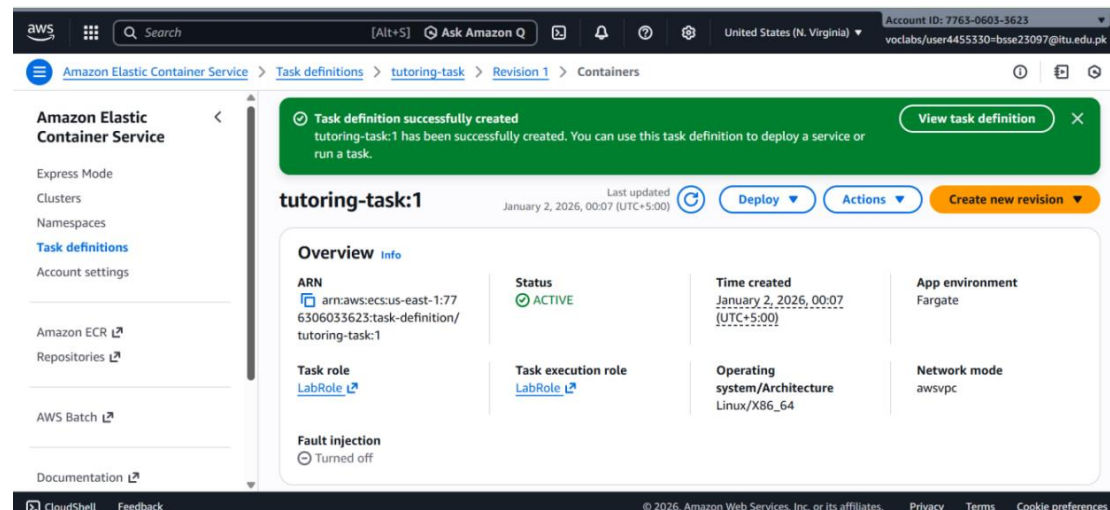
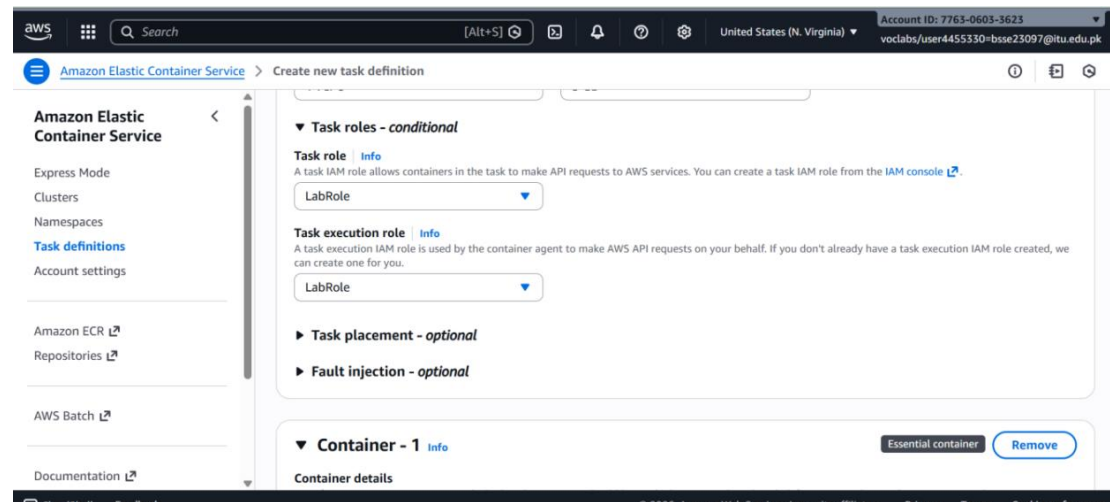
```
-> exporting layers
-> writing image sha256:c0bd29ee134687ee1573071a9f5462afef4a200963f2bf9ea023
-> naming to docker.io/library/tutoring-frontent
~ $ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
tutoring-frontent latest c0bd29ee1346 32 seconds ago 53.7MB
~ $ aws ecr get-login-password --region us-east-1 | docker login --username AWS --
WARNING! Your password will be stored unencrypted in /home/cloudshell-user/.docker
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
~ $ docker tag tutoring-frontent:latest 776306033623.dkr.ecr.us-east-1.amazonaws.c
~ $ docker push 776306033623.dkr.ecr.us-east-1.amazonaws.com/tutoring-repo:late
The push refers to repository [776306033623.dkr.ecr.us-east-1.amazonaws.com/tutori
c7507181170f: Pushed
e0fe11fa5b7f: Pushed
67e0ab046e7d: Pushed
ed5f0895c7a2: Pushed
8a0e30b1f31f: Pushed
b3e3d1bb664d: Pushed
48078b7e3000: Pushed
fd1e40d7f74b: Pushed
7b0b0c5ef607: Pushed
latest: digest: sha256:1e89767fc4af5857dcee30cc77019c5c9190e9dbfacbd357bd89b6ae90
~ $
```

On the right side of the terminal, there are six green notification boxes indicating successful file uploads:

- File upload successful: api.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: auth.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: groups.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: sessions.js was successfully uploaded to the following directory: /home/cloudshell-user.
- File upload successful: tutoring.js was successfully uploaded to the following directory: /home/cloudshell-user.

AMAZON ECS FOR DEPLOYING APP




```
aws CloudShell
us-east-1 +
~ $ docker push 776306033623.dkr.ecr.us-east-1.amazonaws.com/tutoring-repo:latest
The push refers to repository [776306033623.dkr.ecr.us-east-1.amazonaws.com/tutoring-repo]
c79d7181178f: Pushed
e6fe11fa5b7f: Pushed
67eab0b46e7d: Pushed
ed5fa8595c7a: Pushed
8ae3eb1f11f: Pushed
b3e3d1bb66dd: Pushed
48078b7e3000: Pushed
fd1e40d7f74b: Pushed
7bb20cf5ef67: Pushed
latest: digest: sha256:1e89767fc4af5857dcee30cc77019c5c9190e9dbfacb4d357bd89b68e905801e size: 2197
~ $ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
hint:
hint: Disable this message with "git config set advice.defaultBranchName false"
Initialized empty Git repository in /home/cloudshell-user/.git/
~ $
```

File upload successful

api.js was successfully uploaded to the following directory: /home/cloudshell-user.

File upload successful

auth.js was successfully uploaded to the following directory: /home/cloudshell-user.

File upload successful

groups.js was successfully uploaded to the following directory: /home/cloudshell-user.

File upload successful

sessions.js was successfully uploaded to the following directory: /home/cloudshell-user.

File upload successful

tutoring.js was successfully uploaded to the following directory: /home/cloudshell-user.

Amazon ECR > Private registry > Repositories

Amazon Elastic Container Service

Private registry

Public registry

Managed signing now available

Private repositories (2)

Search by repository substring

Repository name	URI	Created at	Tag Immutability	Encryption type
tutoring-frontend	776306033623.dkr.ecr.us-east-1.amazonaws.com/tutoring-frontend	January 02, 2026, 01:24:48 (UTC+05)	Mutable	AES-256
tutoring-repo	776306033623.dkr.ecr.us-east-1.amazonaws.com/tutoring-repo	January 01, 2026, 23:42:49 (UTC+05)	Mutable	AES-256

EC2 > Target groups

Network & Security

Load Balancing

Auto Scaling

Target groups (2)

Filter target groups

Name	ARN	Port	Protocol	Target type
PeerBackend	arn:aws:elasticloadbalancing...	80	HTTP	Instance
PeerApp	arn:aws:elasticloadbalancing...	80	HTTP	Instance

0 target groups selected


```
us-east-1.console.aws.amazon.com/cloud9/ide/dbf5668d493644fa85c649934dd2e648?region=us-east-1

File Edit View Go Run Tools Window Support Preview Run Share
Go to Anything (Ctrl-P)
CapstoneIDE - /h
data.sql
README.md
data.sql
1:1 SQL Spaces 2
Welcome x data.sql x
16: name varchar(255) NOT NULL,
17: address varchar(255) NOT NULL,
18: city varchar(255) NOT NULL,
19: state varchar(255) NOT NULL,
bash "p-10-0-1-87 ec2" x Immediate x
C:\WINDOWS\system32\cmd.exe
Percentage of requests served within a certain time
50% 9 ms
90% 41 ms
95% 362 ms
99% 1919 ms
100% 2163 ms (longest request)
-1: 1 errors
voclabs:/environment $ loadtest --rps 1000 -c 500 -k http://capstonealb-1367864825.us-east-1.elb.amazonaws.com/
(node:7886) [DEP0068] DeprecationWarning: The 'util._extend' API is deprecated. Please use Object.assign() instead.
(Use 'node --trace-deprecation...' to show where the warning was created)
Requests: 4999, requests per second: 1000, mean latency: 7.9 ms
Target URL: http://capstonealb-1367864825.us-east-1.elb.amazonaws.com/
Max time (s): 10
Target rps: 1000
Concurrent clients: 49
Agent: keepalive
Completed requests: 9999
Total errors: 0
Total time: 10.001 s
Mean latency: 5.6 ms
Effective rps: 1000
Percentage of requests served within a certain time
50% 2 ms
90% 16 ms
95% 25 ms
99% 38 ms
100% 213 ms (longest request)
voclabs:/environment $
```

calculator.aws/#/estimate

aws pricing calculator Feedback Language: English Contact Sales Create an AWS Account

Find resources

Service Name	Status	Upfront cost	Monthly cost	Description	Region	Config Sum...
Amazon Virtual...	-	0.00 USD	73.00 USD	-	US East (N. Virg...	Working days p...
Amazon EC2	-	0.00 USD	2.92 USD	-	US East (N. Virg...	Tenancy (Share...
Amazon RDS fo...	-	0.00 USD	95.52 USD	-	US East (N. Virg...	Storage amoun...
AWS Secrets Ma...	-	0.00 USD	0.40 USD	-	US East (N. Virg...	Number of secr...
Elastic Load Bal...	-	0.00 USD	22.27 USD	-	US East (N. Virg...	Number of Appl...

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us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AutoScalingGroupDetails:id=CapstoneAutoScalingGroup1;view=activity

EC2 Auto Scaling groups CapstoneAutoScalingGroup1 Create notification

Activity history (3)

Filter activity history

Status	Description	Cause	Start time	End time
Successful	Launching a new EC2 instance: i-0f203c294fc8a94cf	At 2025-11-24T07:35:57Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 November 24, 12:35:59 PM +05:00	2025 November 24, 12:36:0 PM +05:00
Successful	Terminating EC2 instance: i-04ae0f5dcb2bb909	At 2025-11-24T07:35:57Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 November 24, 12:35:57 PM +05:00	2025 November 24, 12:41:1 PM +05:00
Successful	Launching a new EC2 instance: i-04ae0f5dcb2bb909	At 2025-11-24T06:02:23Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 1. At 2025-11-24T06:02:24Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2025 November 24, 11:02:25 AM +05:00	2025 November 24, 11:02:5 AM +05:00

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