Cloud Based Enterprise System

Mini-Project

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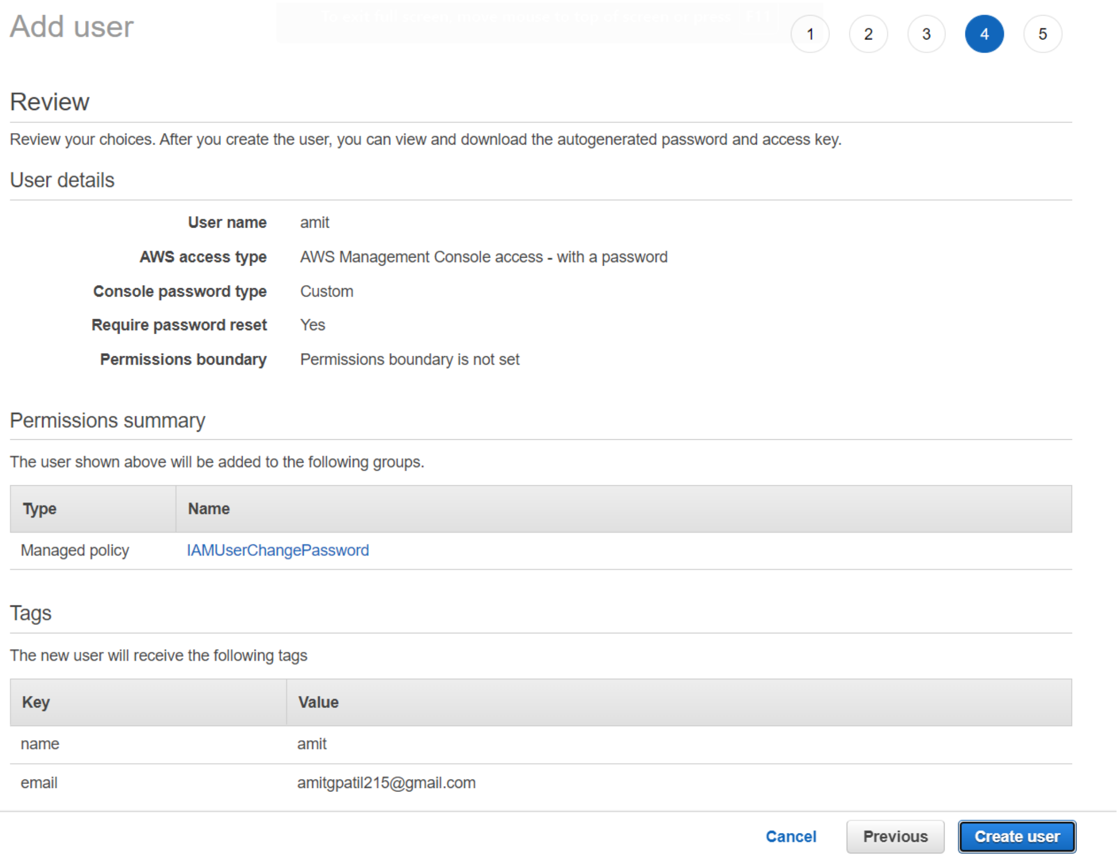
1. User details in AWS.

1.1 Adding new user



Review

Review your choices. After you create the user, you can view and download the autogenerated password and access key.

User details

User name	amit
AWS access type	AWS Management Console access - with a password
Console password type	Custom
Require password reset	Yes
Permissions boundary	Permissions boundary is not set

Permissions summary

The user shown above will be added to the following groups.

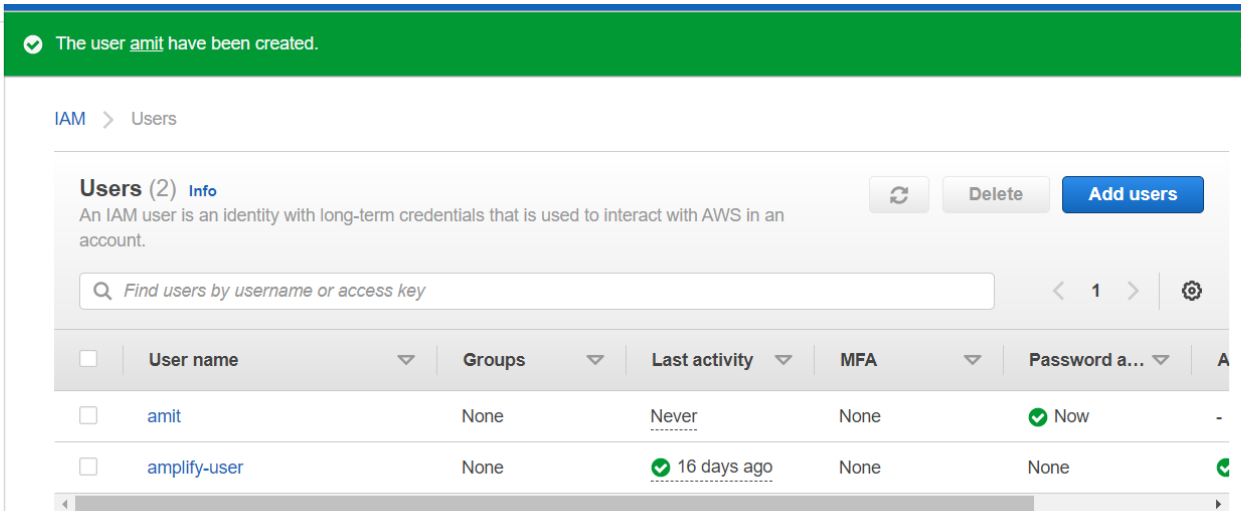
Type	Name
Managed policy	IAMUserChangePassword

Tags

The new user will receive the following tags

Key	Value
name	amit
email	amitgpatil215@gmail.com

1.2 User Details



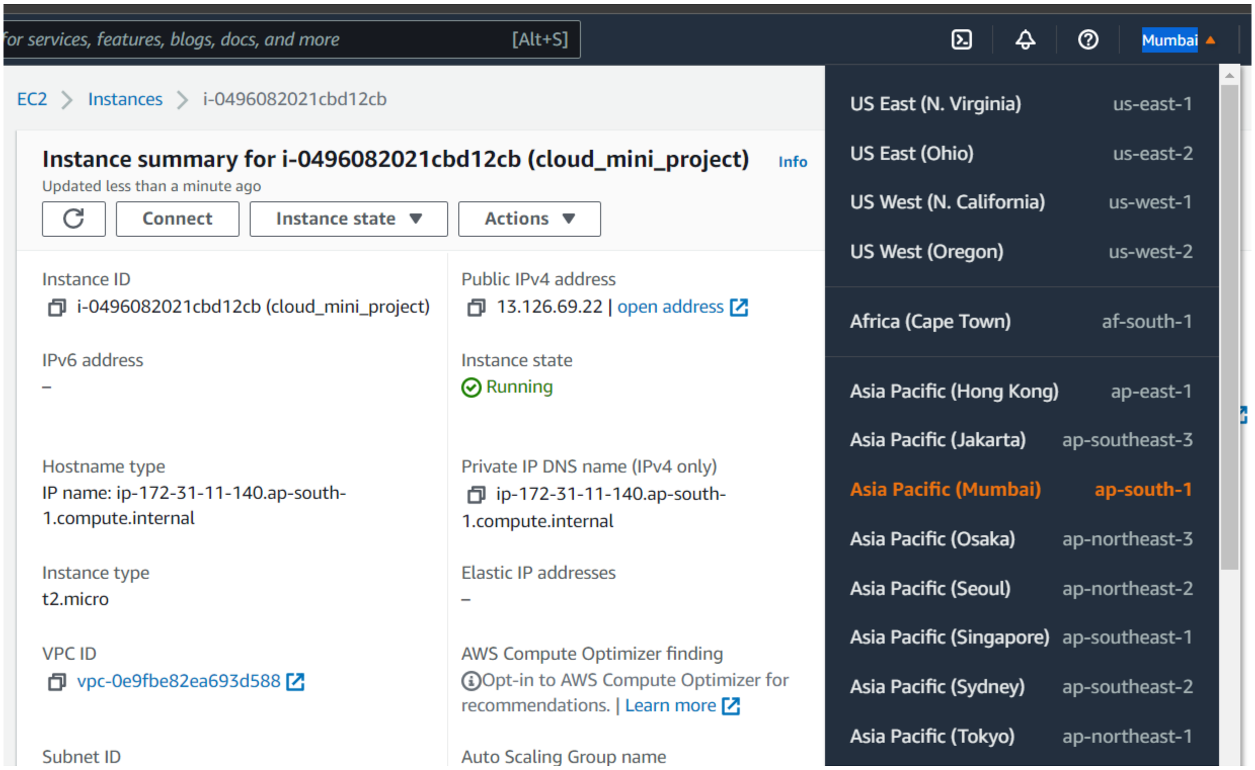
The user amit have been created.

Users (2) Info

An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

User name	Groups	Last activity	MFA	Password a...	A
amit	None	Never	None	✓ Now	-
amplify-user	None	✓ 16 days ago	None	None	✓

2. Region/Zone selected (Indian/ Data center) in AWS.



EC2 > Instances > i-0496082021cbd12cb

Instance summary for i-0496082021cbd12cb (cloud_mini_project) Info

Updated less than a minute ago

Connect | Instance state ▼ | Actions ▼

Instance ID
i-0496082021cbd12cb (cloud_mini_project)

Public IPv4 address
13.126.69.22 | open address

IPv6 address
–

Instance state
Running

Hostname type
IP name: ip-172-31-11-140.ap-south-1.compute.internal

Private IP DNS name (IPv4 only)
ip-172-31-11-140.ap-south-1.compute.internal

Instance type
t2.micro

Elastic IP addresses
–

VPC ID
vpc-0e9fbe82ea693d588

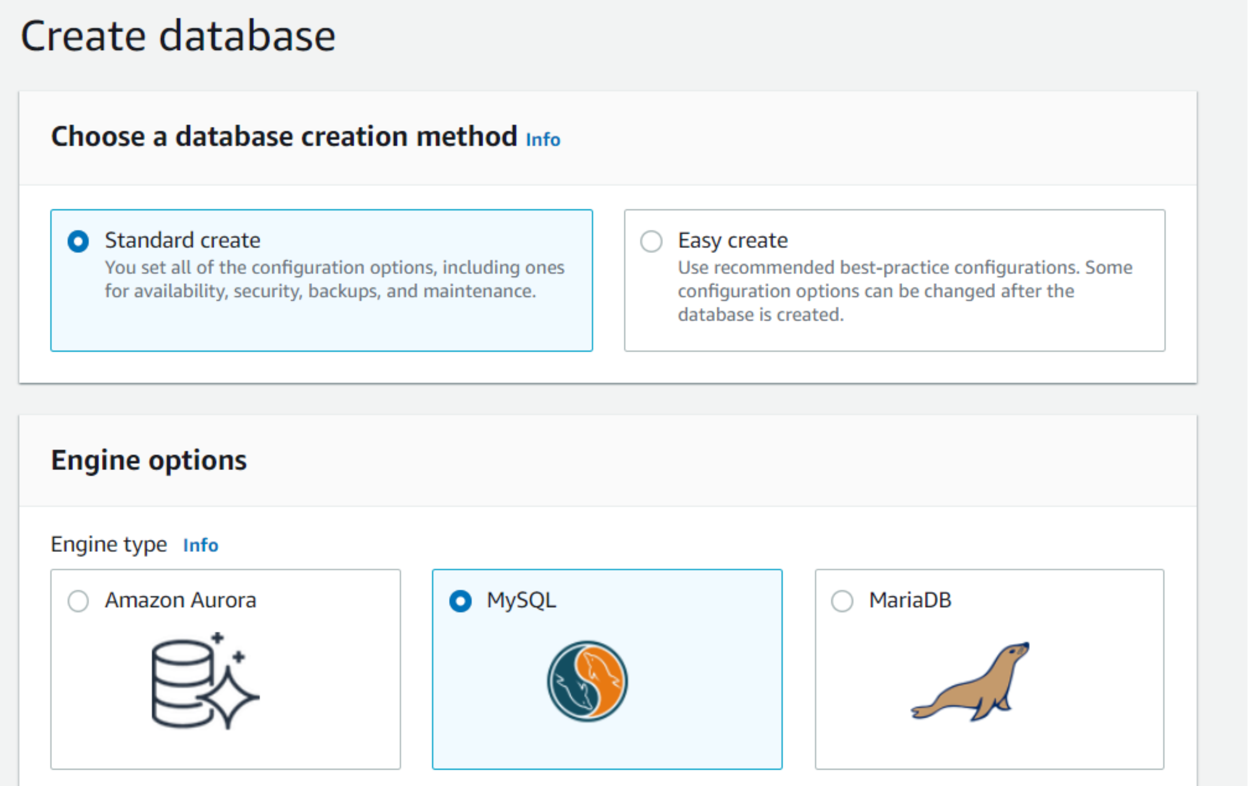
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Subnet ID

Auto Scaling Group name

for services, features, blogs, docs, and more [Alt+S]
Mumbai ▲
US East (N. Virginia) us-east-1
US East (Ohio) us-east-2
US West (N. California) us-west-1
US West (Oregon) us-west-2
Africa (Cape Town) af-south-1
Asia Pacific (Hong Kong) ap-east-1
Asia Pacific (Jakarta) ap-southeast-3
Asia Pacific (Mumbai) ap-south-1
Asia Pacific (Osaka) ap-northeast-3
Asia Pacific (Seoul) ap-northeast-2
Asia Pacific (Singapore) ap-southeast-1
Asia Pacific (Sydney) ap-southeast-2
Asia Pacific (Tokyo) ap-northeast-1

3. Developed application should have a database in AWS only e.g. AWS RDS



Create database

Choose a database creation method Info

● Standard create
You set all of the configuration options, including ones for availability, security, backups, and maintenance.

○ Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

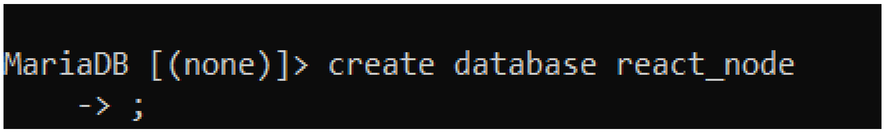
Engine type Info

○ Amazon Aurora

● MySQL

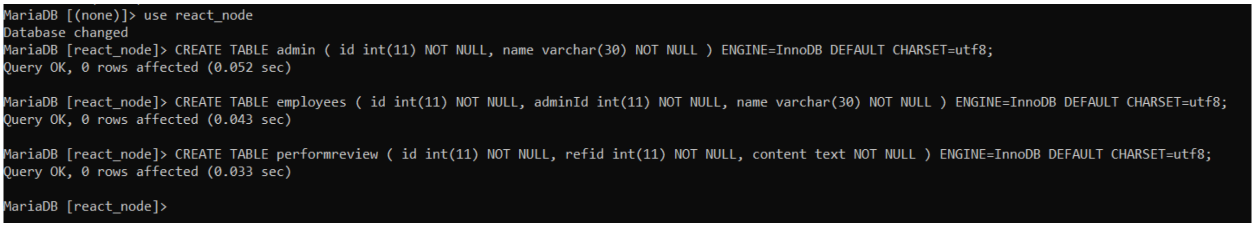
○ MariaDB

Creating react_mysql database



```
MariaDB [(none)]> create database react_node
    -> ;
```

Creating tables



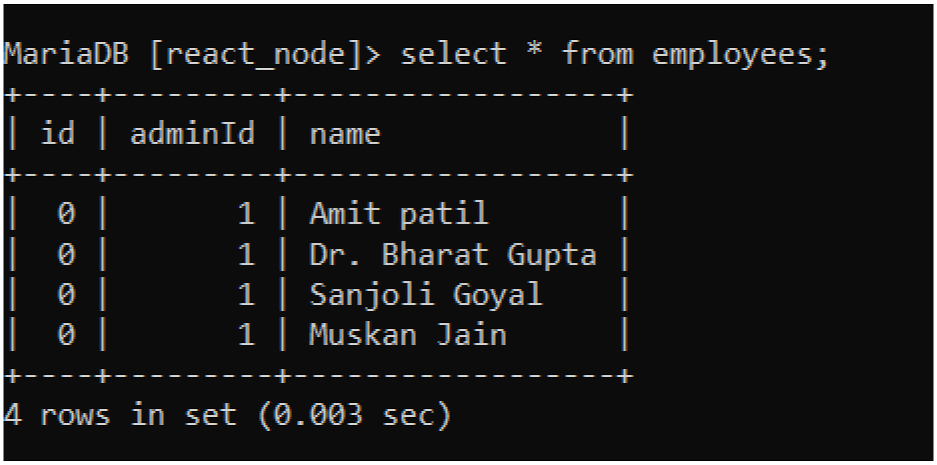
```
MariaDB [(none)]> use react_node
Database changed
MariaDB [react_node]> CREATE TABLE admin ( id int(11) NOT NULL, name varchar(30) NOT NULL ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected (0.052 sec)

MariaDB [react_node]> CREATE TABLE employees ( id int(11) NOT NULL, adminId int(11) NOT NULL, name varchar(30) NOT NULL ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected (0.043 sec)

MariaDB [react_node]> CREATE TABLE performreview ( id int(11) NOT NULL, refid int(11) NOT NULL, content text NOT NULL ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected (0.033 sec)

MariaDB [react_node]>
```

Show employee table



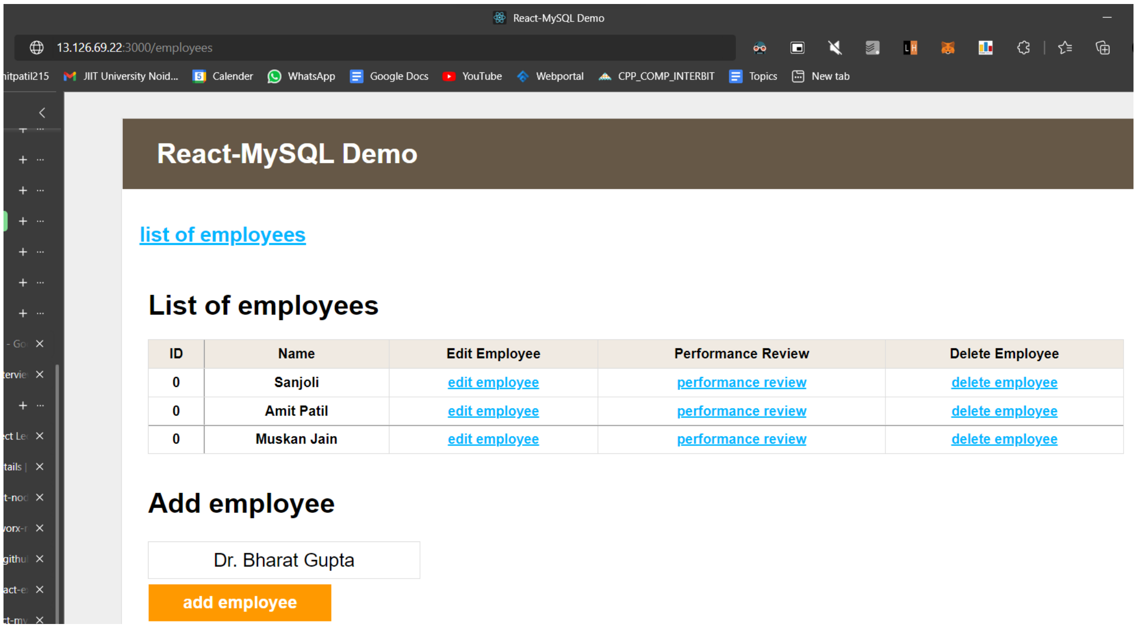
```
MariaDB [react_node]> select * from employees;
+----+---------+------------------+
| id | adminId | name             |
+----+---------+------------------+
|  0 |       1 | Amit patil       |
|  0 |       1 | Dr. Bharat Gupta |
|  0 |       1 | Sanjoli Goyal    |
|  0 |       1 | Muskan Jain      |
+----+---------+------------------+
4 rows in set (0.003 sec)
```

3.1Creating a student database in MYSQL/ other database

3.2 Creating tables (after normalization) for the above created database. It should consist of the student's details, subject registered, fees paid, grades, etc.

4 The application should be able to insert/ delete/ query data from a database stored in AWS.

Insert New Employee



React-MySQL Demo

list of employees

List of employees

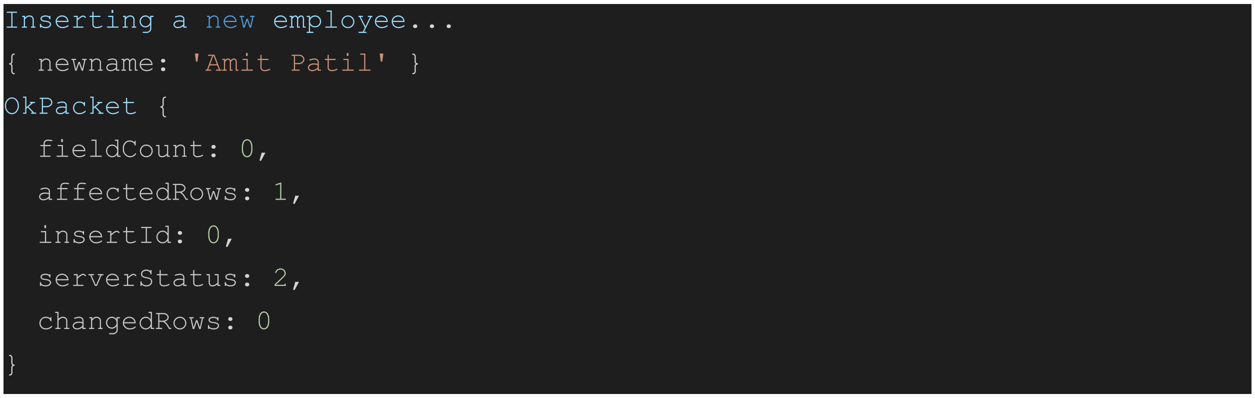
ID	Name	Edit Employee	Performance Review	Delete Employee
0	Sanjoli	edit employee	performance review	delete employee
0	Amit Patil	edit employee	performance review	delete employee
0	Muskan Jain	edit employee	performance review	delete employee

Add employee

Dr. Bharat Gupta

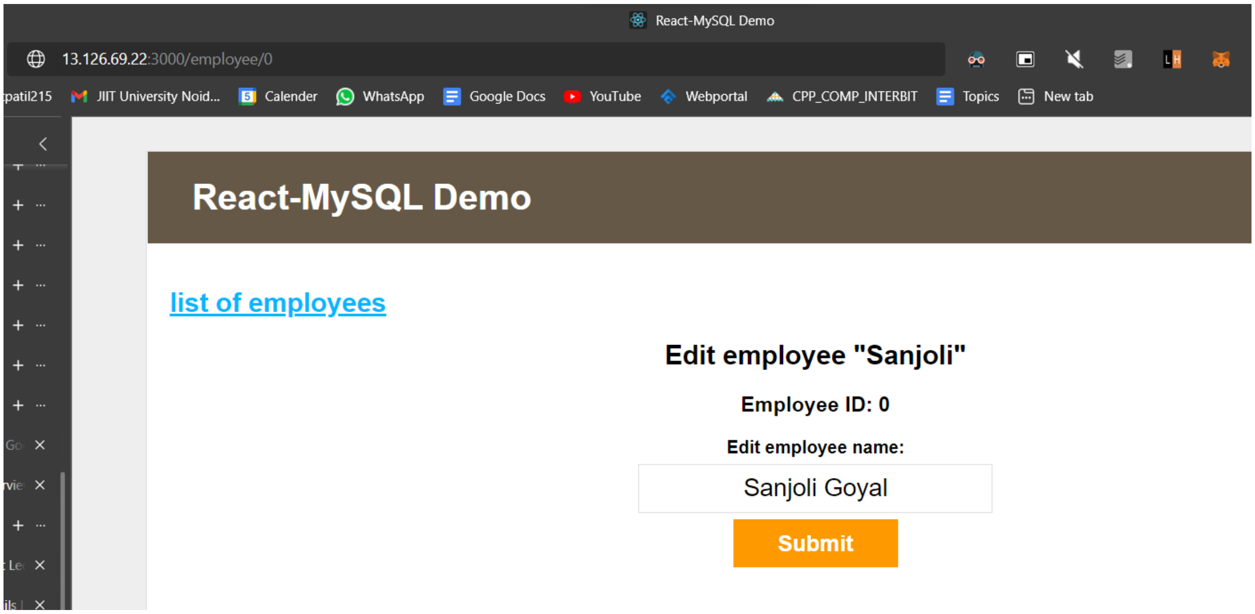
add employee

Console logs



```
Inserting a new employee...
{ newname: 'Amit Patil' }
OkPacket {
  fieldCount: 0,
  affectedRows: 1,
  insertId: 0,
  serverStatus: 2,
  changedRows: 0
}
```

Edit Employee Name



React-MySQL Demo

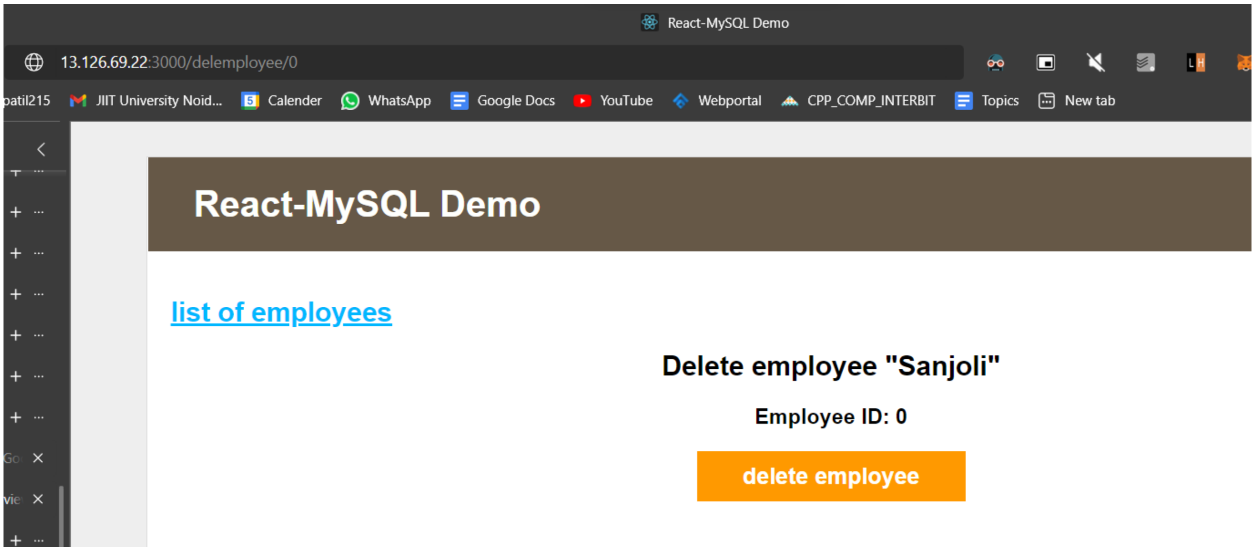
list of employees

Edit employee "Sanjoli"

Employee ID: 0

Edit employee name: Sanjoli Goyal

Delete Employee



React-MySQL Demo

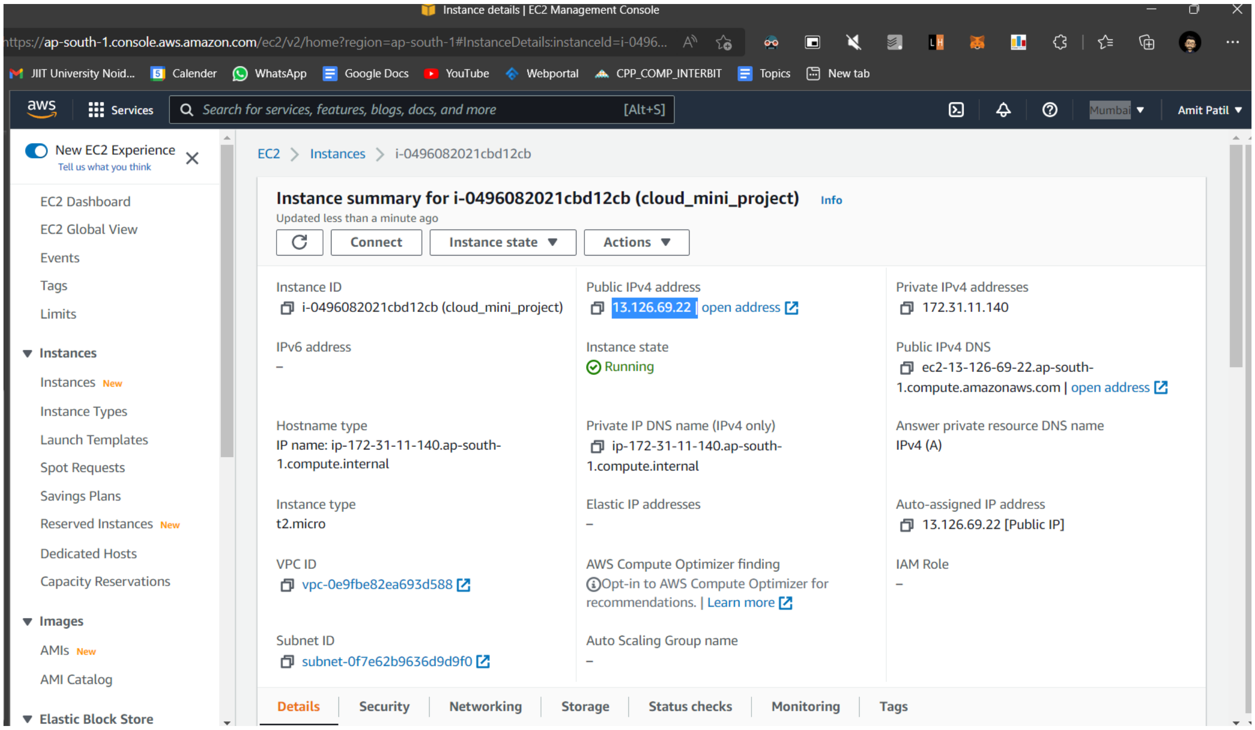
list of employees

Delete employee "Sanjoli"

Employee ID: 0

5 Snapshots of IP address, starting page URI of the application from the browser.

EC2 IP address Snapshot
IP address : **13.126.69.22**


Instance details | EC2 Management Console
https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#InstanceDetails:instanceId=i-0496...
JIIT University Noid... Calender WhatsApp Google Docs YouTube Webportal CPP_COMP_INTERBIT Topics New tab
aws Services
Search for services, features, blogs, docs, and more [Alt+S]
Mumbai
Amit Patil
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Capacity Reservations
Images
AMIs New
AMI Catalog
Elastic Block Store
EC2 > Instances > i-0496082021cbd12cb

Instance summary for i-0496082021cbd12cb (cloud_mini_project) Info

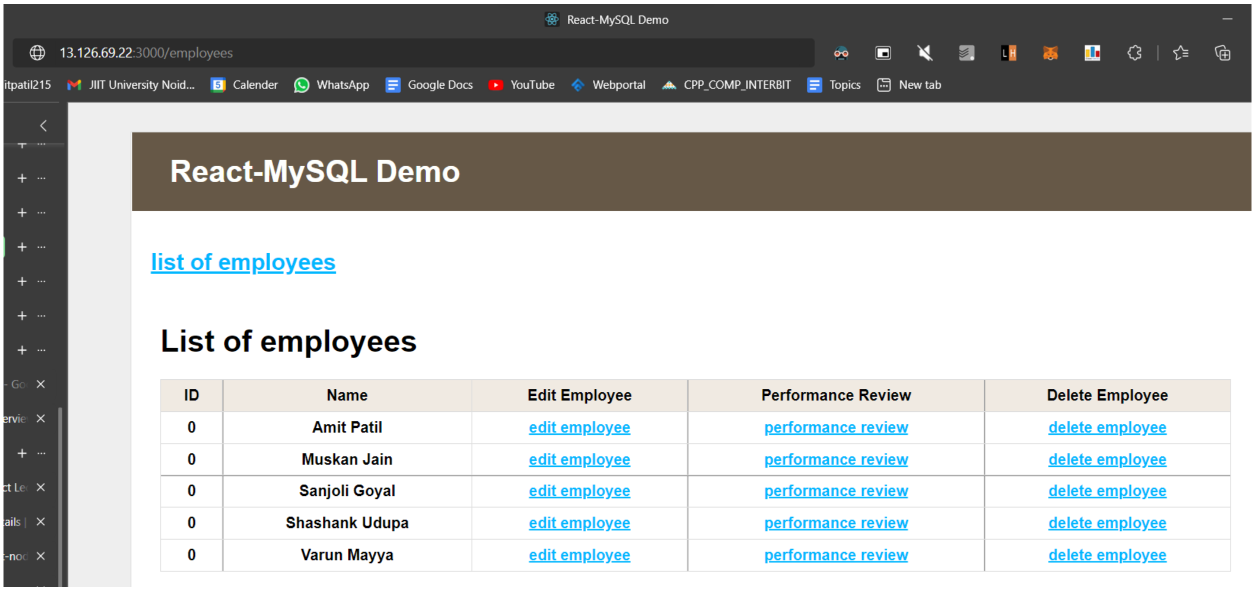
Updated less than a minute ago

Connect | Instance state ▼ | Actions ▼

Instance ID i-0496082021cbd12cb (cloud_mini_project)	Public IPv4 address 13.126.69.22 | open address	Private IPv4 addresses 172.31.11.140
IPv6 address –	Instance state Running	Public IPv4 DNS ec2-13-126-69-22.ap-south-1.compute.amazonaws.com | open address
Hostname type IP name: ip-172-31-11-140.ap-south-1.compute.internal	Private IP DNS name (IPv4 only) ip-172-31-11-140.ap-south-1.compute.internal	Answer private resource DNS name IPv4 (A)
Instance type t2.micro	Elastic IP addresses –	Auto-assigned IP address 13.126.69.22 [Public IP]
VPC ID vpc-0e9fbe82ea693d588	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. | Learn more	IAM Role –
Subnet ID subnet-0f7e62b9636d9d9f0	Auto Scaling Group name –	

Application Web Browser URL

Running on url : https:/13.126.69.22:3000/employees


React-MySQL Demo
13.126.69.22:3000/employees
itpatil215 JIIT University Noid... Calender WhatsApp Google Docs YouTube Webportal CPP_COMP_INTERBIT Topics New tab

React-MySQL Demo

list of employees

List of employees

ID	Name	Edit Employee	Performance Review	Delete Employee
0	Amit Patil	edit employee	performance review	delete employee
0	Muskan Jain	edit employee	performance review	delete employee
0	Sanjoli Goyal	edit employee	performance review	delete employee
0	Shashank Udupa	edit employee	performance review	delete employee
0	Varun Mayya	edit employee	performance review	delete employee

6 Architecture diagram/ Flow Chart of the application

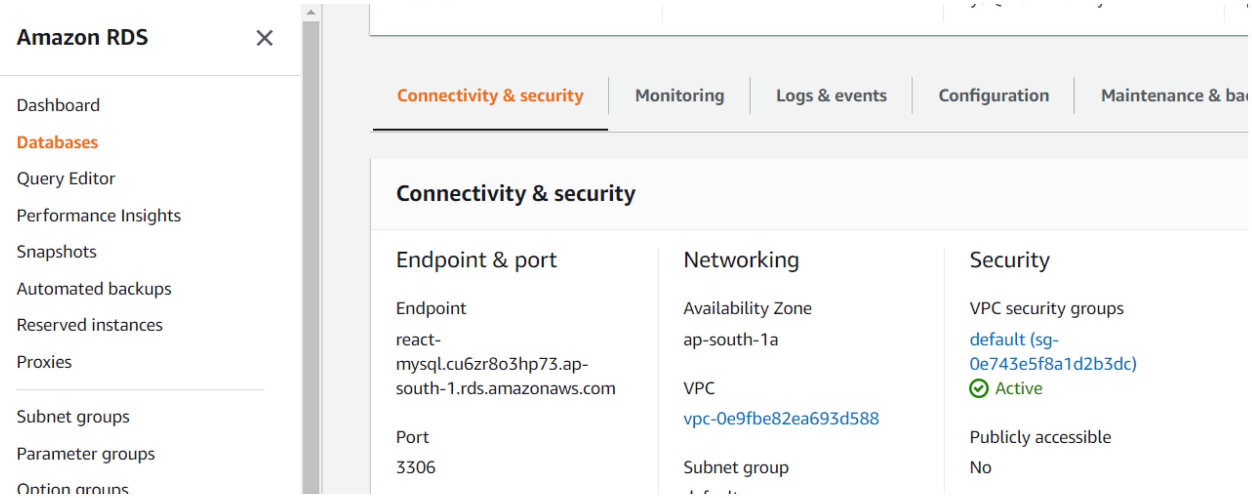
7 Tools and techniques used in AWS

8 Interaction between different modules in AWS (EC2, Database, S3, etc)

9 Data stored in Storage bucket (if used)

10 Snapshots of End point(s).

RDS Endpoints



Connectivity & security

Endpoint & port

Endpoint
react-mysql.cu6zr8o3hp73.ap-south-1.rds.amazonaws.com

Port
3306

Networking

Availability Zone
ap-south-1a

VPC
vpc-0e9fbe82ea693d588

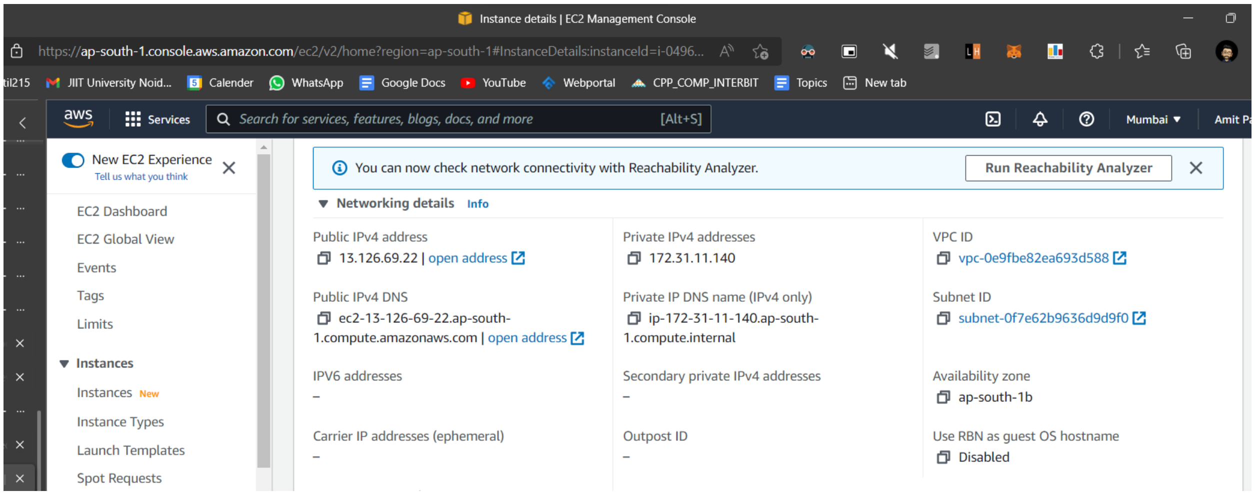
Subnet group

Security

VPC security groups
default (sg-0e743e5f8a1d2b3dc)
Active

Publicly accessible
No

EC2 Endpoints



You can now check network connectivity with Reachability Analyzer.

Networking details Info

Public IPv4 address
13.126.69.22 | open address

Public IPv4 DNS
ec2-13-126-69-22.ap-south-1.compute.amazonaws.com | open address

IPV6 addresses
–

Carrier IP addresses (ephemeral)
–

Private IPv4 addresses
172.31.11.140

Private IP DNS name (IPv4 only)
ip-172-31-11-140.ap-south-1.compute.internal

Secondary private IPv4 addresses
–

Outpost ID
–

VPC ID
vpc-0e9fbe82ea693d588

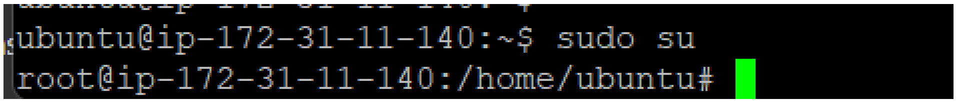
Subnet ID
subnet-0f7e62b9636d9d9f0

Availability zone
ap-south-1b

Use RBN as guest OS hostname
Disabled

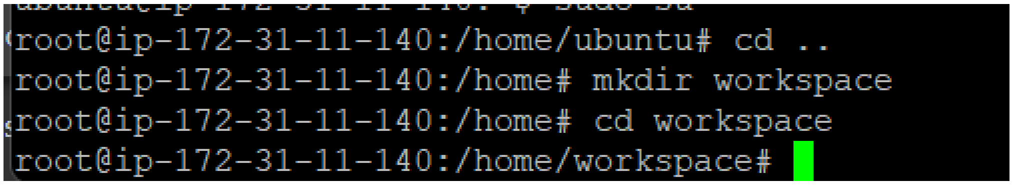
11 Installation of the software(s) in AWS

Getting root access



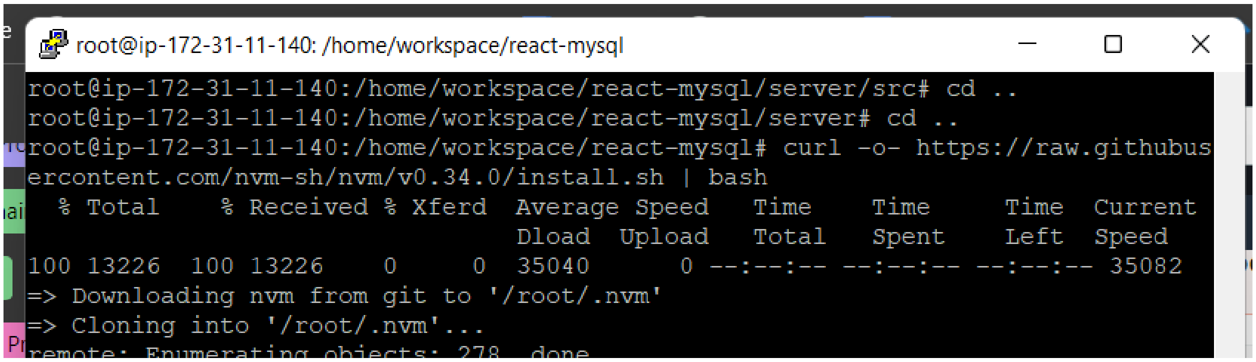
```
ubuntu@ip-172-31-11-140:~$ sudo su
root@ip-172-31-11-140:/home/ubuntu#
```

Creating Workspace Folder in home directory



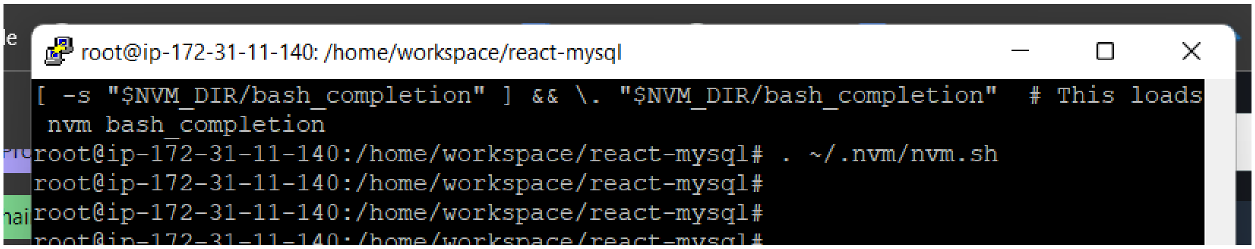
```
root@ip-172-31-11-140:/home/ubuntu# cd ..
root@ip-172-31-11-140:/home# mkdir workspace
root@ip-172-31-11-140:/home# cd workspace
root@ip-172-31-11-140:/home/workspace#
```

Install nvm



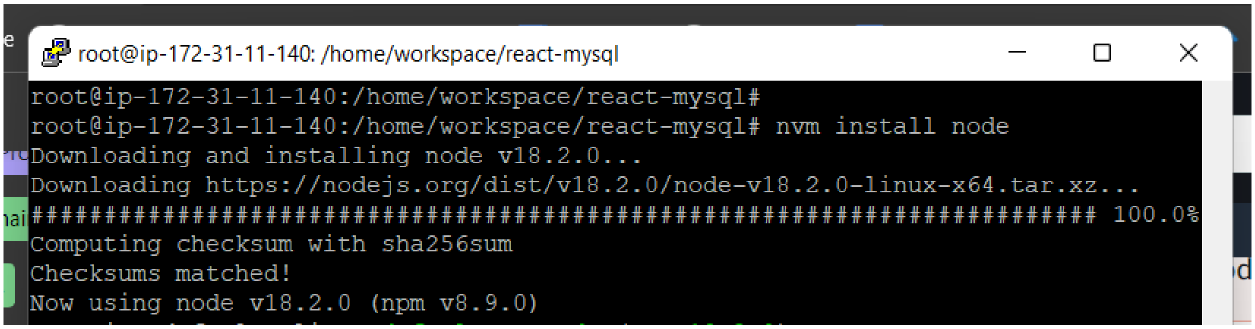
```
root@ip-172-31-11-140:/home/workspace/react-mysql/server/src# cd ..
root@ip-172-31-11-140:/home/workspace/react-mysql/server# cd ..
root@ip-172-31-11-140:/home/workspace/react-mysql# curl -o- https://raw.githubus
ercontent.com/nvm-sh/nvm/v0.34.0/install.sh | bash
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 13226  100 13226    0     0  35040      0 --:--:-- --:--:-- --:--:-- 35082
=> Downloading nvm from git to '/root/.nvm'
=> Cloning into '/root/.nvm'...
remote: Enumerating objects: 278, done.
```

Activate nvm



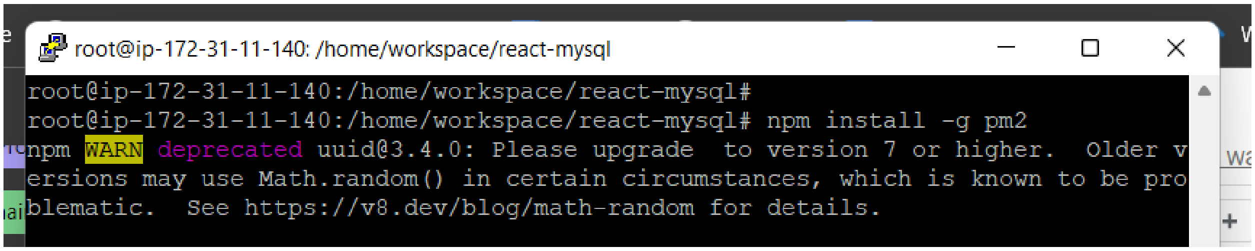
```
[ -s "$NVM_DIR/bash_completion" ] && \. "$NVM_DIR/bash_completion"  # This loads
 nvm bash_completion
root@ip-172-31-11-140:/home/workspace/react-mysql# . ~/.nvm/nvm.sh
root@ip-172-31-11-140:/home/workspace/react-mysql#
root@ip-172-31-11-140:/home/workspace/react-mysql#
root@ip-172-31-11-140:/home/workspace/react-mysql#
```

Install nodejs



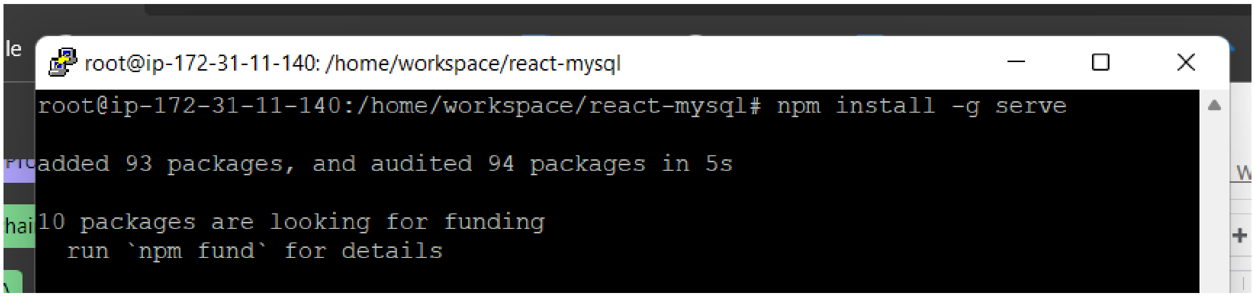
```
root@ip-172-31-11-140:/home/workspace/react-mysql#
root@ip-172-31-11-140:/home/workspace/react-mysql# nvm install node
Downloading and installing node v18.2.0...
Downloading https://nodejs.org/dist/v18.2.0/node-v18.2.0-linux-x64.tar.xz...
######################################################################### 100.0%
Computing checksum with sha256sum
Checksums matched!
Now using node v18.2.0 (npm v8.9.0)
```

Install PM2 Server



```
root@ip-172-31-11-140:/home/workspace/react-mysql#
root@ip-172-31-11-140:/home/workspace/react-mysql# npm install -g pm2
npm WARN deprecated uuid@3.4.0: Please upgrade  to version 7 or higher.  Older v
ersions may use Math.random() in certain circumstances, which is known to be pro
blematic.  See https://v8.dev/blog/math-random for details.
```

Install Serve



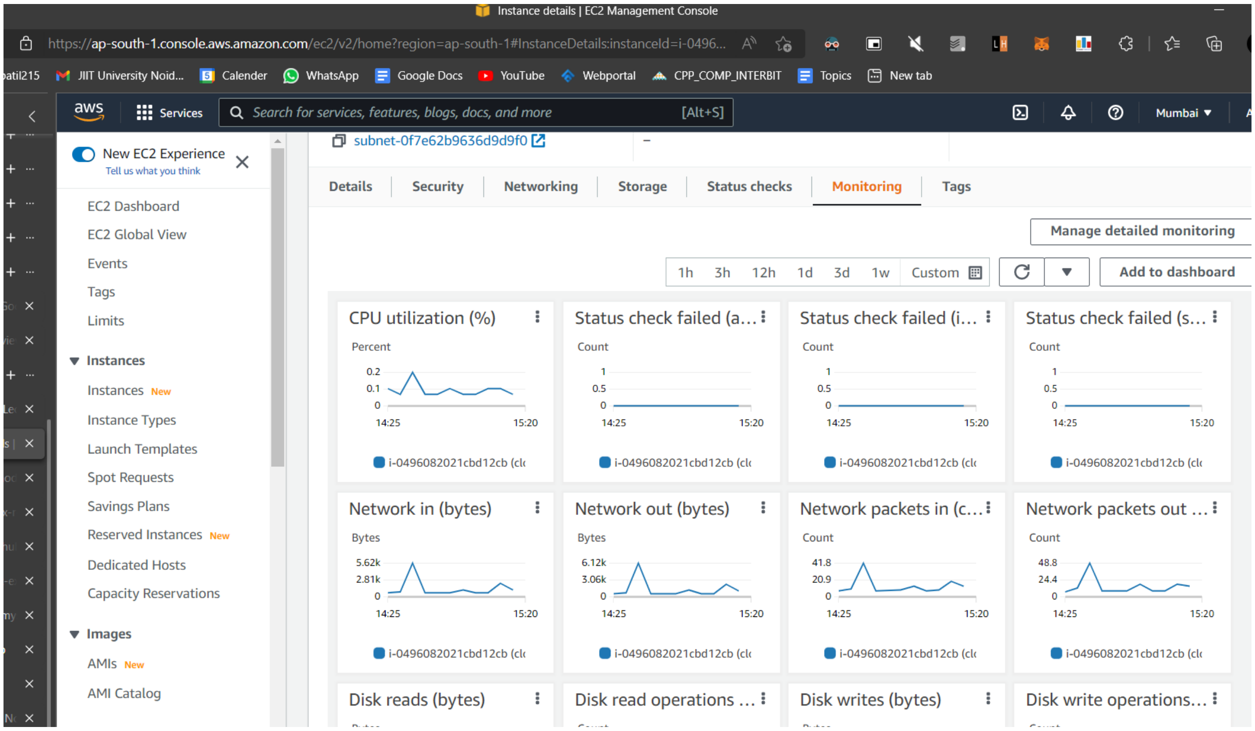
```
root@ip-172-31-11-140:/home/workspace/react-mysql# npm install -g serve

added 93 packages, and audited 94 packages in 5s

10 packages are looking for funding
  run `npm fund` for details
```

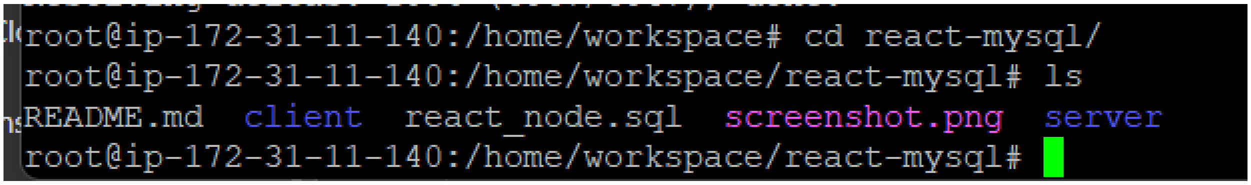
12 Steps of developed application execution

13 EC2 usage in the application (if used)



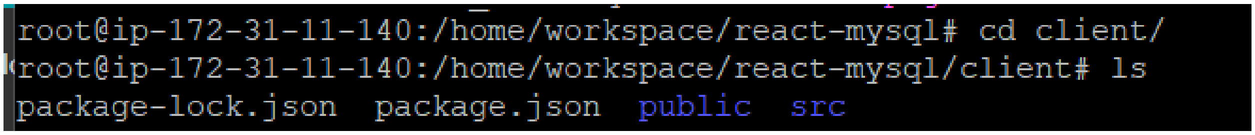
14 Code storage location (screenshots)

Workspace folder



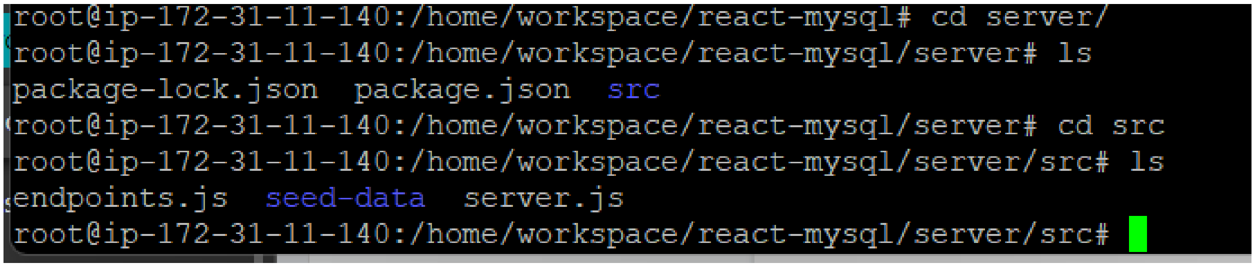
```
root@ip-172-31-11-140:/home/workspace# cd react-mysql/
root@ip-172-31-11-140:/home/workspace/react-mysql# ls
README.md  client  react_node.sql  screenshot.png  server
root@ip-172-31-11-140:/home/workspace/react-mysql#
```

Client Directory



```
root@ip-172-31-11-140:/home/workspace/react-mysql# cd client/
root@ip-172-31-11-140:/home/workspace/react-mysql/client# ls
package-lock.json  package.json  public  src
```

Server Directory



```
root@ip-172-31-11-140:/home/workspace/react-mysql# cd server/
root@ip-172-31-11-140:/home/workspace/react-mysql/server# ls
package-lock.json  package.json  src
root@ip-172-31-11-140:/home/workspace/react-mysql/server# cd src
root@ip-172-31-11-140:/home/workspace/react-mysql/server/src# ls
endpoints.js  seed-data  server.js
root@ip-172-31-11-140:/home/workspace/react-mysql/server/src#
```

15 References (along with Access Date for URL)

References