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Pillai College of Arts, Commerce & Science
(Autonomous)
Affiliated to University of Mumbai
NAAC Accredited 'A' grade (3 cycles)
Best College Award by University of Mumbai
ISO 9001:2015 Certified

Certificate

This is to Certify that ***Shreya Bhattacharjee*** has worked and duly completed her Project Work for the degree of Master of Data Analytics under the Faculty of Science in the subject of ***Cloud Computing*** and her/his project is entitled under my supervision.

I further certify that the entire work has been done by the learner under my guidance and that no part of it has been submitted previously for any Degree or Diploma of any University. It is her own work and facts reported by her personal findings and investigations.

Name and signature of guiding Teacher

(Manasi Khedekar)

Date of Submission:
2/03/2024

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Introduction

The food ordering system deployed on AWS EC2 utilizes the platform's Infrastructure-as-a-Service (IaaS) capabilities to provide a scalable and robust solution. Within this framework, EC2 instances host the application, offering flexible computing resources that can scale up or down based on demand. AWS services like RDS are employed to manage databases, ensuring efficient data storage and retrieval, while S3 is utilized for hosting static assets such as images and CSS files, enhancing application performance. Elastic Load Balancing is implemented to distribute incoming traffic across multiple EC2 instances, ensuring high availability and scalability by automatically routing requests to healthy instances. Security measures are enforced through IAM roles and VPC configurations, safeguarding sensitive data and resources. Continuous monitoring and management practices are in place to optimize performance and reliability, ensuring that the system operates efficiently and effectively at all times, providing users with a seamless and secure food ordering experience.

Technologies used

In your project, Infrastructure as a Service (IaaS) is utilized through several key technologies:

Infrastructure as a Service (IaaS) is a cloud computing model where users access virtualized computing resources, like servers and storage, over the internet. They rent these resources from a provider, paying only for what they use. With IaaS, users can scale resources easily without managing physical hardware, reducing costs and complexity. Examples of IaaS providers include AWS, Azure, and GCP.

1. EC2 (Elastic Compute Cloud) Instances: These are virtual servers where your food ordering system application is deployed. They provide computing resources like CPU, memory, and storage, allowing your system to run smoothly without the need for physical servers.

2. RDS (Relational Database Service): RDS manages your databases, offering scalable and managed solutions without the hassle of infrastructure management. It ensures efficient storage and retrieval of data for your application.

3. S3 (Simple Storage Service): S3 handles static assets such as images, CSS, and JavaScript files. It provides a scalable and durable storage solution, ensuring that your application's assets are easily accessible and reliably stored.

With IaaS:

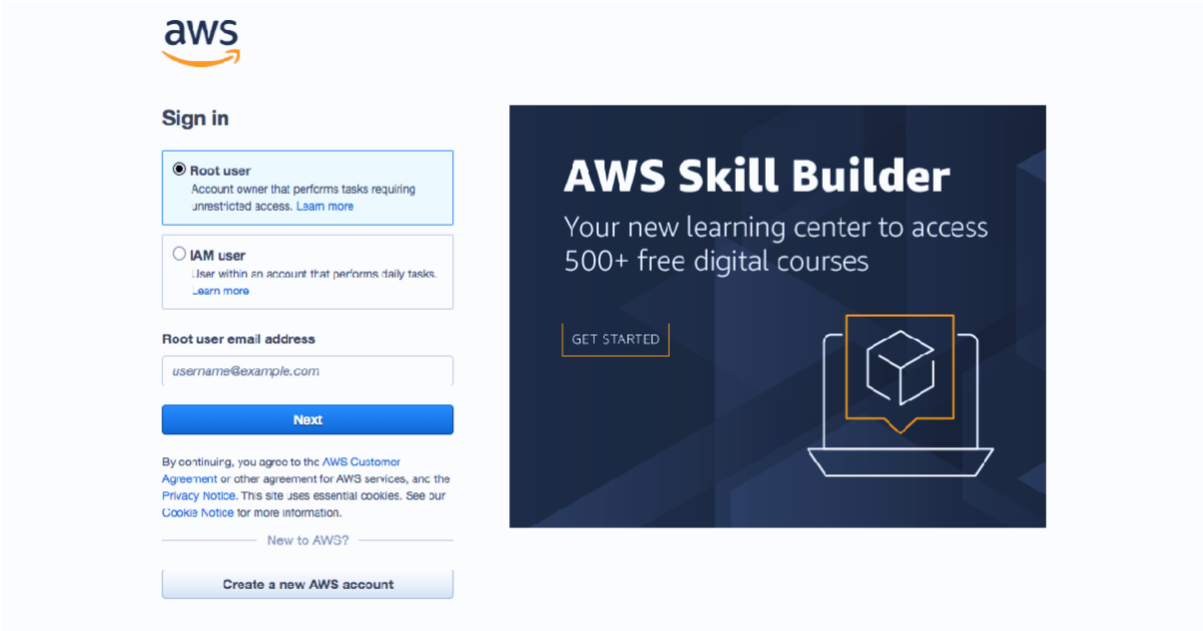
> You avoid the need to purchase and maintain physical servers, instead renting virtual servers (EC2 instances) on-demand, paying only for what you use.

> Scalability becomes more manageable as you can easily adjust resources allocated to your EC2 instances based on demand.

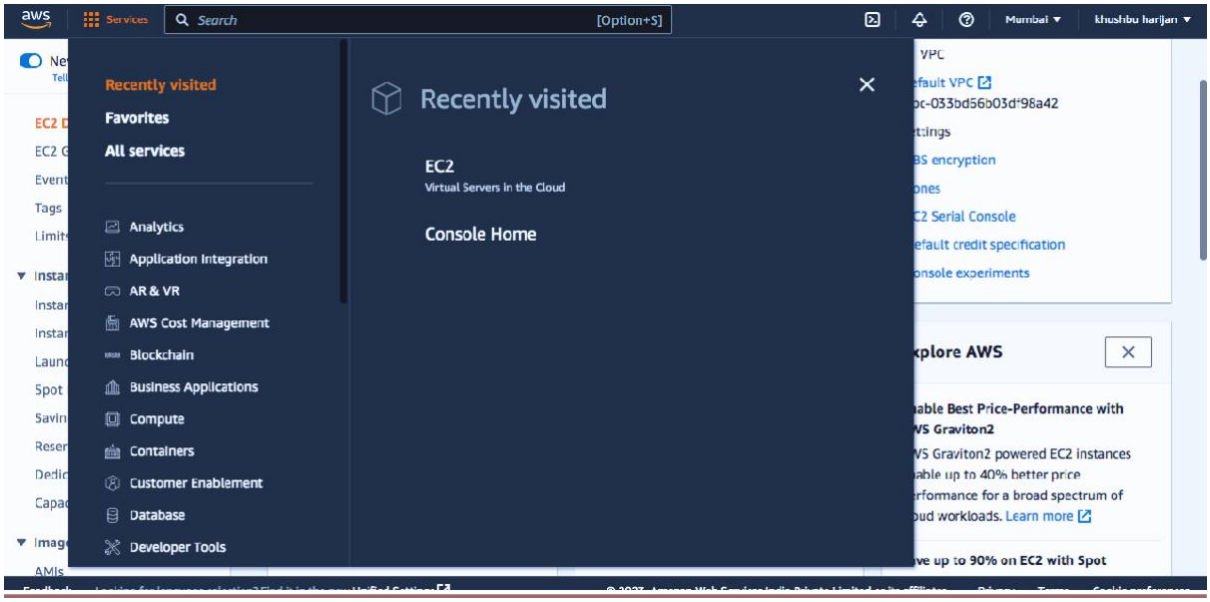
> Infrastructure management tasks like hardware provisioning and maintenance are abstracted away, allowing you to focus on developing and deploying your application without worrying about the underlying infrastructure.

Steps for deploying project in AWS

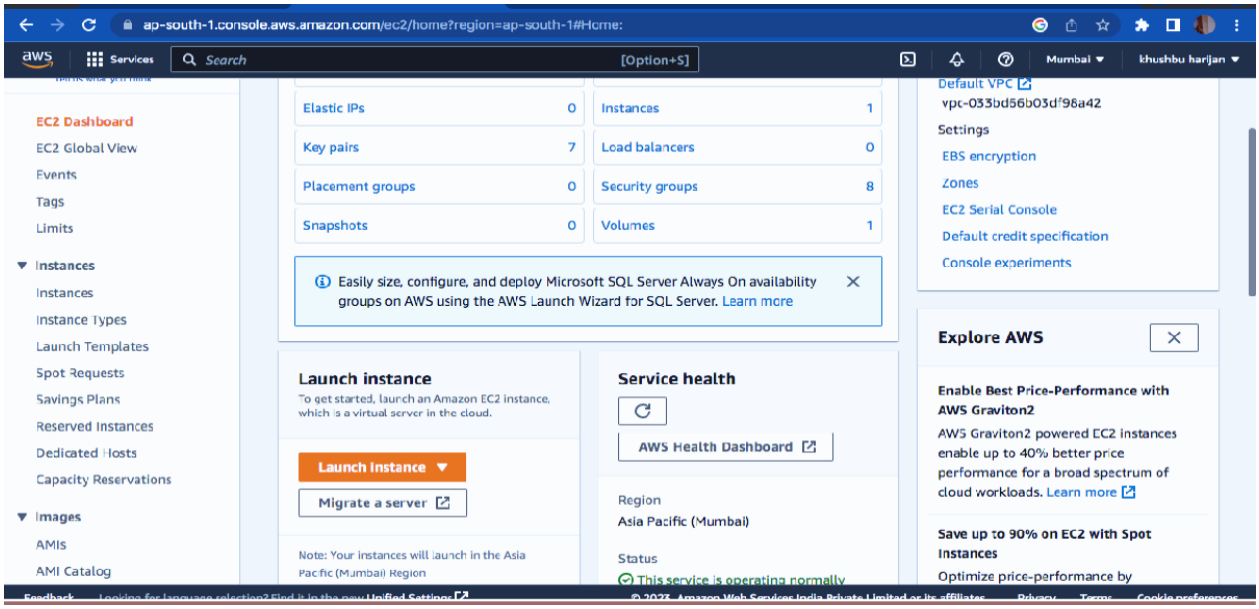
1. Open chrome browser and sign in with your root user



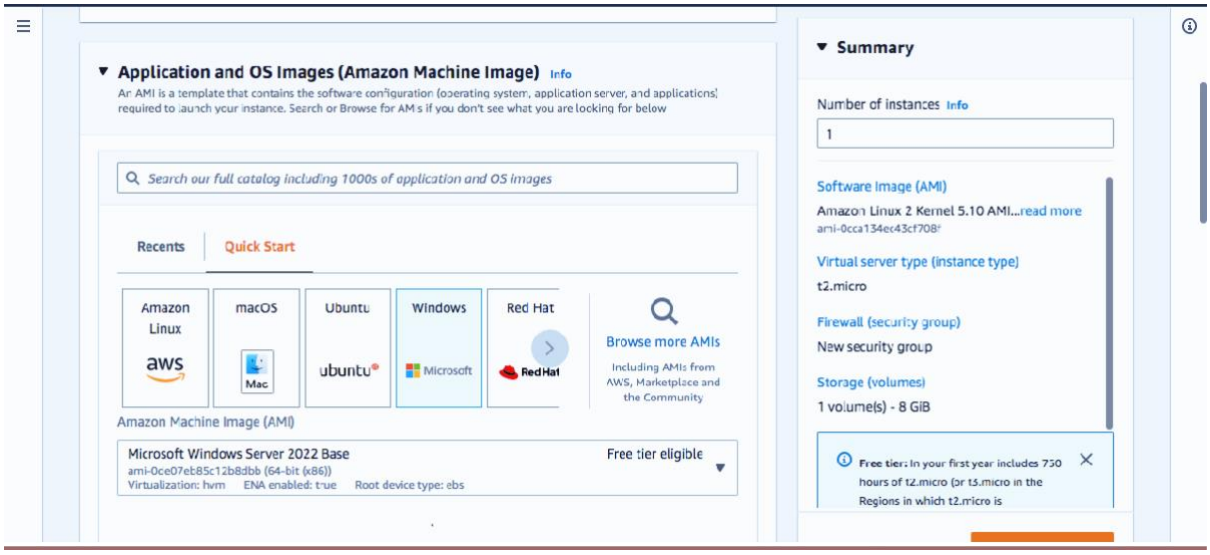
2. Click the service and select EC2



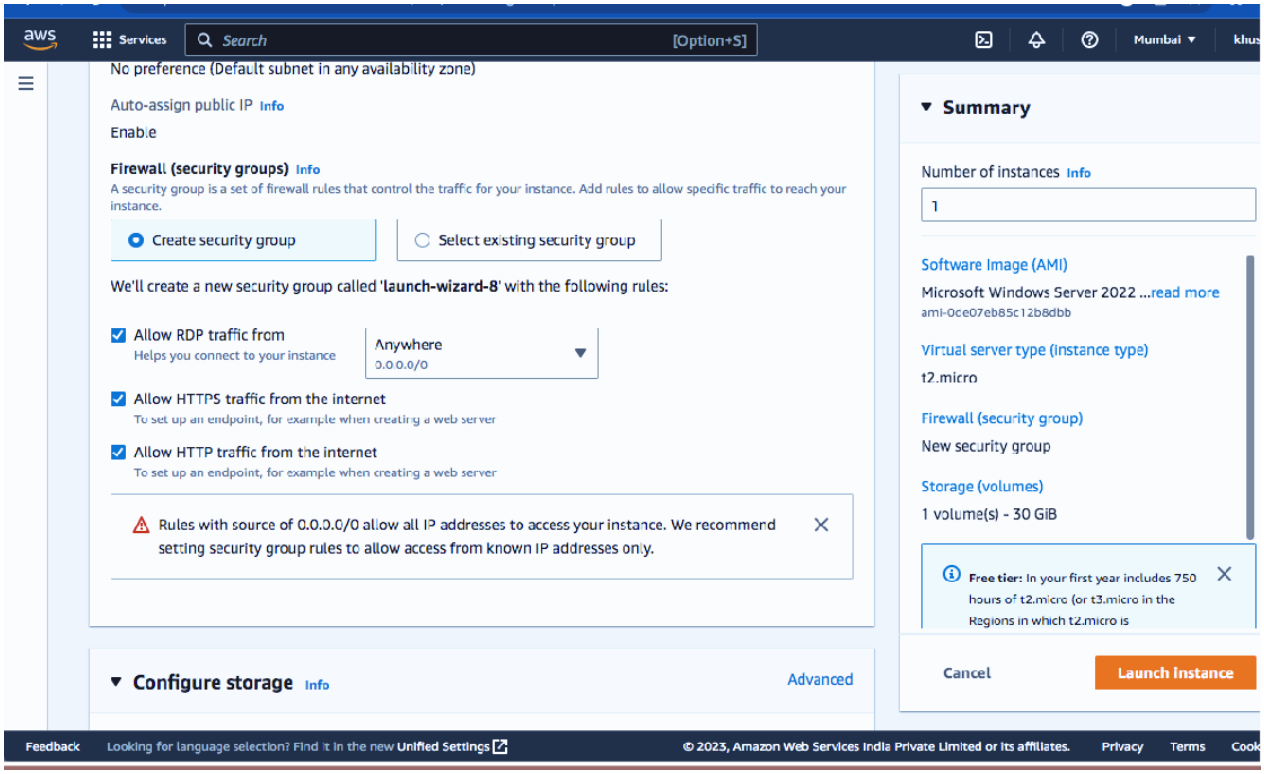
3. Click on instance (running) and launch the instance



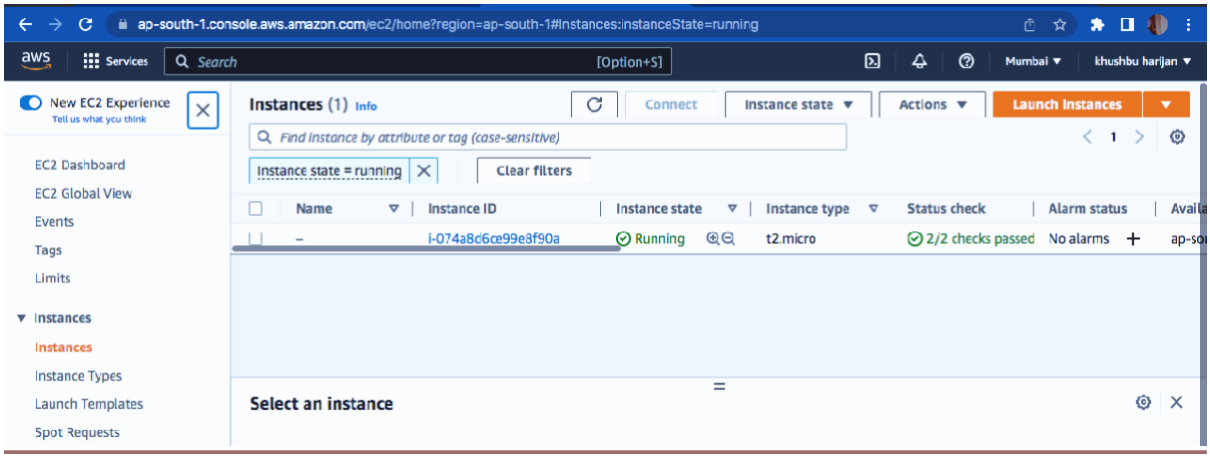
4. Select windows Microsoft free tier eligible



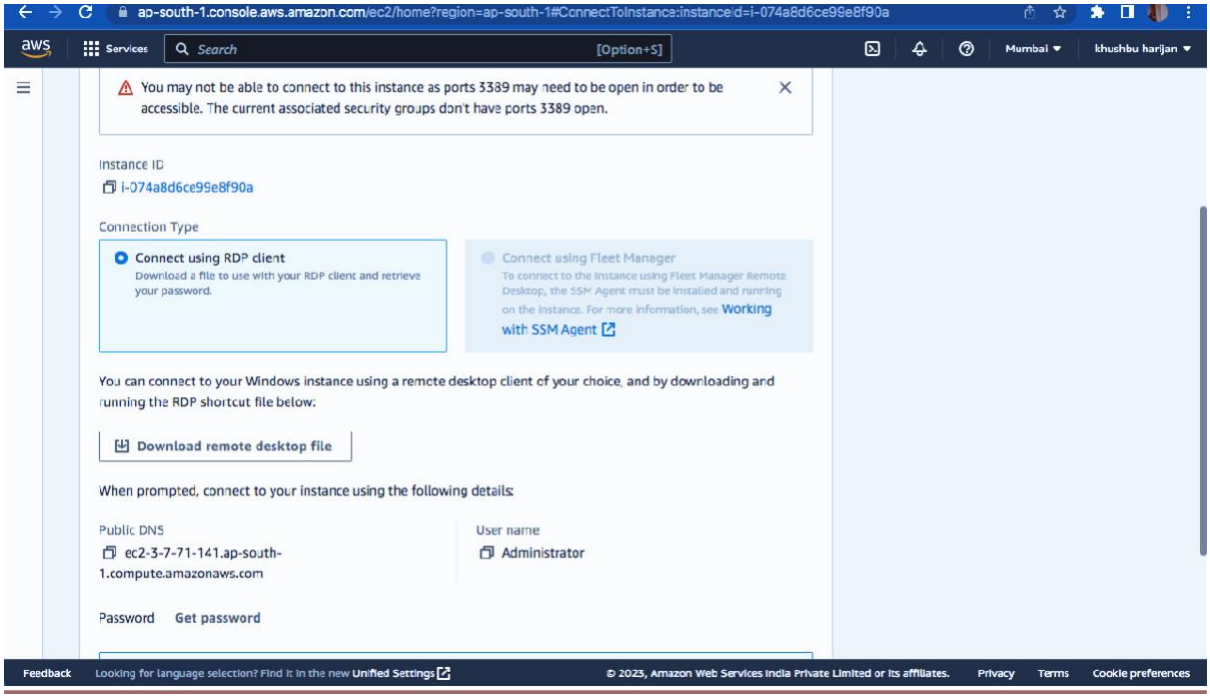
5. Select http and https and launch the instance



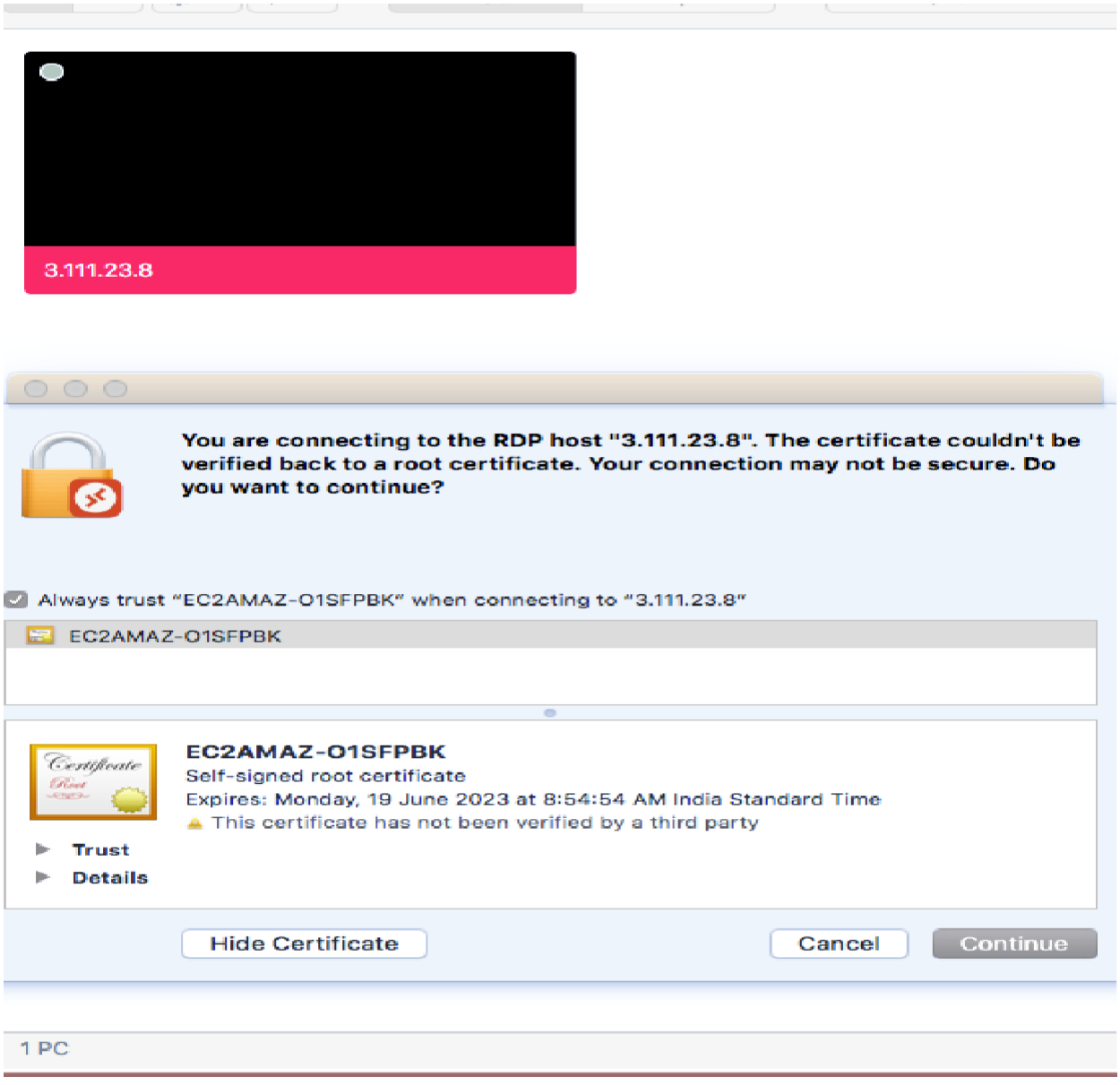
6. Select instance and click connect



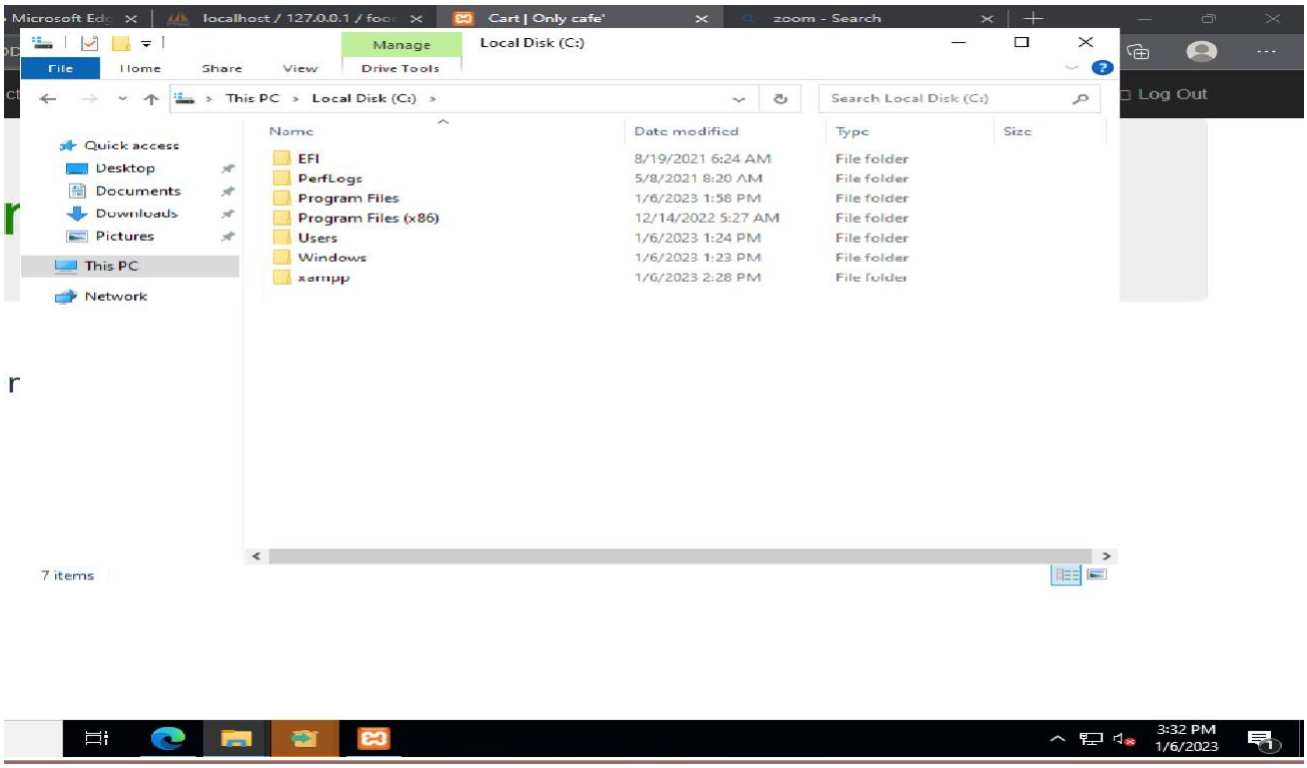
7. Select RDP client



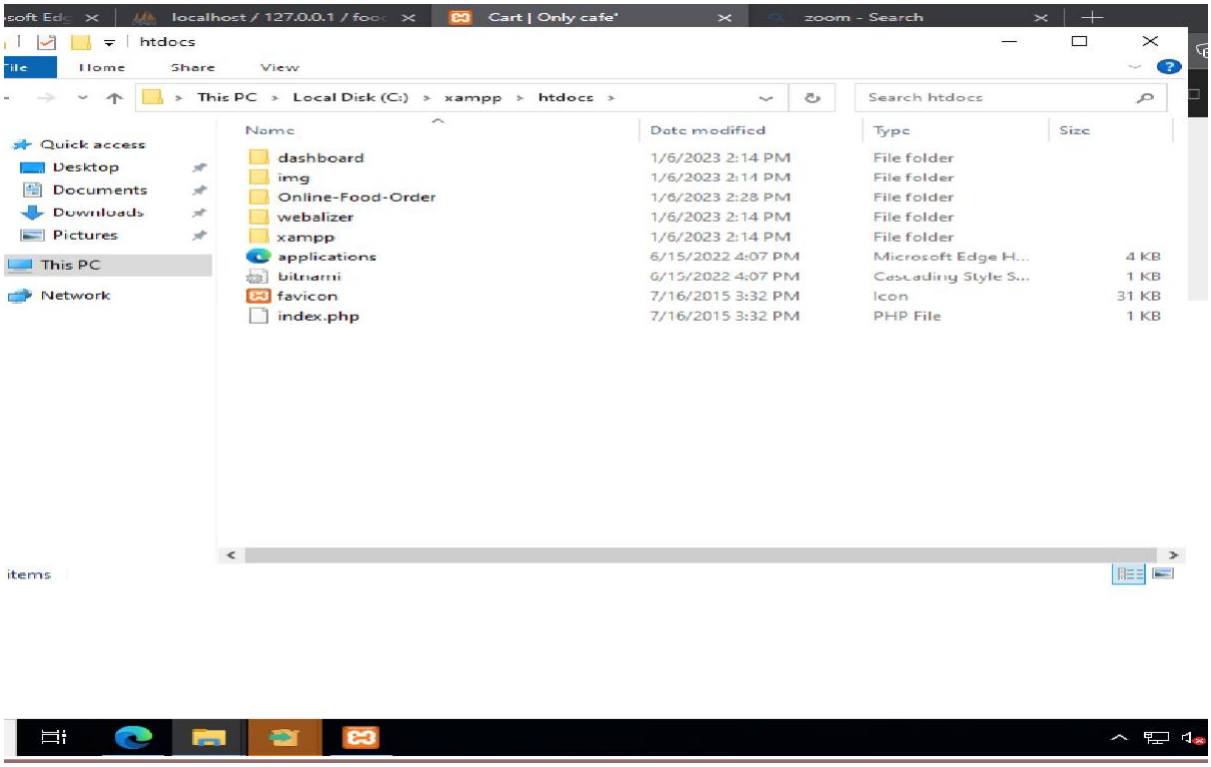
8. Copy public DNS link and open remote desktopand paste it



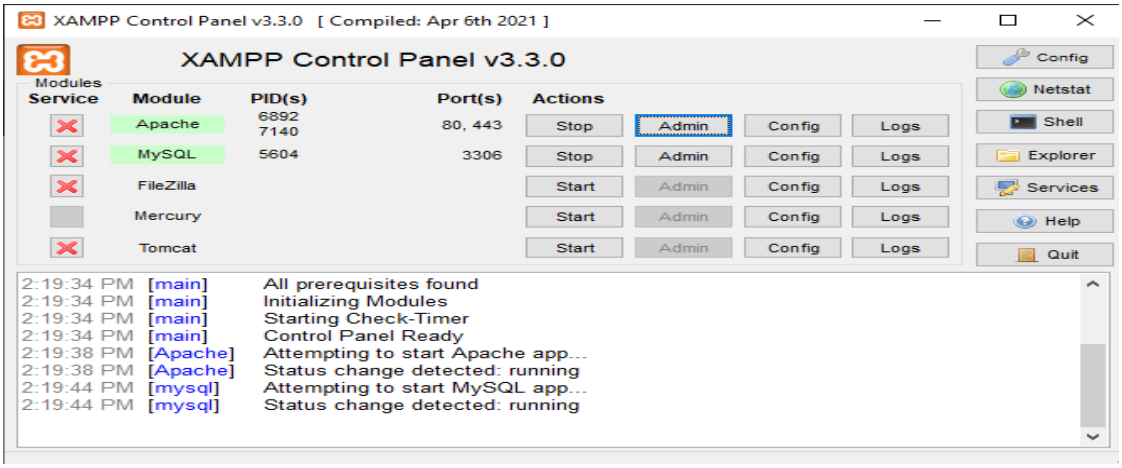
9. After login in remote desktop window will getappear
   download Xaamp in it
   Install Xaamp in c drive



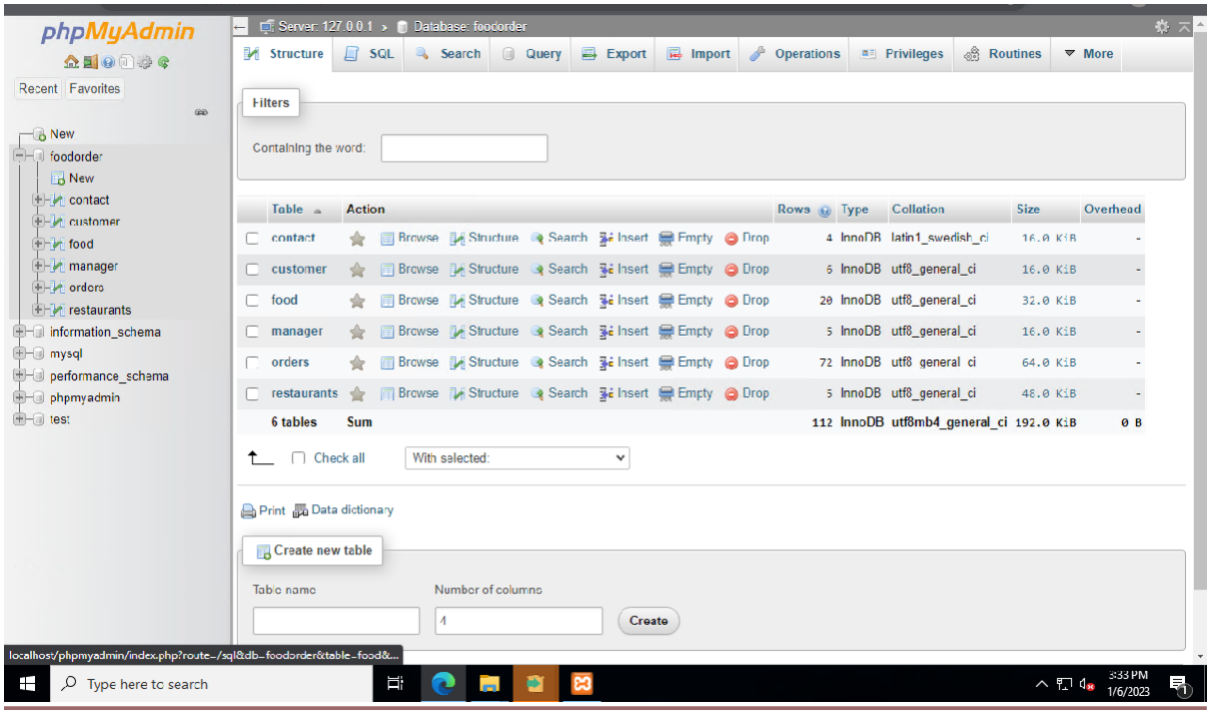
10. Open htdocs paste your project

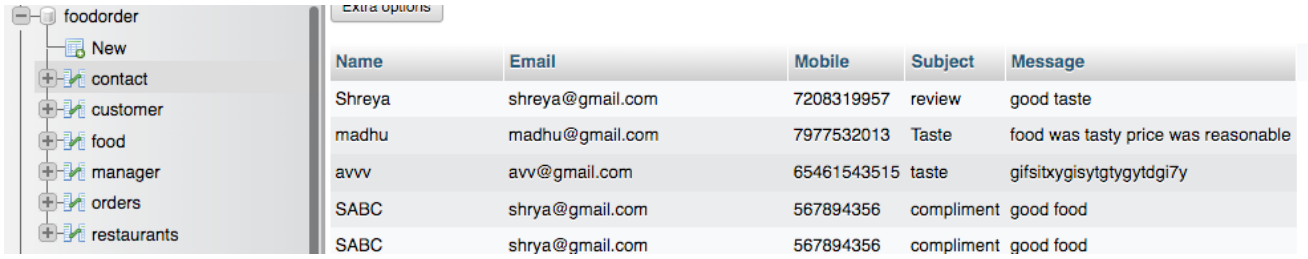


11. Open Xaamp and start apache and MySQL and click on Php my admin



12. Create database and name it as food order




foodorder
New
contact
customer
food
manager
orders
restaurants
Extra options
Name
Email
Mobile
Subject
Message
Shreya
shreya@gmail.com
7208319957
review
good taste
madhu
madhu@gmail.com
7977532013
Taste
food was tasty price was reasonable
avvv
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65461543515
taste
gifsitxygisytgtygytdgi7y
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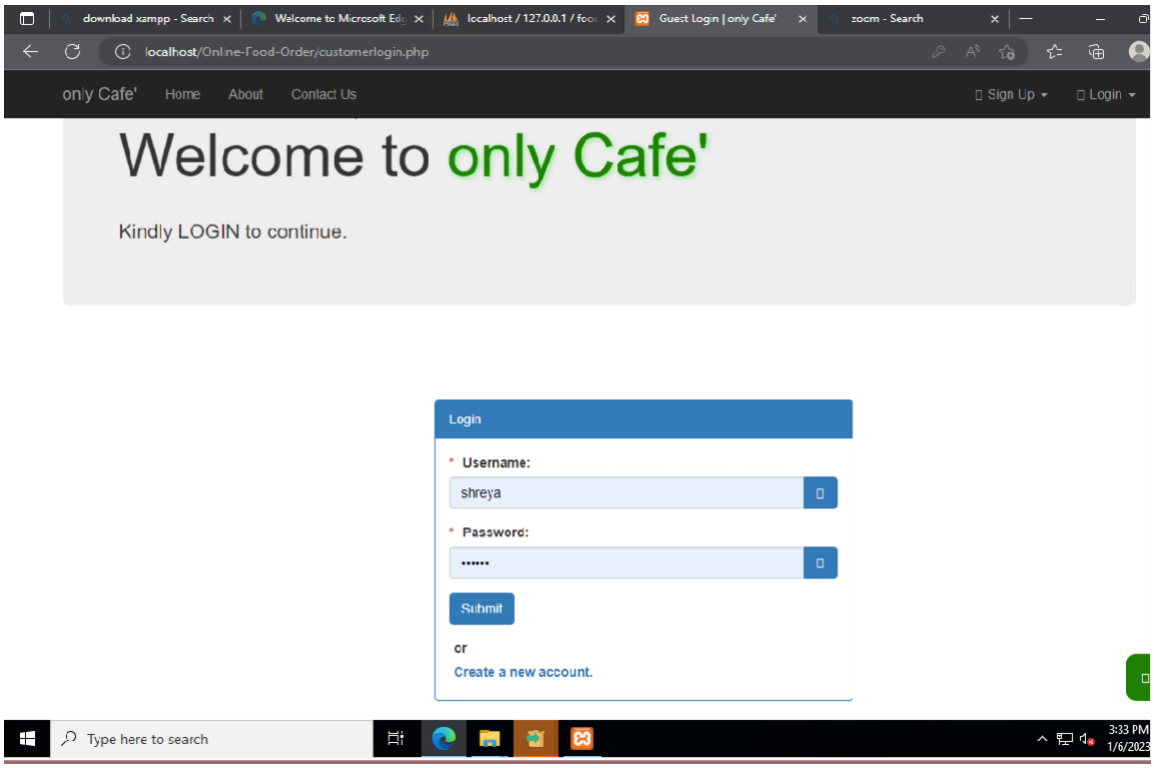
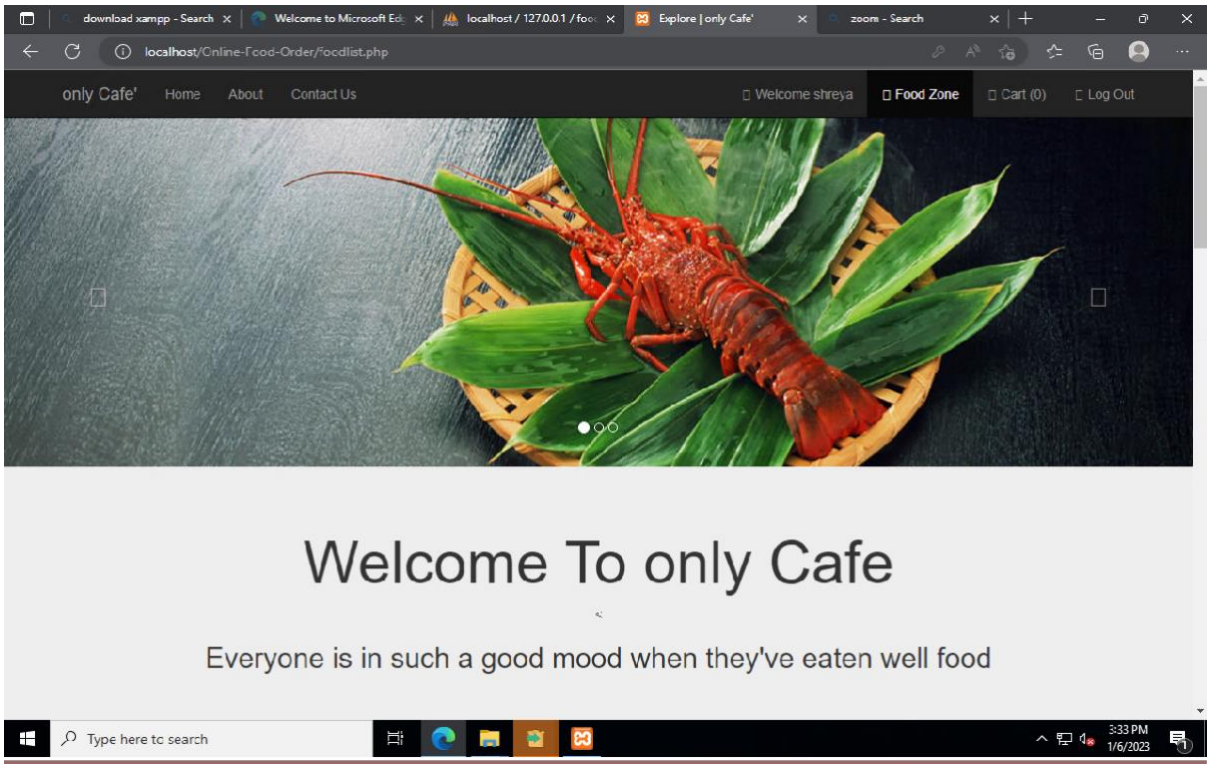
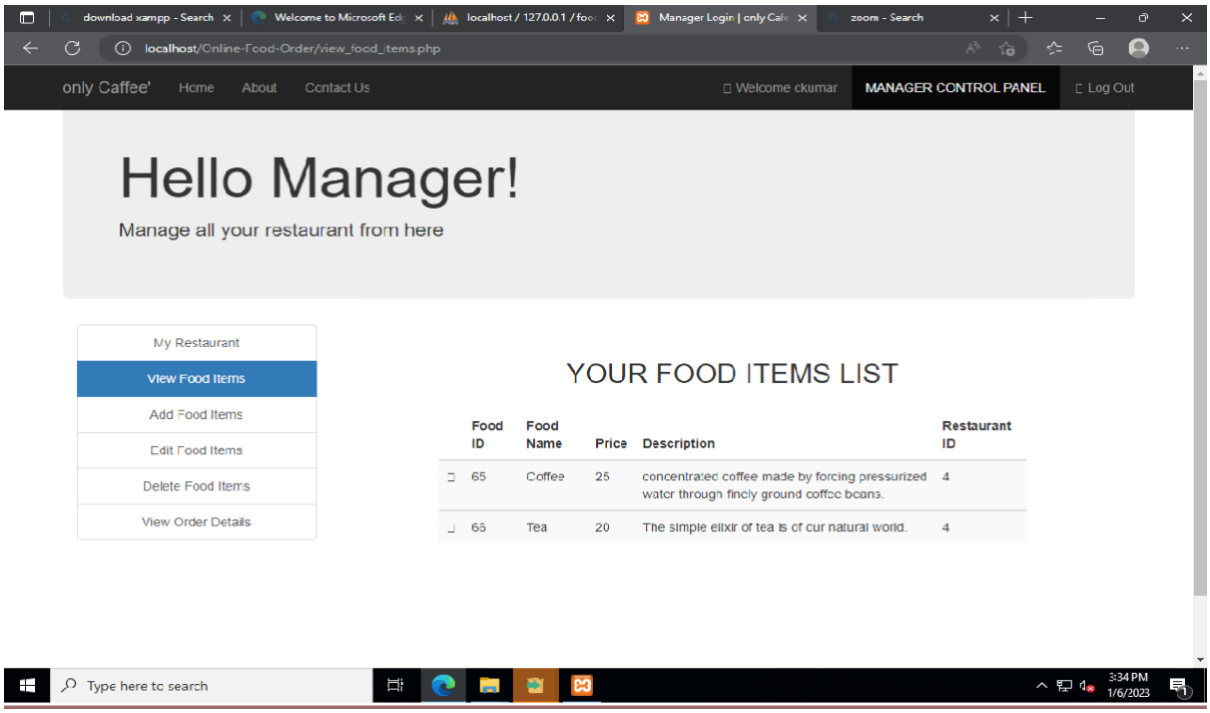
compliment
good food
SABC
shrya@gmail.com
567894356
compliment
good food

Output


localhost/Online-Food-Order/customerlogin.php
only Cafe'
Home
About
Contact Us
Sign Up
Login
Welcome to only Cafe'
Kindly LOGIN to continue.
Login
Username:
shreya
Password:
Submit
or
Create a new account.
Type here to search
3:33 PM
1/6/2023


download xampp - Search
Welcome to Microsoft Edg
localhost / 127.0.0.1 / foo
Explore | only Cafe'
zoom - Search
localhost/Online-Food-Order/foodlist.php
only Cafe'
Home
About
Contact Us
Welcome shreya
Food Zone
Cart (0)
Log Out
Welcome To only Cafe
Everyone is in such a good mood when they've eaten well food
Type here to search
3:33 PM
1/6/2023

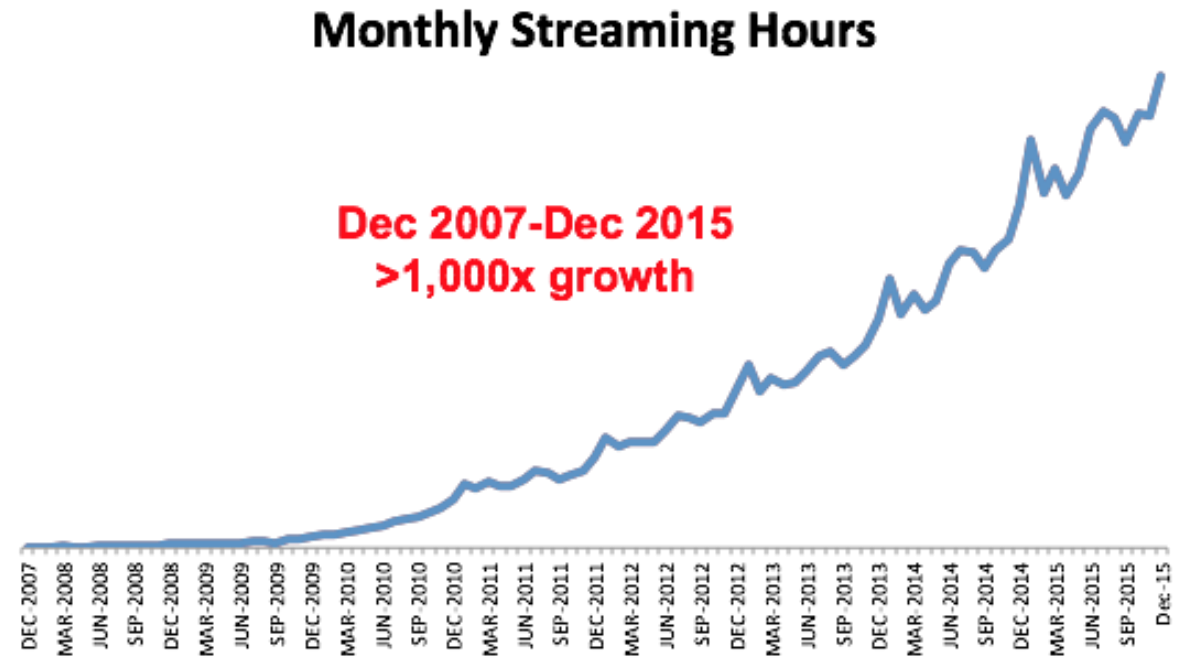

download xampp - Search
Welcome to Microsoft Edg
localhost / 127.0.0.1 / foo
Manager Login | only Cafe
zoom - Search
localhost/Online-Food-Order/view_food_tems.php
only Caffee'
Home
About
Contact Us
Welcome ckumar
MANAGER CONTROL PANEL
Log Out
Hello Manager!
Manage all your restaurant from here
My Restaurant
View Food Items
Add Food Items
Edit Food Items
Delete Food Items
View Order Details
YOUR FOOD ITEMS LIST
Food ID
Food Name
Price
Description
Restaurant ID
65
Coffee
25
concentrated coffee made by forcing pressurized water through finely ground coffee beans.
4
65
Tea
20
The simple elixir of tea is of our natural world.
4
Type here to search
3:34 PM
1/6/2023

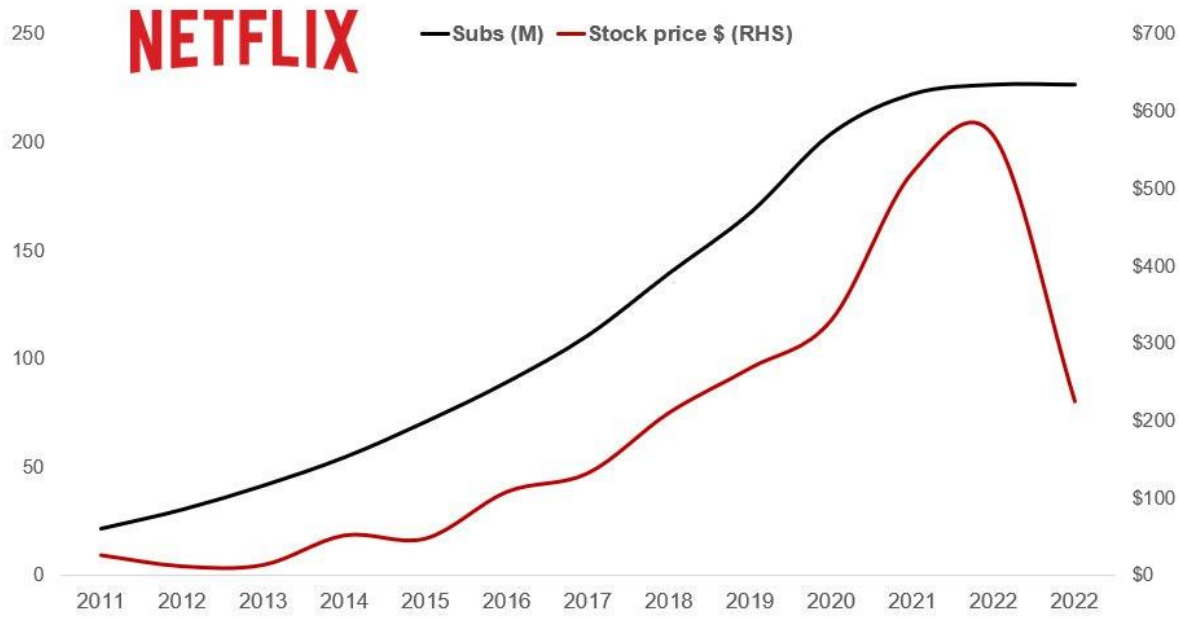
Conclusion:

Deploying the food ordering system on AWS EC2 utilizing Infrastructure as a Service (IaaS) capabilities offers numerous benefits. By leveraging EC2 instances for hosting, RDS for database management, and S3 for storage, the project benefits from scalability, reliability, and ease of management. The IaaS model eliminates the need for physical server maintenance and allows for flexible resource allocation based on demand. Overall, deploying on AWS EC2 as an IaaS solution streamlines infrastructure management, enabling focus on application development and ensuring efficient operation of the food ordering system.

Netflix AWS Case Study

Netflix was originally a DVD shipping business where they would send out DVDs of your chosen programs to you. This was going well until 2008 where they experienced a major database loss and for 3 days could not ship out any DVDs to their customers. That was when the senior management at Netflix realized that they had to shift from continuous vertical scaling which leads to single points of failure to a more reliable and scalable horizontal scaling system. They chose Amazon Web Services despite having Amazon as a competitor (Amazon has their own streaming service known as Amazon Prime) because AWS provided them with the greatest scaling capabilities and the biggest set of available features. It took 7 years of migration for Netflix to shut down their last remaining data centres and move completely to the cloud. Moving to the cloud has allowed Netflix to keep its existing members well engaged with overall viewing growing exponentially.





Netflix itself has continued to evolve rapidly by using many new features and relying on ever-growing volumes of data. Supporting this fast growth would not be possible earlier using

their own in-house data centres. Netflix could not have racked the servers fast enough to support their own growth. While Cloud brings elasticity, which allows Netflix to add thousands of virtual servers and petabytes of storage within minutes which makes the whole process easier.

As of January 2016, Netflix has expanded into 130 new countries. It uses multiple AWS Cloud regions which are spread all over the world to create a better and more enjoyable streaming experience for Netflix members wherever they are.

Netflix relies on Cloud for all its scalability, computing and storage needs (not only video streaming) — Netflix business logic, distributed databases, big data processing, analytics, recommendations, transcoding and hundreds of other functions that are used by Netflix all go through their Cloud infrastructure. Netflix also has its own Content Delivery Network (CDN) known as Netflix Open Connect which is used to deliver videos globally in an efficient manner.

When Netflix was using their own data centres, they faced a lot of outages. Cloud Computing is not perfect either, even though Netflix has hit some rough patches in the cloud, a steady increase in the overall availability has been noticed. Failures are ultimately unavoidable in any large-scale distribution system, even a cloud one. However, a Cloud-based system allows you to create redundancy measures while

become quite helpful. Cloud Computing has made it possible to survive failures without impacting the member experience.

Netflix did not shift to cloud for cost reduction reasons, but Netflix's cloud costs ended up being a fraction of their cost which was a pleasant surprise. This was due to the elasticity factor of cloud computing, enabling Netflix to continuously optimize instances to grow and shrink as per requirement without the need to maintain large capacity machines. Economies of Scale helps Netflix in this scenario.

The benefits are very clear, but it still took seven years for Netflix to complete the migration. Moving to the cloud is a lot of work and a lot of factors need to be considered. Netflix could easily move all of its existing systems to AWS but bringing existing systems also brings all the problems and limitations that were present. So, Netflix took the cloud-native approach, they rebuilt all of their technology and fundamentally changed the way they operate the whole company. Netflix migrated from a single application to thousands of micro-services.

Link: https://aws.amazon.com/solutions/case-studies/netflix-case-study/

Conclusion

Netflix's migration to AWS cloud revamped its infrastructure, ensuring scalability and reliability. Embracing cloud-native principles and microservices fueled innovation and operational efficiency. Despite challenges, the outcomes surpassed expectations, enhancing streaming quality and customer satisfaction. This strategic move solidified Netflix's position as an industry leader, underscoring the critical role of cloud technology in business growth and user satisfaction.