D. Y. PATIL COLLEGE OF ENGINEERING, AKURDI, PUNE

Affiliated to

SAVITRIBAI PHULE PUNE UNIVERSITY

Department of Information Technology

Internship Report

on

"CLOUD COMPUTING"

By

Harshita Totala [TEITA14]

Under the guidance of

Guide Name: Ms. Amita Jajoo

Course Name: Internship

Course code: 314455

Semester-II

Class-TE

2022-2023

D. Y. PATIL COLLEGE OF ENGINEERING, AKURDI, PUNE

Affiliated to

SAVITRIBAI PHULE PUNE UNIVERSITY

Department of Information Technology

CERTIFICATE

This is to certify that,

Harshita Totala [TEITA14]

of class TE have successfully completed their Internship work on "Cloud Computing" with Intern Crowd under the guidance of Ms. Amita Jajoo for course Internship 314455 at D. Y. Patil College of Engineering in the partial fulfilment of the Graduate Degree course in TE at the Department of Information Technology, in the academic Year 2022-2023 Semester-II as prescribed by the Savitribai Phule Pune University.

Date:

Ms. Amita Jajoo
Guide

Dr. Preeti Patil
HoD, IT

Acknowledgement

We take this opportunity to thank our Internship guide **Ms. Amita Jajoo** for her guidance and constant supervision as well as providing necessary information regarding project and also for her support in completing the seminar.

We would like to express our gratitude towards our Head of the Department **Dr. Preeti Patil** for their valuable guidance, kind co-operation and encouragement and for providing all the necessary facilities, which were indispensable in the completion of this project report. We are also thankful to all the staff members of the Department of Information Technology of D. Y. Patil College of Engineering, Akurdi for their valuable time, support, comments, suggestions and persuasion. We would also like to thank the institute for providing the required facilities, Internet access and important books.

Harshita Totala [TEITA14]

Internship Place Details – Company background:

INTERN CROWD a software company situated in Indore, Madhya Pradesh is an online coding platform that offers specially programming courses for students. The main aim is what's a better approach for students is to grasp and adapt to the technology around them. Also to gain experience in various domains and choose their career path by gaining new skills and knowledge and strengthening the resume.

We offer various virtual internship programs in various domains like C++ development, Java development, Android development, Web development, cloud development, digital marketing with a period of 4 weeks (16 hours).

The internship consists of 3 tasks out of which 2 tasks are compulsory to be completed within 4 weeks. Throughout the internship, mentorship is provided along with doubt sessions. We also provide placement related questions and mock interview question to help student get job-ready.

Contents

Sr. No.	Topic	Page No.
1.	Introduction	1
2.	Problem Statement	8
3.	Objective	9
4.	Motivation/Scope	10
5.	Methodological Details	11
6.	Result and analysis	15
7.	Conclusion	23
8.	References	24

Introduction:

Internship program has become the bridge for those who want to enter to corporate level from the college life, through internship one gets to know the real working environment. All the experience helped realize parts like grouping work, work environment, peering support, carried out in the organization. Thus, the internship duration provided with the opportunity to broaden knowledge, acknowledge the strengths/weakness that would be more helpful to shape up career in the future. The primary objective of the internship is to generate a thorough understanding of the work place relationship, performing of the activities and engaging oneself in the working environment. In a way, it was more to get practical implication of all the studies, theories that have acquired so far.

Cloud computing is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software. Rather than keeping files on a proprietary hard drive or local storage device, makes it possible to save them to a remote database. As long as an electronic device has access to the web, it has access to the data and the software programs to run it. Cloud computing is a popular option for people and businesses for a number of reasons including cost savings, increased productivity, speed and efficiency, performance, and security. Cloud computing is the delivery of different services through the Internet, including data storage, servers, databases, networking, and software. Cloud storage has grown increasingly popular among individuals who need larger storage space and for businesses seeking an efficient off-site data back-up solution. Cloud-based storage makes it possible to save files to a remote database and retrieve them on demand. Services can be both public and private—public services are provided online for a fee while private services are hosted on a network to specific clients. Cloud security has become an increasingly important field in IT.

Understanding Cloud Computing:

1.Cloud computing is named as such because the information being accessed is found remotely in the cloud or a virtual space. Companies that provide cloud services enable users to store files and applications on remote servers and then access all the data via the Internet. This means the user is not required to be in a specific place to gain access to it, allowing the user to work remotely.

2.Cloud computing takes all the heavy lifting involved in crunching and processing data away from the device you carry around or sit and work at. It also moves all of that work to huge computer clusters far away in cyberspace. The Internet becomes the cloud, and voilà—your data, work, and applications are available from any device with which you can connect to the Internet, anywhere in the world.

3.Cloud computing can be both public and private. Public cloud services provide their services over the Internet for a fee. Private cloud services, on the other hand, only provide services to a certain number of people. These services are a system of networks that supply hosted services. There is also a hybrid option, which combines elements of both the public and private services.

Advantages of Cloud Computing:

1.In today's connected world, Cloud-based software offers companies from all sectors a number of benefits, including the ability to use software from any device either via a native app or a browser. As a result, users can carry their files and settings over to other devices in a completely seamless manner.

2.Cloud computing is far more than just accessing files on multiple devices. Cloud computing services also make it possible for users to back up their music, files, and photos, ensuring those files are immediately available in the event of a hard drive crash.

3.It also offers big businesses huge cost-saving potential. Before the cloud became

a viable alternative, companies were required to purchase, construct, and maintain costly technology and infrastructure. Companies can swap costly server centers and IT departments for fast Internet connections, where employees interact with the cloud online to complete their tasks.

4.The cloud structure allows individuals to save storage space on their desktops or laptops. It also lets users upgrade software more quickly because software companies can offer their products via the web rather than through more traditional, tangible methods involving discs or flash drives. For example, Adobe customers can access applications in its Creative Cloud through an Internet-based subscription. This allows users to download new versions and fixes to their programs easily.

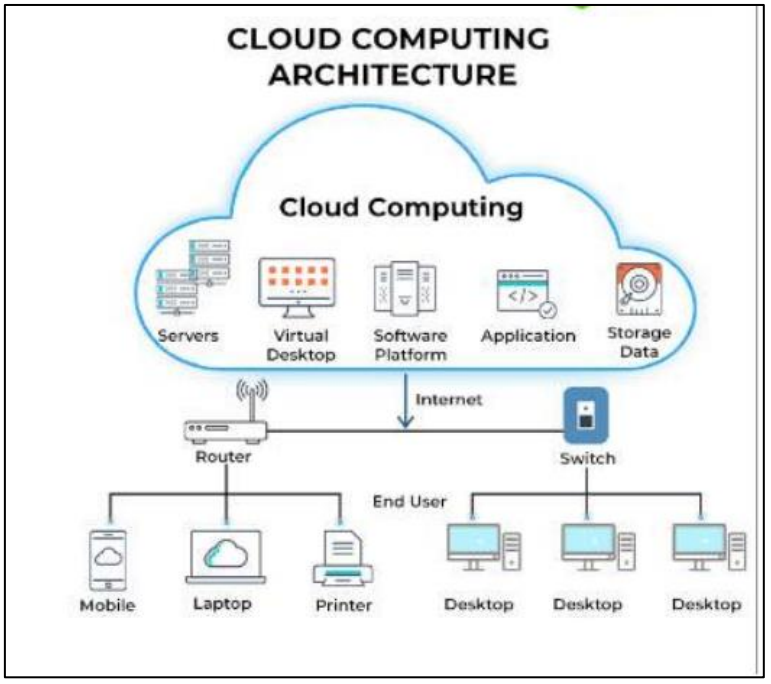


Fig-1 Overview of cloud computing

Introduction to Amazon Web Services:

1.Amazon Web Services (AWS), a subsidiary of Amazon.com, has invested billions of dollars in IT resources distributed across the globe.

2.These resources are shared among all the AWS account holders across the globe. These account themselves are entirely isolated from each other.

3.AWS provides on-demand IT resources to its account holders on a pay-as-you-go pricing model with no upfront cost.

4.Amazon Web services offers flexibility because you can only pay for services you use or you need. Enterprises use AWS to reduce capital expenditure of building their own private IT infrastructure (which can be expensive depending upon the enterprise's size and nature).

5.AWS has its own Physical fiber network that connects with Availability zones, regions and Edge locations. All the maintenance cost is also bared by the AWS that saves a fortune for the enterprises.

6.Security of cloud is the responsibility of AWS but Security in the cloud is Customer's responsibility.

7.The Performance efficiency in the cloud has four main areas:-

- Selection
- Review
- Monitoring
- Trade off

Amazon Web Services offers a broad set of global cloud-based products including compute ,storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security, and enterprise applications: on-demand, available in seconds, with pay-as-you-go pricing New services can be provisioned quickly, without the upfront fixed expense. This allows enterprises, start ups, small and medium-sized businesses, and customers in the public sector to access the building blocks they need to respond quickly to changing business requirements. This whitepaper provides you with an overview of the benefits of the AWS Cloud and introduces you to the services that make up the platform.

In 2006, Amazon Web Services (AWS) began offering IT infrastructure services to businesses as web services—now commonly known as cloud computing. One of the key benefits of cloud computing is the opportunity to replace upfront capital infrastructure expenses with low variable costs that scale with your business.With the cloud, businesses no longer need to plan for and procure servers and other IT infrastructure weeks or months in advance. Instead, they can instantly spin up hundreds or thousands of servers in minutes and deliver results faster. Today, AWS provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of businesses in 190 countries around the world.

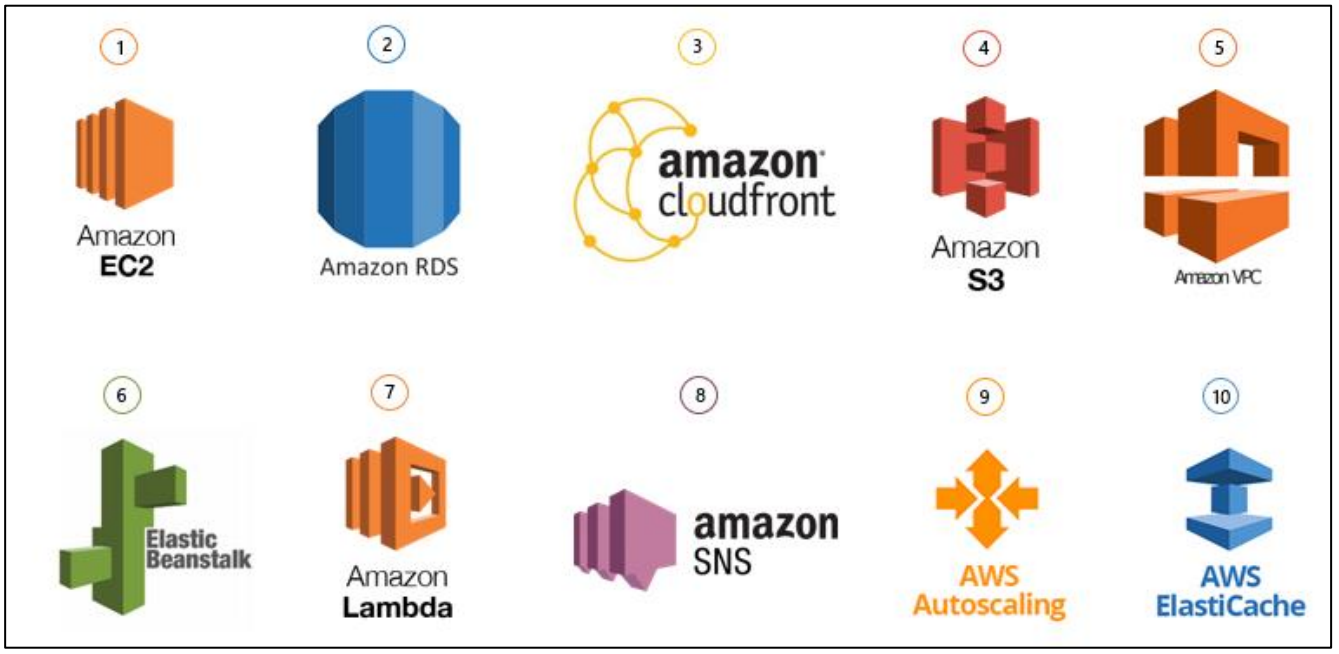


Fig-2 AWS services

Amazon EC2:

Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

Amazon EC2 provides the following features:

- Virtual computing environments, known as instances
- Preconfigured templates for your instances, known as Amazon Machine Images (AMIs), that package the bits you need for your server (including the operating system and additional software)
- Various configurations of CPU, memory, storage, and networking capacity for your instances, known as instance types.
- Secure login information for your instances using key pairs (AWS stores the public key, and you store the private key in a secure place)
- A firewall that enables you to specify the protocols, ports, and source IP ranges that can reach your instances using security groups
- Virtual networks you can create that are logically isolated from the rest of the AWS Cloud, and that you can optionally connect to your own network, known as virtual private clouds (VPCs).

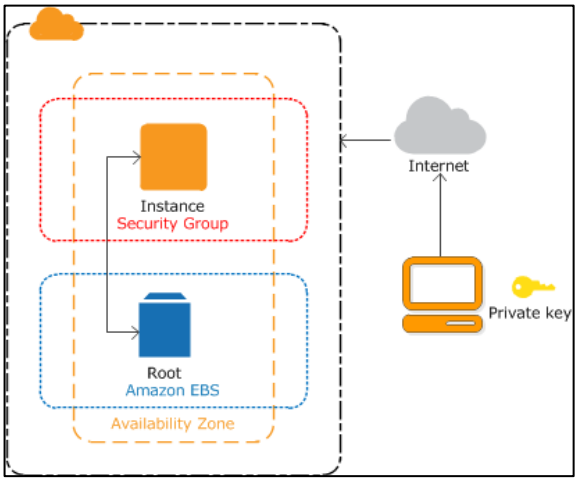


Fig-3 Amazon Elastic Cloud Compute

Amazon S3:

Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance. This means customers of all sizes and industries can use it to store and protect any amount of data for a range of use cases, Amazon S3 provides easy-to-use management features so you can organize your data and configure finely-tuned access controls to meet your specific business, organizational, and compliance requirements. Amazon S3 is designed for 99.999999999% (11 9's) of durability, and stores data for millions of applications for companies all around the world.

Amazon S3 provides following features:

- Simple: S3 also provides full REST APIs and SDKs for easy integration with third-party technologies.
- Scalable: With Amazon S3, you can store as much data as you want and access it when needed.
- Secure: Amazon S3 supports data transfer over secured channel and automatic protection of your data once it is uploaded. You can also configure bucket policies to manage object permissions and control access to your data using Amazon Identity and Access Management (IAM).
- Query in Place: Only Amazon Web Services offers Amazon S3 Select, a way to retrieve only the subset of data you need from an S3 object.

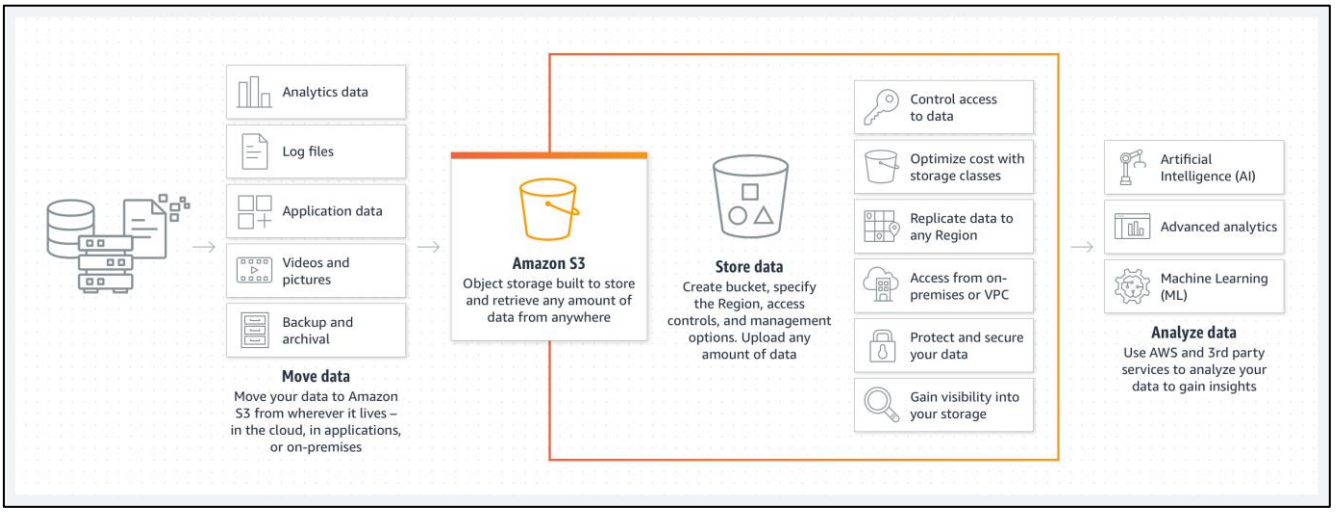


Fig-4 Amazon Simple Storage Service

Problem Statement:

For cloud computing internship, need to complete any 2 tasks out of 3 given tasks:

TASK 1: Host a static website with S3:

The static web content including HTML, CSS, JavaScript, images and other files will be stored in Amazon S3. The end users will then access the site using the public website URL exposed by Amazon S3. No need to run any web servers or use other services in order to make the site available

TASK 2: Host a Dynamic website on EC2:

When a web page is dynamic, users can engage in interactive user interactions. In this project, host a dynamic website on Amazon Web Services (AWS) and use client-side and server-side languages such as CSS, PHP, HTML, ASP, and JavaScript in the website creation process.

Objective:

The purpose of internship is to get expose to real work of environment experience and at the same time to gain knowledge through hands on observation and job execution. From industry experience and training ,students will develop skills in work ethics, communication, management and others. Moreover, this practical training program allows students to relate theoretical knowledge with its application in manufacturing industry.

The objective of cloud computing internship is to deploy the websites using various cloud provider available in market. For increase focus on business, faster time to market, increased business agility and reduced operational costs for development. Today cloud computing is the booming technology in the industry because of its availability, scalability and effectiveness along with speed . The internship projects helps to have a basic understanding of cloud and its services provided by various cloud providers like AWS, Azure, GCP.

Cloud computing helps startups manage shifting computing requirements by providing greater flexibility in the computing services they purchase. A cloud-based IT infrastructure is more versatile – notably in terms of scalability – than is local, intranet-based infrastructure. Because cloud vendors can build more redundancy into a system than a company can build into its own intranet, the cloud vendor can spread its infrastructure investment costs across its entire customer base, allocating resources as necessary.

The main objective of cloud computing internship are :To learn fundamental concepts of cloud computing and including storage, database, networking, virtualization, containers, and cloud architecture. To Create an AWS Free Tier account and launch your first virtual servers on the AWS Cloud To Configure elasticity, high availability and fault tolerance using Amazon EC2. To Create and configure storage services and upload files and objects using Amazon S3.

Motivation/Scope:

1. To gain experience:

   Intern get to see and experience the different roles that people play in certain companies and see working life from different perspectives. This is good to take into the working world because, at times, there will be various tasks involving different elements of the company.

2. To have better understanding:

   An internship allows you to take time to understand role, tasks, and the industry. Internships want to leave knowing more than you came with, and this is most likely the outcome. Take this opportunity to understand each task given and every new tool being in use.

3. Gain the ability to put new things into practice:

   Try out new skills and tools without the pressure of being wrong. Internships are a time to experiment, and people who hire you for that internship know that. They expect intern to learn from mistakes and use this as motivation to get better at the things.

4. Build confidence:

   Whether it be public speaking, giving presentations, or simply suggesting new ideas, internships will build confidence which allows to grow as both a worker and a person.

5. To get feel of different industries:

   Internships allows you to get a feel for different industries in a small period of time. As a intern they get to know the difference in content, how they work and why they work.

6. To communicate:

   Internships require to work both individually and within a team. Learn to communicate in new ways to build professional working relationships with people of all ages. This is great because it allows to be open to other people's ideas and to get creative in a team in order to build better ideas and, ultimately, to build a better company.

Methodological Details:

Brief about the tasks:

TASK 1: Host a static website with Amazon S3

- Amazon Web Services offers cloud web hosting solutions that provide businesses, non-profits, and governmental organizations with low-cost ways to deliver their websites and web applications.

- Static websites deliver HTML, JavaScript, images, video and other files to your website visitors and contain no server-side application code, like PHP or ASP.NET. They typically are used to deliver personal or marketing sites.

- Static websites are very low cost, provide high-levels of reliability, require no server administration, and scale to handle enterprise-level traffic with no additional work.

- Amazon S3 is object storage with a simple web service interface to store and retrieve any amount of data from anywhere on the web. It is designed to deliver 99.999999999% durability and scale past trillions of objects worldwide.

- To use S3 for a static website, you simply upload files to an S3 bucket and configure your S3 bucket for web hosting.

- Created a simple static website of attendance system where the teacher logins and marks the attendance of students and hosted this static website with S3.

Steps to enable static website hosting:

1. Sign in to the AWS Management Console and open the Amazon S3 console at https://console.aws.amazon.com/s3/.
2. In the Buckets list, choose the name of the bucket that you want to enable static website hosting for.

3. Choose Properties.
4. Under Static website hosting, choose Edit.
5. Choose Use this bucket to host a website.
6. Under Static website hosting, choose Enable.
7. In Index document, enter the file name of the index document, typically index.html.

   The index document name is case sensitive and must exactly match the file name of the HTML index document that you plan to upload to your S3 bucket. When you configure a bucket for website hosting, you must specify an index document. Amazon S3 returns this index document when requests are made to the root domain or any of the subfolders.

   Choose Save changes.

   Amazon S3 enables static website hosting for your bucket. At the bottom of the page, under Static website hosting, you see the website endpoint for your bucket.

8. On the website endpoint, if a user requests an object that doesn't exist, Amazon S3 returns HTTP response code 404 error. If the object exists but you haven't granted read permission on it, the website endpoint returns HTTP response code 404 (Not found).

9. Edit S3 Block Public Access Settings: If you want to configure an existing bucket as a static website that has public access, you must edit Block Public Access settings for that bucket.

10. Under Static website hosting, note the Endpoint. The Endpoint is the Amazon S3 website endpoint for your bucket. After you finish configuring your bucket as a static website, you can use this endpoint to test your website

TASK 2: Host a dynamic website on EC2.

- Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster.

- Can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

- A Dynamic Website is the most widely used type of website used by businesses and organizations to interact with the customers. A dynamic website uses server-side processing and technologies such as PHP, Java, or .NET to build web pages that are customized as per the visitor requests.

- Created a dynamic website pharmacy management system using Django as backend and Bootstrap4 as frontend technology where in admin can login as superuser and checks for orders given by users for different product items and medicines.

Steps to host dynamic website on EC2:

1. Click on Services--->Then, EC2.
2. Click on the left panel Instances--->Then click Launch instance.
3. Choose Amazon Linux AMI ---->Select the instance type you want and then click Next.
4. Leave everything default and check if the VPC is Default or not. (If not please choose the default one)
5. Next add Storage enter the size you want for your instance and then click next . (The default size is 8GB)

6. Now, tag your instance, In key enter Name and in Value enter anything you will remember your instance with like “mywebsite”

7. Now, click next configure Security Groups--->create new security group-->Enter security group name and description for it.

8. Now, add rules to your instance---select type SSH---in source select my ip from drop down.

   Add another rule--select type HTTP---in source select anywhere from drop down.
   Add another rule--select type HTTPS---in source select anywhere from drop down.

9. Click on review and launch, here you can confirm your selections and click launch.

   Now wait for the instance to get to the running state and status checks (2/2). You have now created an instance. Connect to your instance again via terminal/shell/cmd.

10. You are now in EC2 instance. Git clone the repository where you have your website on to Amazon EC2 instance.

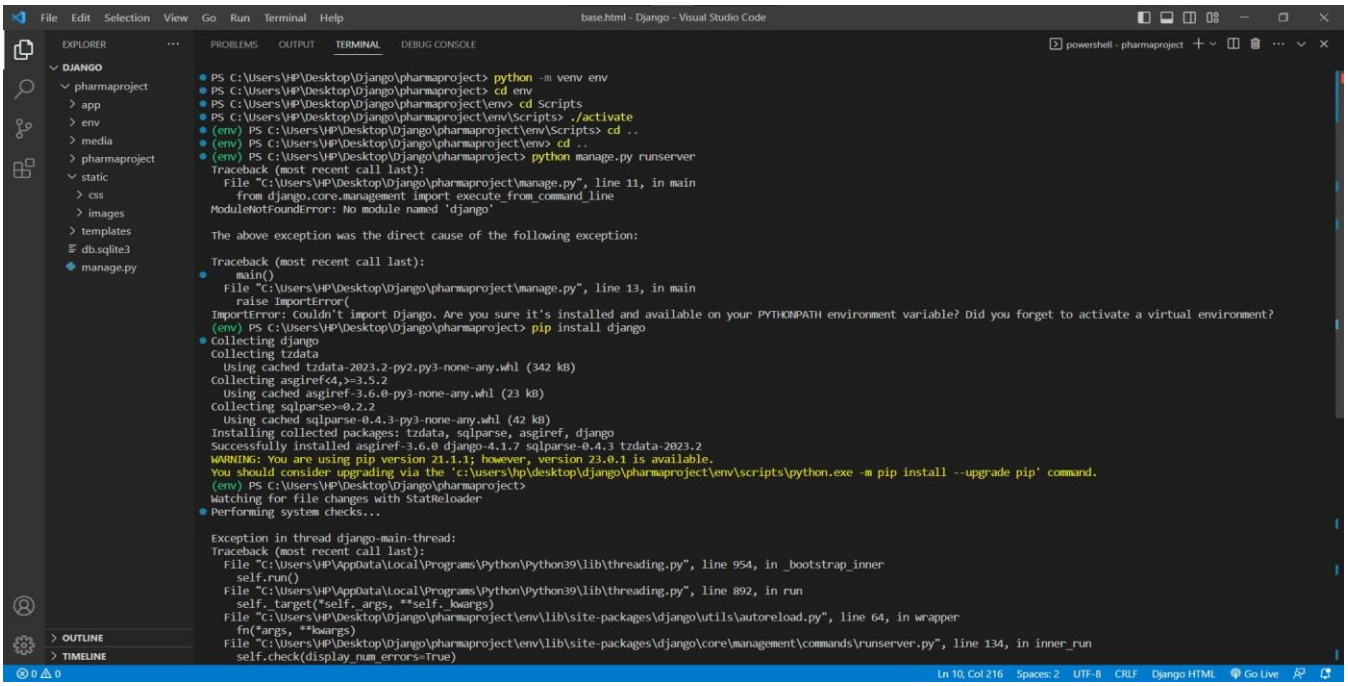
11. Create a virtual environment and activate it, run your application using the command : python manage.py runserver

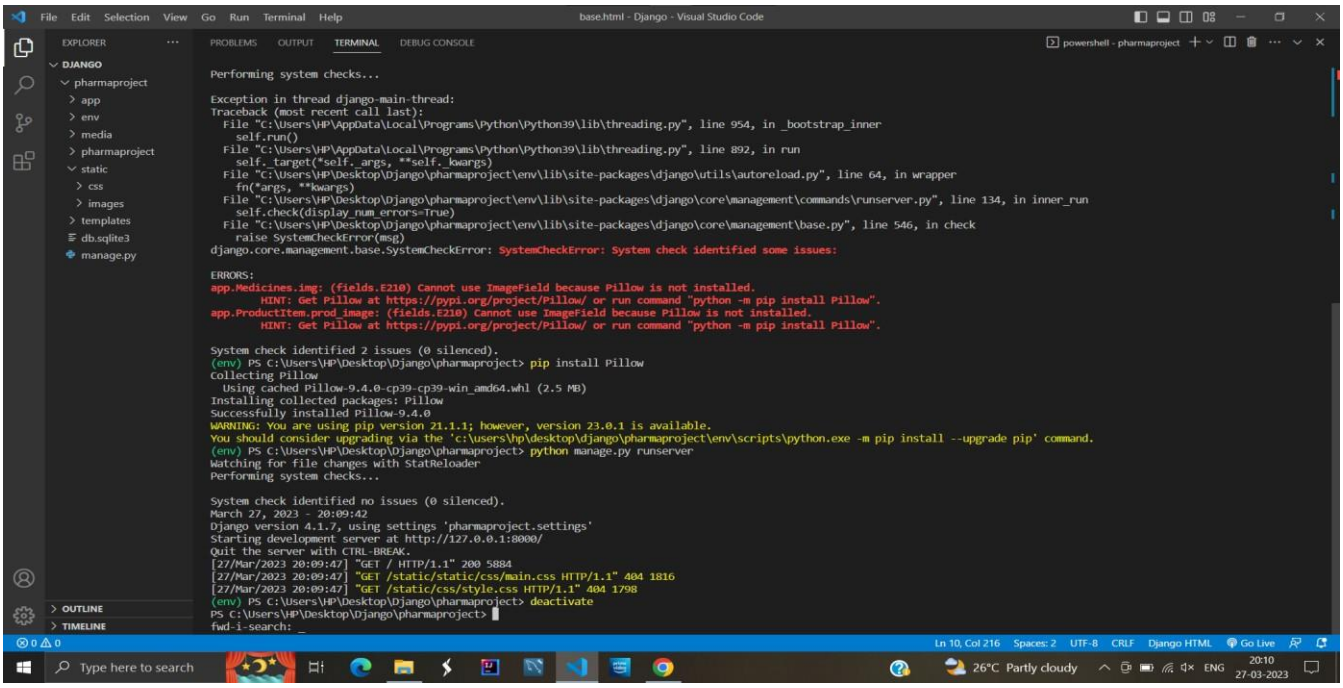
12. Copy the public IP4 address of your instance and paste it on browser along with the port number on which your website is running. Hence hosted a dynamic website on EC2.

Result and Analysis:

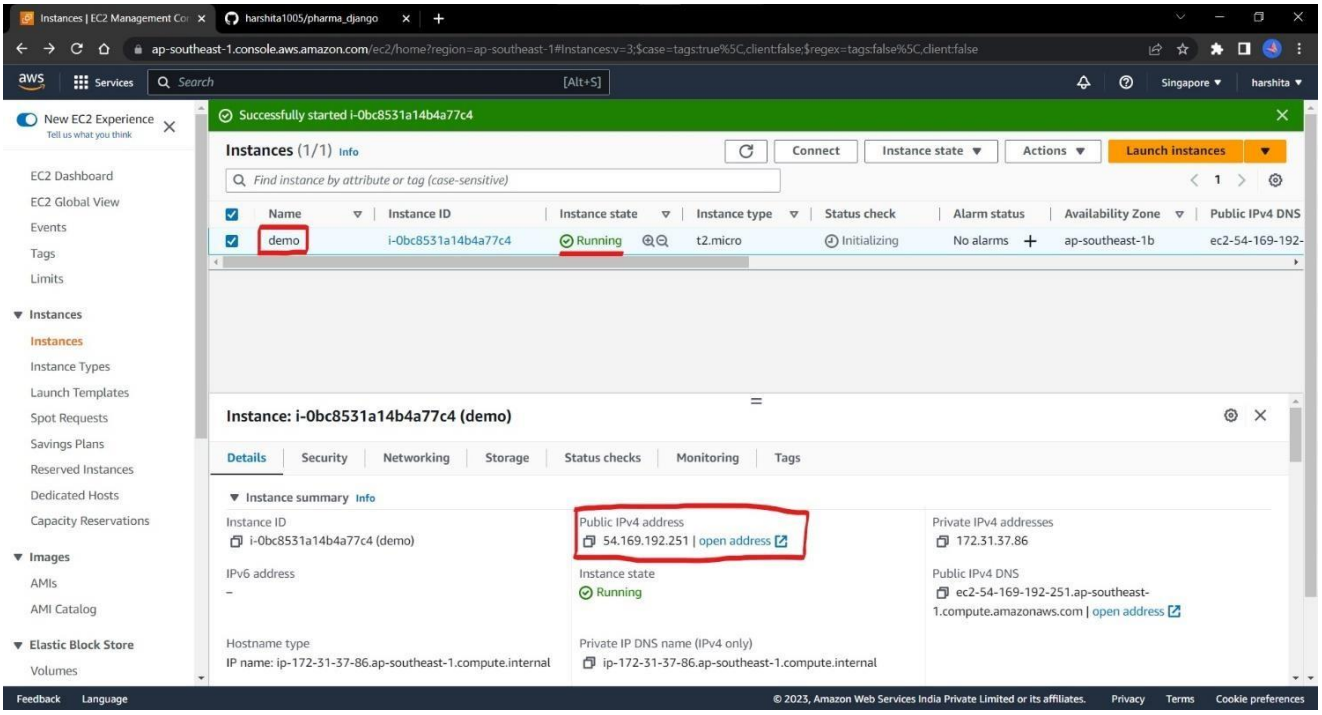
Task 1 Result:

Created a Django website - Pharmacy management website and a virtual environment

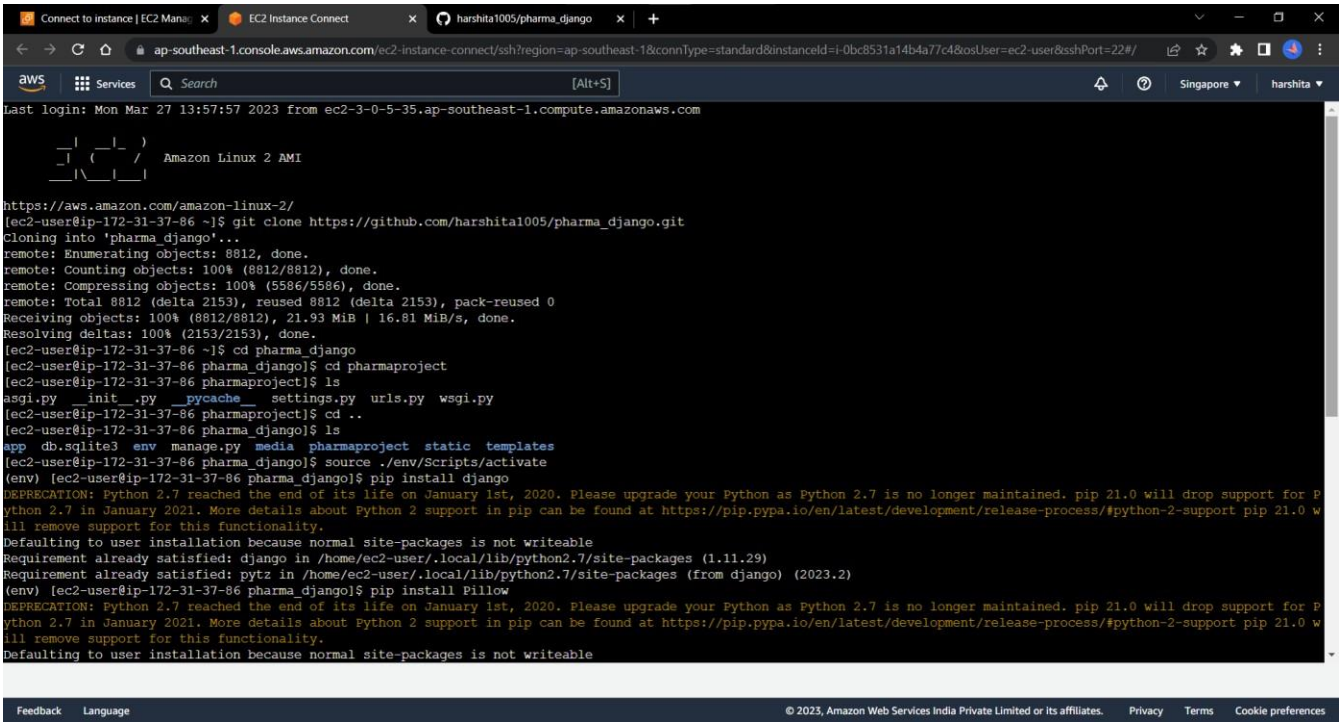


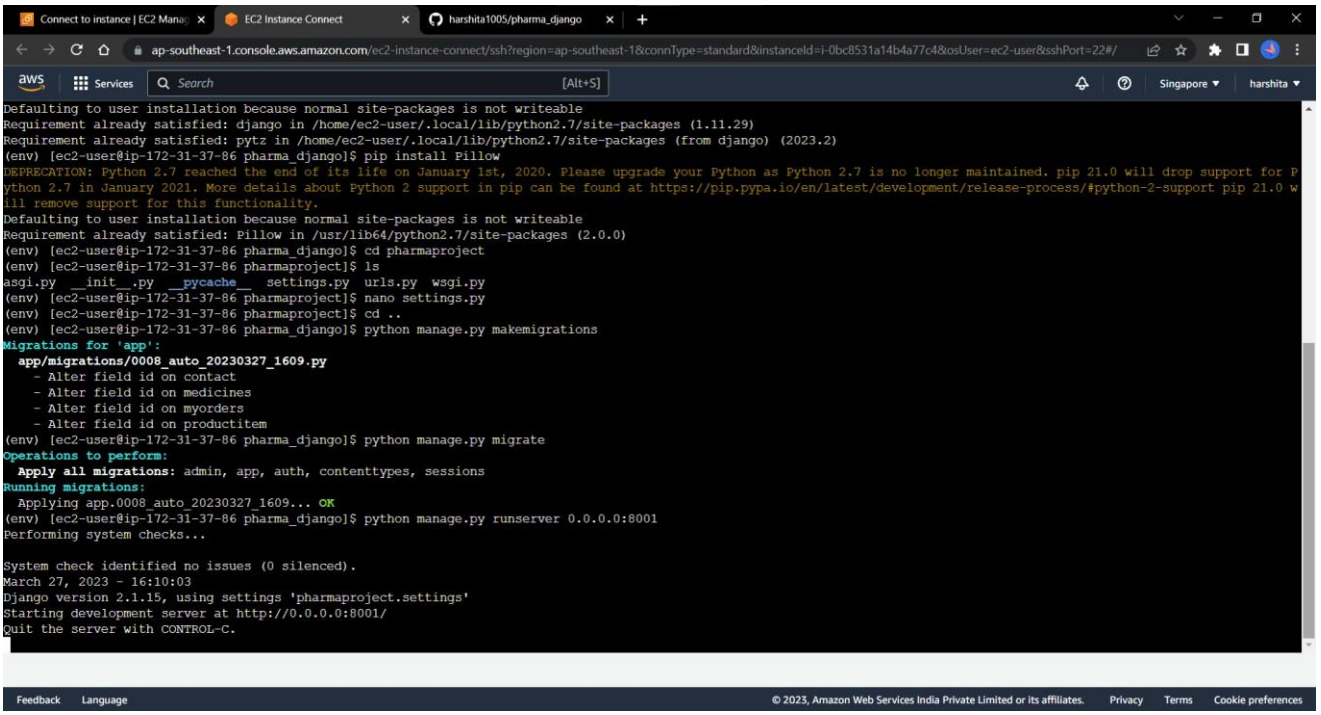


Creating an EC2 Instance:

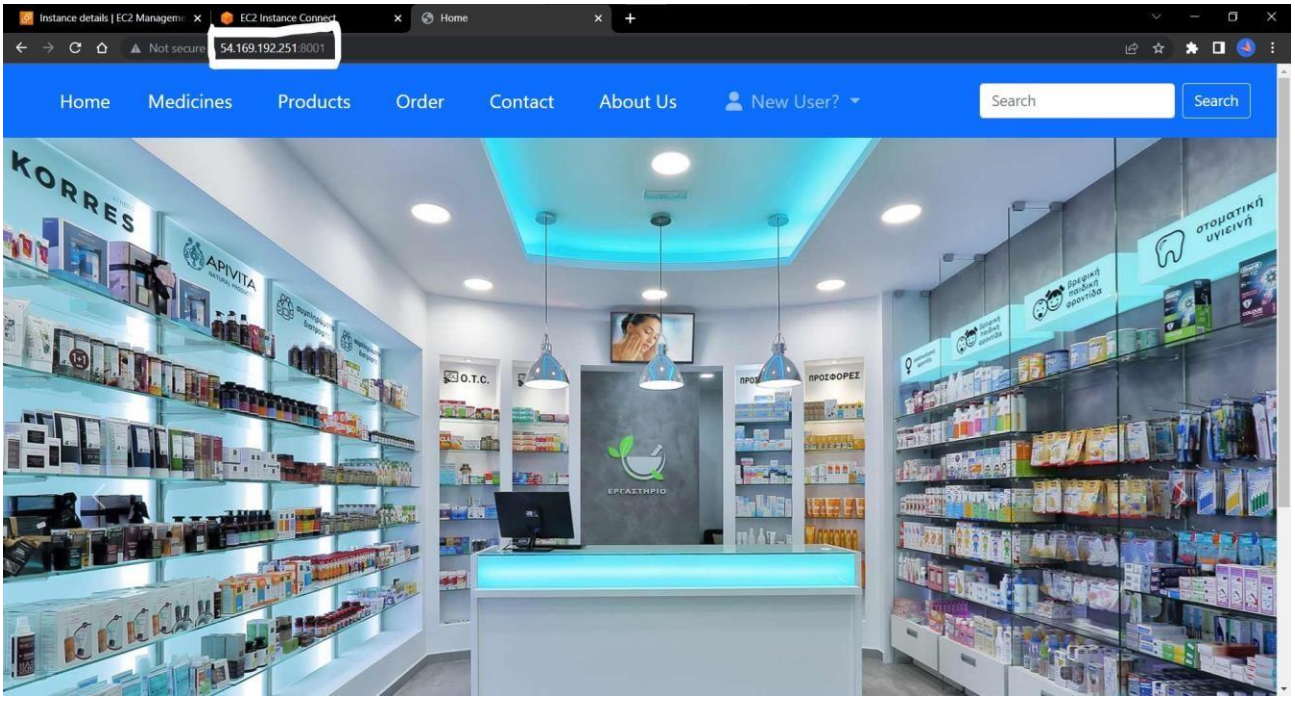


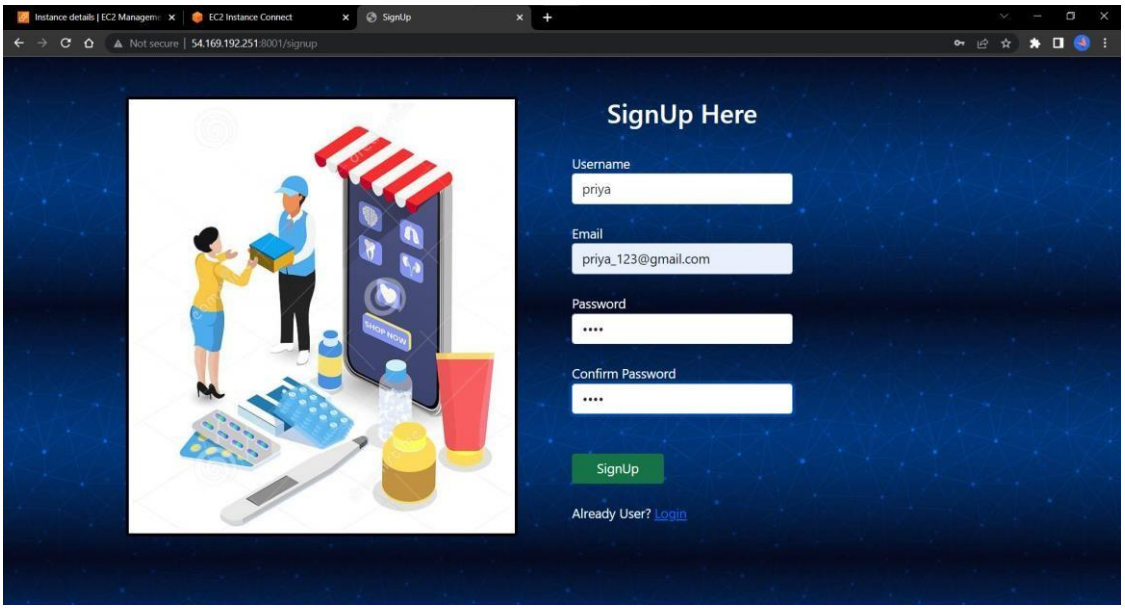
Connecting the EC2 instance and running ourapplication:

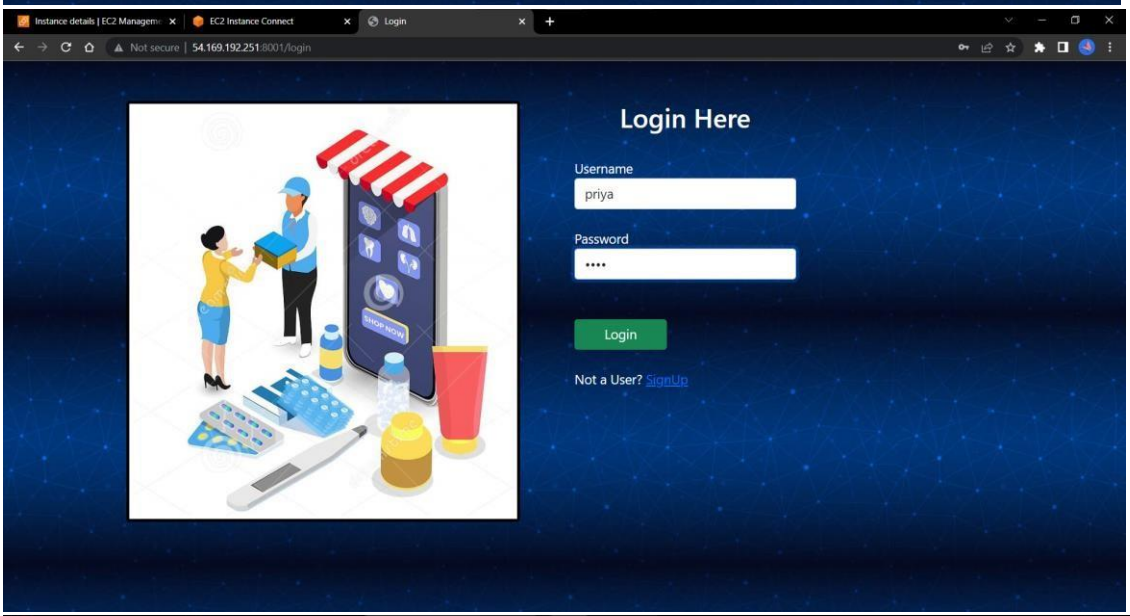


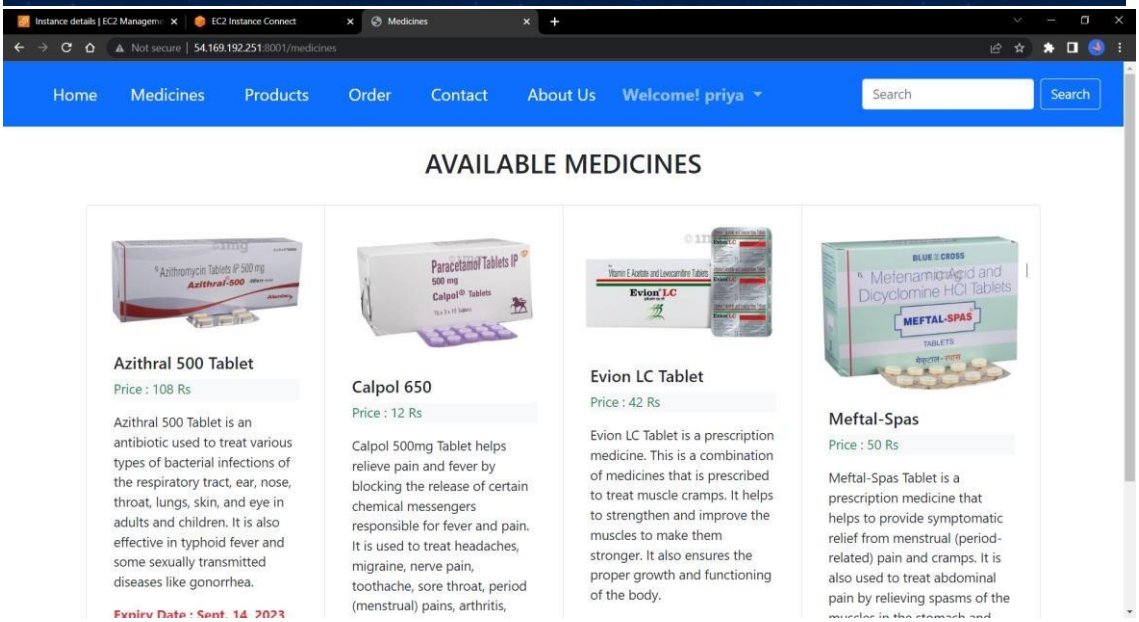


The website is running on port 8001 as shownwith IP address of that instance:



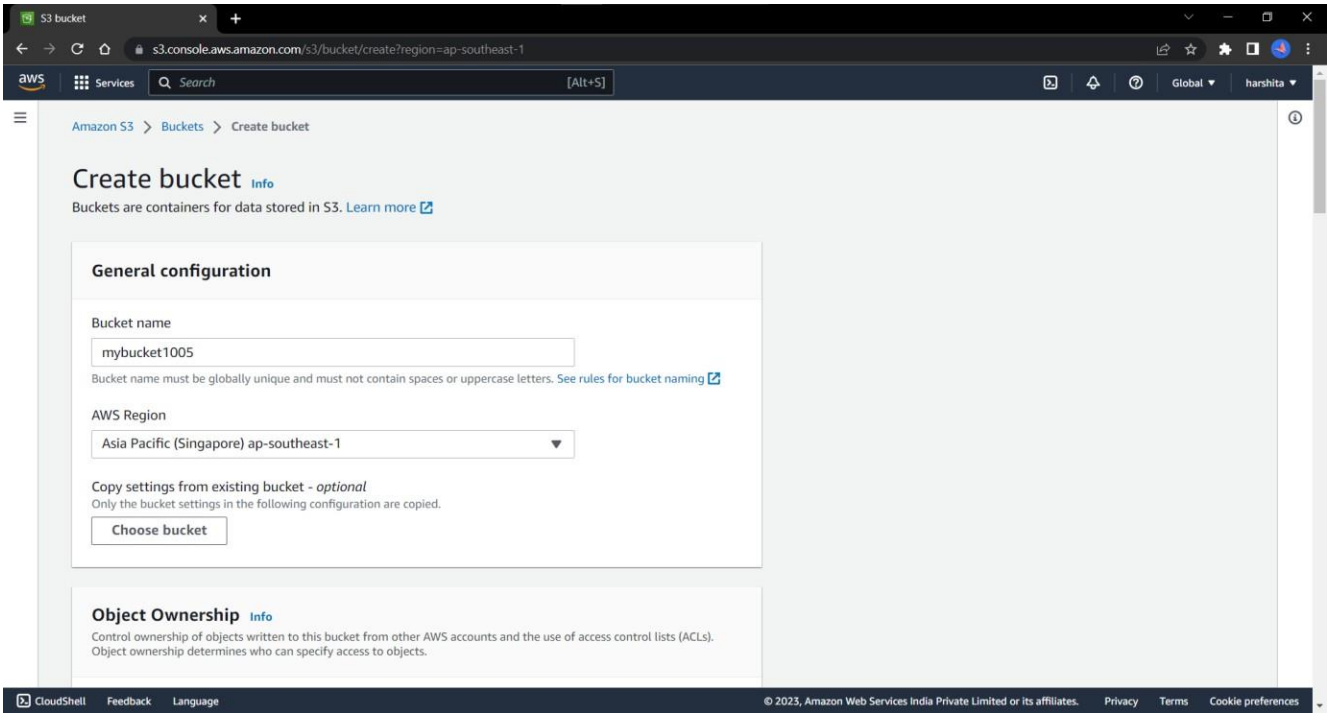

Not secure | 54.169.192.251:8001/signup
SignUp Here
Username
priya
Email
priya_123@gmail.com
Password
Confirm Password
SignUp
Already User? Login

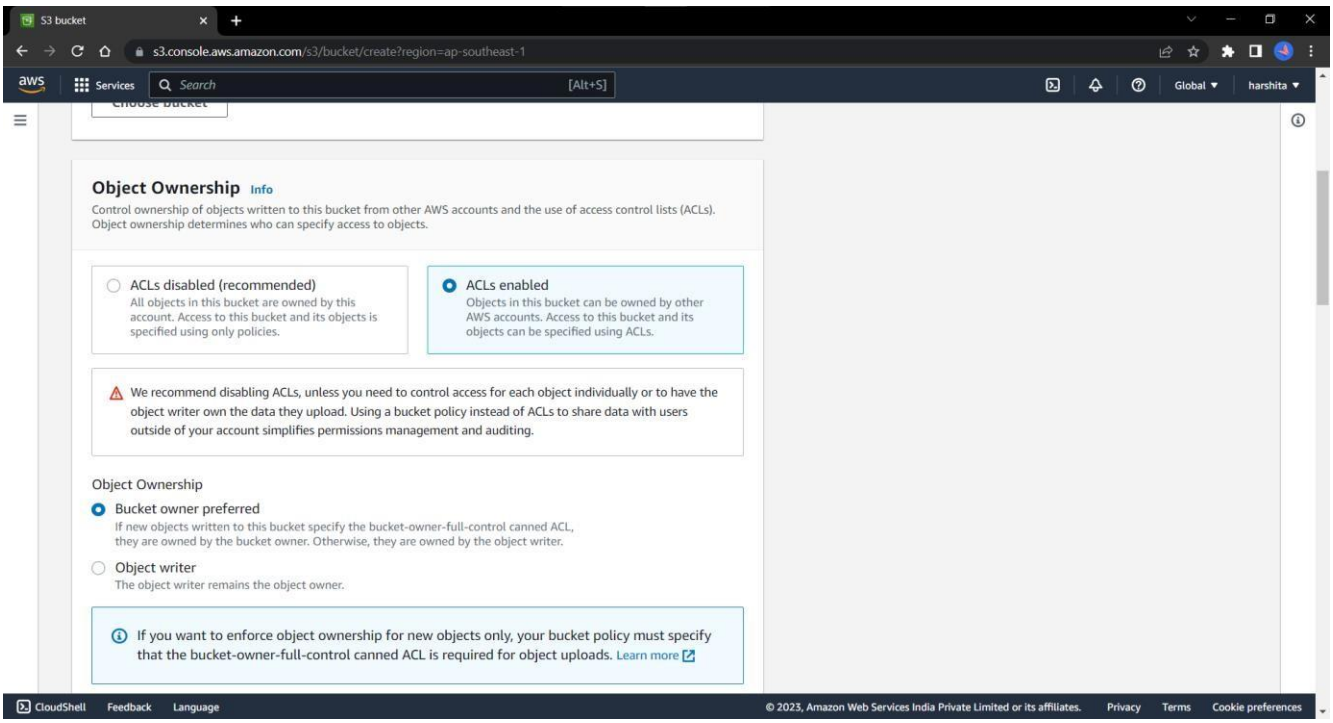

Not secure | 54.169.192.251:8001/login
Login Here
Username
priya
Password
Login
Not a User? SignUp

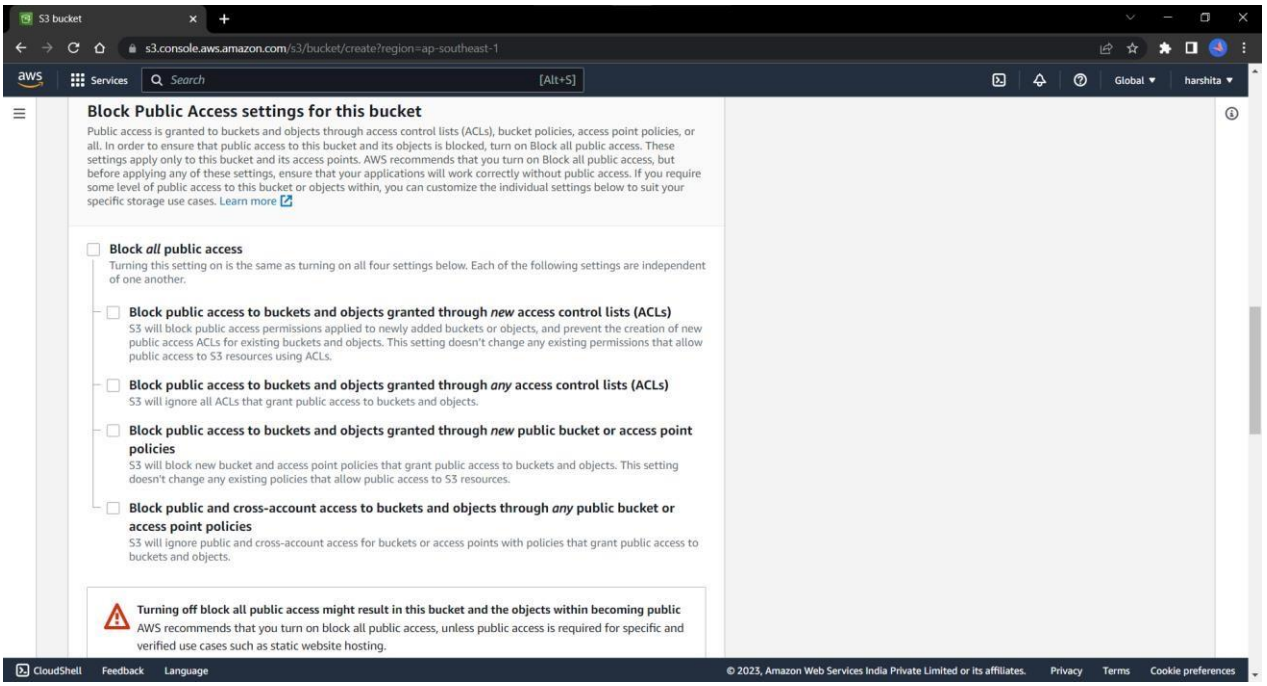

Not secure | 54.169.192.251:8001/medicines
Home
Medicines
Products
Order
Contact
About Us
Welcome! priya
Search
Search
AVAILABLE MEDICINES
Azithral 500 Tablet
Price : 108 Rs
Azithral 500 Tablet is an antibiotic used to treat various types of bacterial infections of the respiratory tract, ear, nose, throat, lungs, skin, and eye in adults and children. It is also effective in typhoid fever and some sexually transmitted diseases like gonorrhea.
Calpol 650
Price : 12 Rs
Calpol 500mg Tablet helps relieve pain and fever by blocking the release of certain chemical messengers responsible for fever and pain. It is used to treat headaches, migraine, nerve pain, toothache, sore throat, period (menstrual) pains, arthritis,
Evion LC Tablet
Price : 42 Rs
Evion LC Tablet is a prescription medicine. This is a combination of medicines that is prescribed to treat muscle cramps. It helps to strengthen and improve the muscles to make them stronger. It also ensures the proper growth and functioning of the body.
Meftal-Spas
Price : 50 Rs
Meftal-Spas Tablet is a prescription medicine that helps to provide symptomatic relief from menstrual (period-related) pain and cramps. It is also used to treat abdominal pain by relieving spasms of the

Task -2 Result:

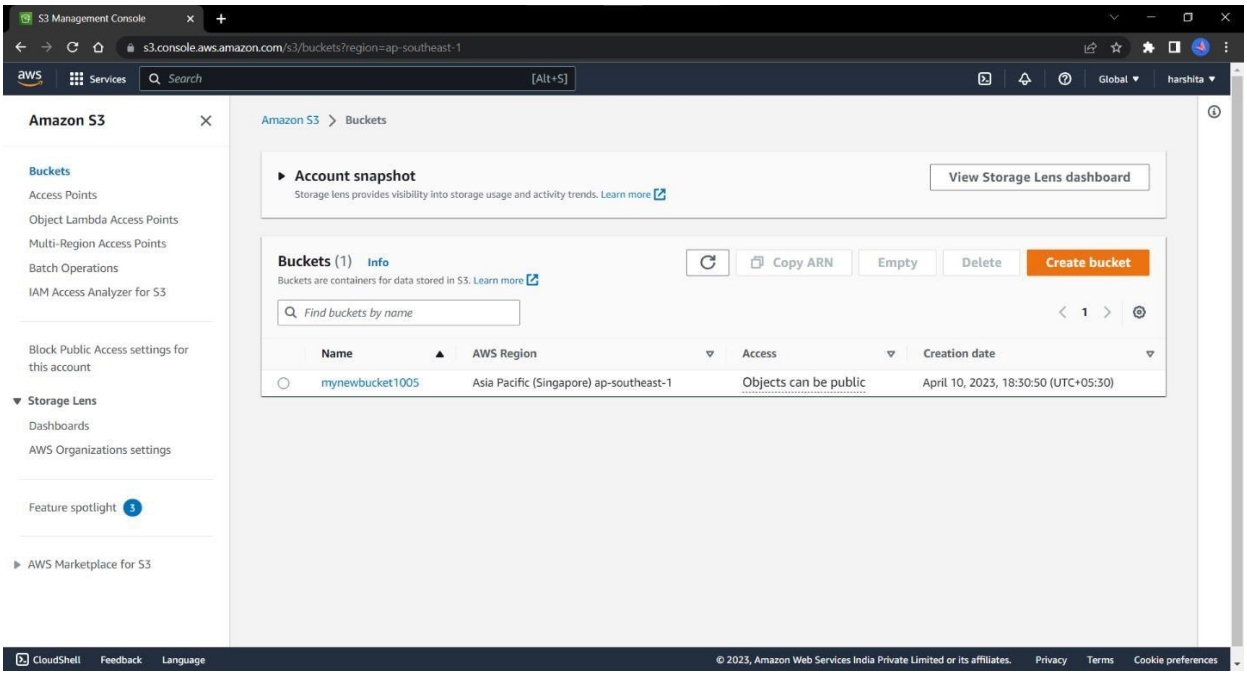
Creating the bucket:



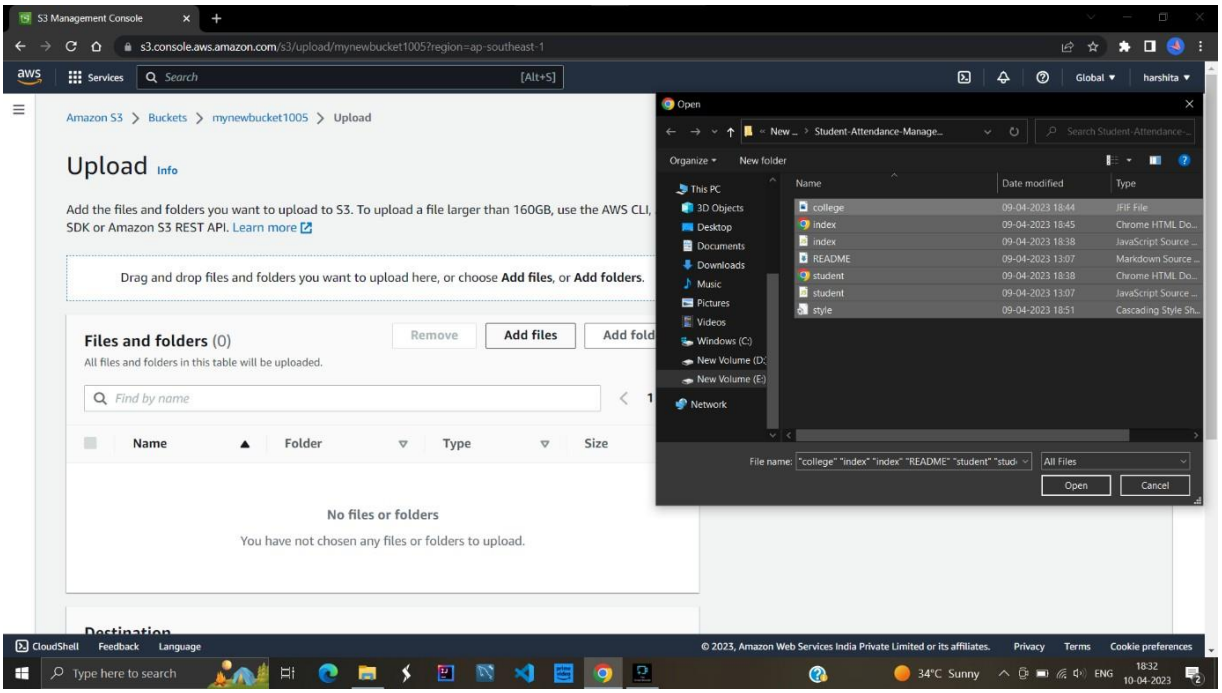




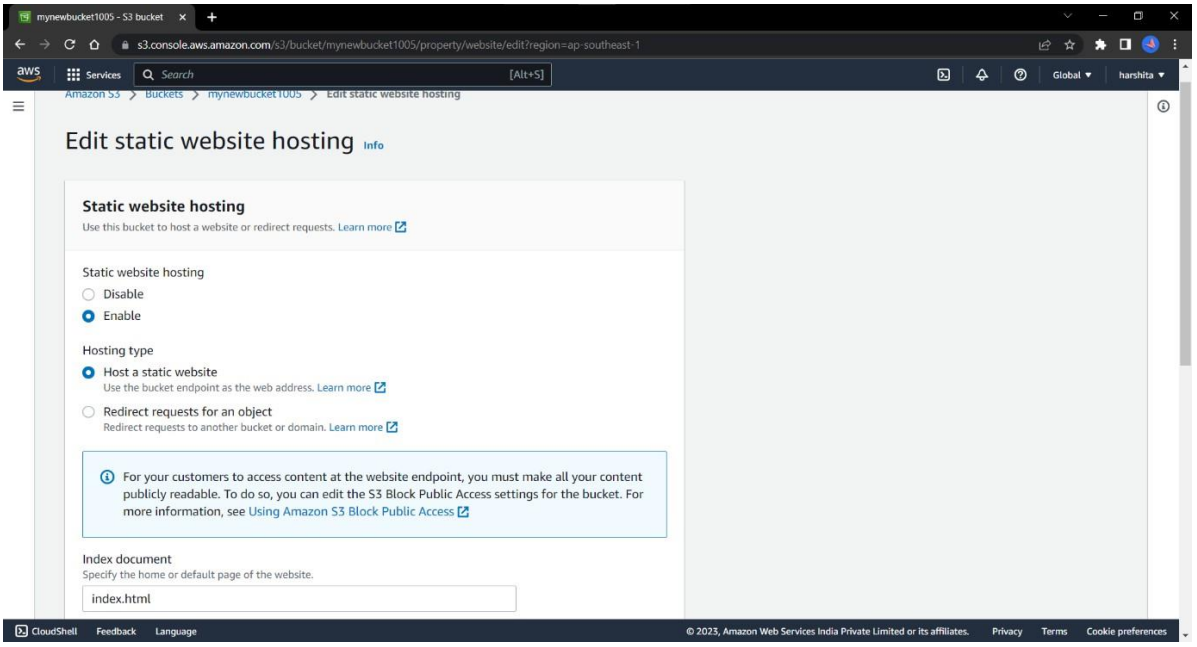
Bucket name- mynewbucket1005



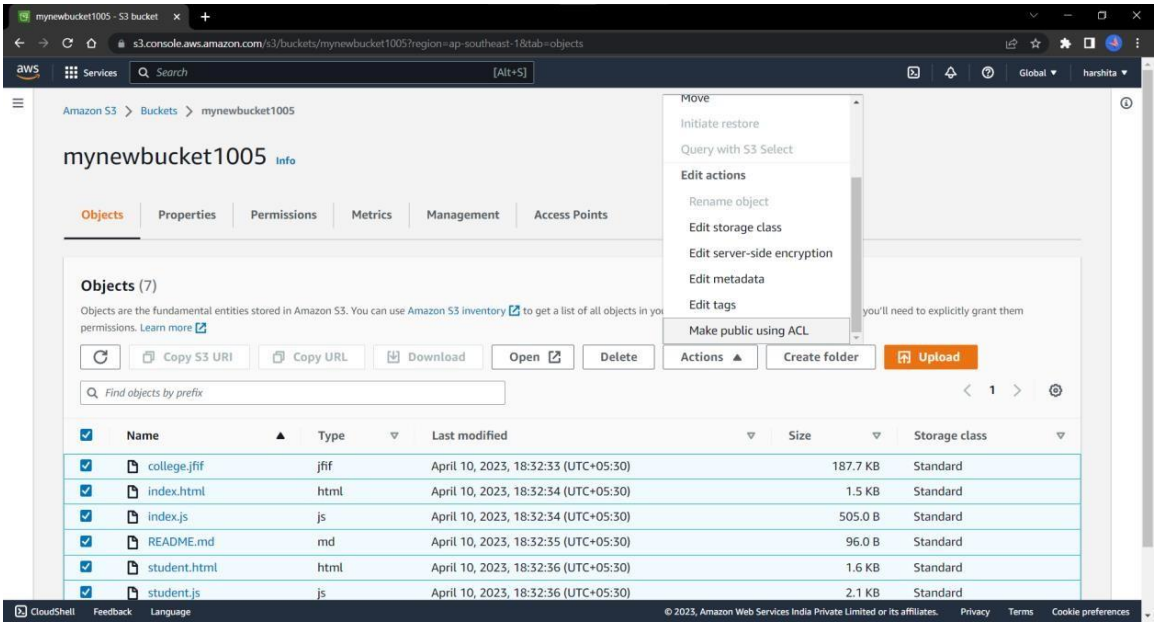
Uploading the files of our website:



Editing the static website hosting configurations:



And by using the IP address of created bucket we can run our website on web browser and can be accessed by anyone over theinternet.



http://mynewbucket1005.s3-website-ap-southeast- 1.amazonaws.com

Conclusion

As a Intern at Intern Crowd, it was an exciting and challenging experience working alongside some of the best professionals in the field. Throughout the internship, learned a great deal about cloud computing, architecture, and best practices, while also gaining hands-on experience working with various cloud-based platforms and technologies. This internship was self-paced which taught us about basics of cloud computing and importance of cloud computing in real life. Through our allocated tasks ,learnt about: cloud computing and also on basics of cloud computing like different types of cloud computing and their components different cloud.

One of the highlights of internship was being able to work on real-world projects ,which allowed to apply the concepts and skills learned in a practical setting .This hands-on experience has helped gain a deeper understanding of the cloud migration process , how cloud works and what cloud providers provide services to customers and the importance of effective planning and execution. Overall ,the internship experience in Cloud Computing at Intern Crowd has been incredibly rewarding and has helped to develop valuable skills and knowledge and also grateful for the opportunity to work with such a talented and supportive team and look forward to applying the skills and knowledge I have gained in my future endeavours.

References

[1] https://blog.sysfore.com/hosting-a-dynamic-website-on-aws/

[2] https://github.com/ashutoshvct/Hosting-dynamic-website-on-AWS/blob/master/EC2.md

[3] https://aws.amazon.com/websites/

[4] https://docs.aws.amazon.com/AmazonS3/latest/userguide/EnableWebsiteHosting.html

[5] https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/concepts.html

[6] https://www.youtube.com/watch?v=sCQwEVhCvTg

[7] https://www.trainwithshubham.com/blog/setting-up-aws-codedeploy-agent-on-ubuntu-ec2