Cloud Computing

Lab Exercise No: 1

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1. Describe IaaS

Infrastructure as a Service (IaaS) is a type of cloud computing service that provides essential compute, storage, and networking resources on demand. Few of the key points are as follows:

- **Resource Provisioning**: IaaS offers scalable computing resources, including servers, storage, and networking components. Users can access these resources as needed, paying only for what they use.
- **Cost Savings**: By migrating to an IaaS solution, organizations reduce the need for maintaining on-premises data centers and save on hardware costs.
- **Flexibility and Scalability**: IaaS allows users to scale IT resources up or down based on demand. It also enables quick provisioning of new applications.
- **Managed Infrastructure**: Cloud providers (e.g., Azure, Google Cloud) manage the underlying infrastructure, while users handle their own software, including operating systems and applications.

2. List the Compute and Storage services available in AWS and GCP.

The list of the main Compute and Storage services available in AWS and GCP are:

AWS (Amazon Web Services)

Compute Services:

Amazon EC2 (Elastic Compute Cloud) - Scalable virtual servers.

Amazon ECS (Elastic Container Service) - Container orchestration service.

AWS Lambda - Serverless computing service.

Amazon EKS (Elastic Kubernetes Service) - Managed Kubernetes service.

AWS Fargate - Serverless compute for containers.

Amazon Lightsail - Easy-to-use cloud platform for simpler workloads.

AWS Batch - Fully managed batch processing at any scale.

AWS Elastic Beanstalk - Easy-to-use service for deploying and scaling web applications.

AWS Outposts - Run AWS infrastructure and services on-premises.

Storage Services:

Amazon S3 (Simple Storage Service) - Object storage service.

Amazon EBS (Elastic Block Store) - Block storage for use with EC2 instances.

Amazon EFS (Elastic File System) - Scalable file storage for EC2.

Amazon FSx - Fully managed file systems.

Amazon Glacier - Low-cost archival storage.

AWS Storage Gateway - Hybrid cloud storage with on-premises access.

AWS Backup - Centralized backup service to manage and automate backups.

Amazon S3 Glacier Deep Archive - Lowest-cost storage for long-term data archiving.

GCP (Google Cloud Platform)

Compute Services:

Google Compute Engine - Scalable virtual machines.

Google Kubernetes Engine (GKE) - Managed Kubernetes service.

Google App Engine - Platform-as-a-Service for building scalable applications.

Google Cloud Functions - Event-driven serverless compute.

Google Cloud Run - Fully managed compute platform for deploying containerized applications.

Google Anthos - Hybrid and multi-cloud Kubernetes management.

Google Cloud Workflows - Orchestrate and automate Google Cloud and HTTP-based API services.

Google Cloud Batch - Fully managed batch processing service.

Storage Services:

Google Cloud Storage - Object storage service.

Google Persistent Disk - Block storage for use with GCE instances.

Google Filestore - Fully managed file storage service.

Google Cloud Storage Nearline - Low-cost storage for data accessed less than once a month.

Google Cloud Storage Coldline - Even lower-cost storage for data rarely accessed.

Google Cloud Storage Archive - Lowest-cost storage for long-term data archiving.

Google Cloud Datastore - NoSQL document database built for automatic scaling.

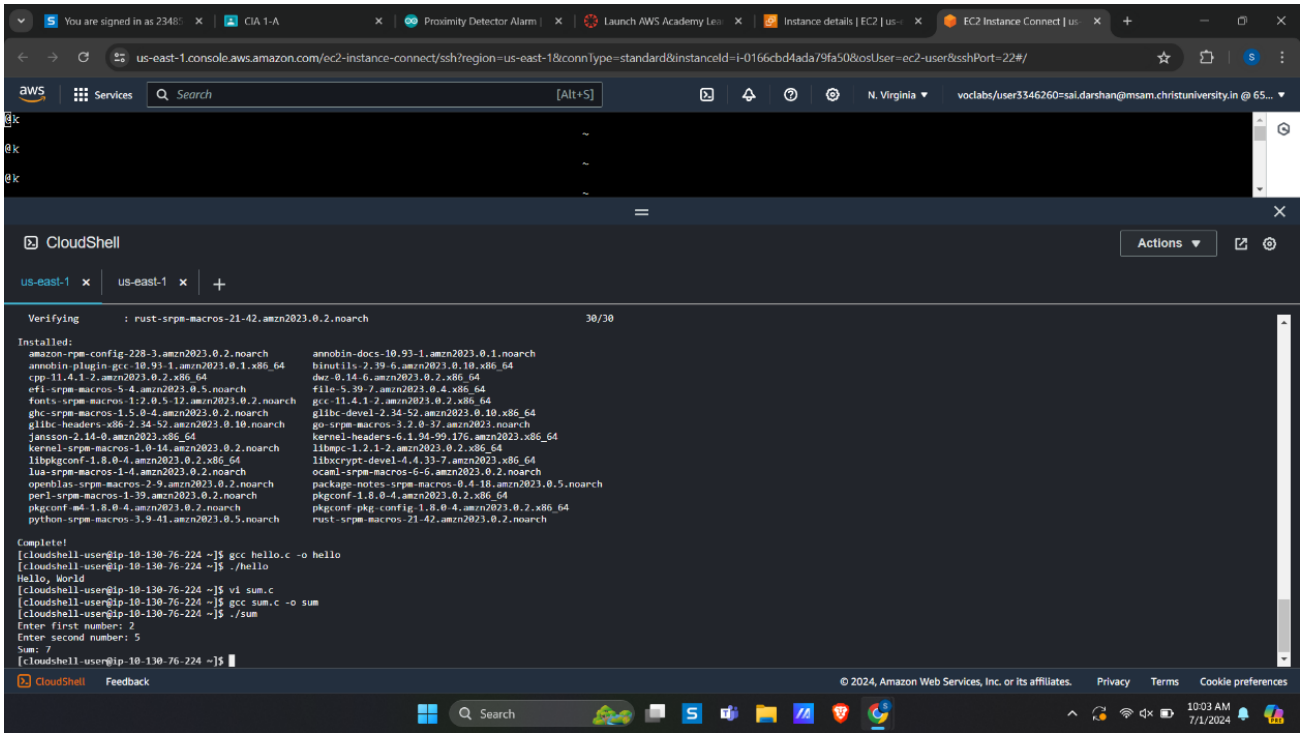
Google Cloud Spanner - Globally distributed, strongly consistent database service.

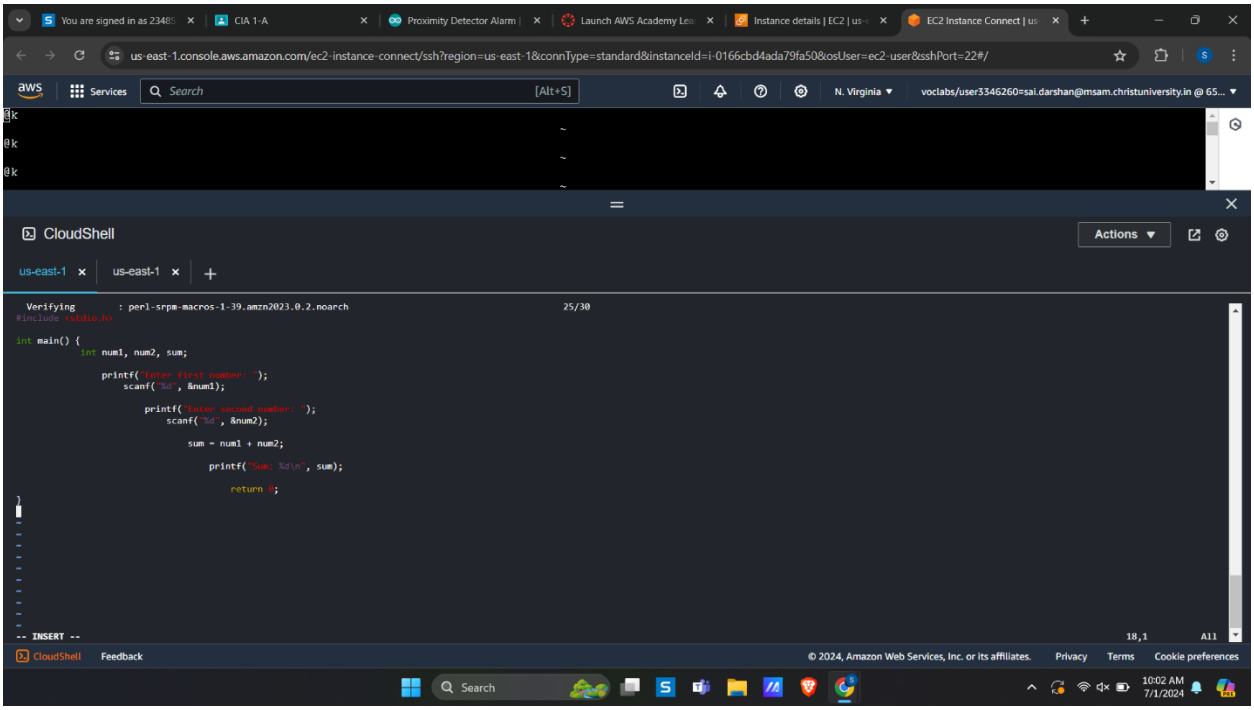
Google Cloud SQL - Fully managed relational database service for MySQL, PostgreSQL, and SQL Server.

Google Cloud Bigtable - Scalable NoSQL database for large analytical and operational workloads.

Google Cloud Firestore - NoSQL document database for mobile and web app development.

3. Create 2 Identical AWS EC2 Instances (Instance Name: Regno_EC2_VM1, Regno_EC2_VM2) and install the necessary packages to execute a program of your choice in ‘Regno_EC2_VM1’.

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#include <stdio.h>
int main() {
int num1, num2, sum;
printf("Enter first number: ");
scanf("%d", &num1);
printf("Enter second number: ");
scanf("%d", &num2);
sum = num1 + num2;
printf("Sum: %d\n", sum);
return 0;
}
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18,1 All
CloudShell Feedback
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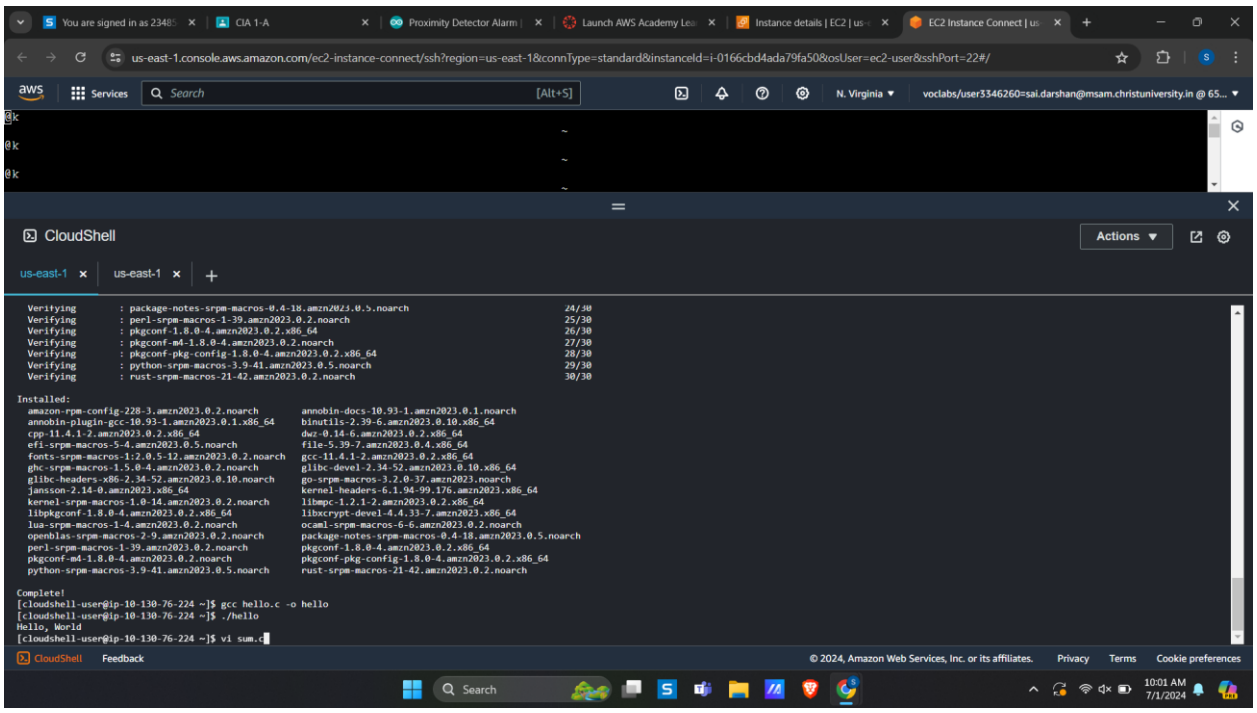
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Complete!
[cloudshell-user@ip-10-130-76-224 ~]$ gcc hello.c -o hello
[cloudshell-user@ip-10-130-76-224 ~]$ ./hello
Hello, World
[cloudshell-user@ip-10-130-76-224 ~]$ vi sum.c
CloudShell Feedback
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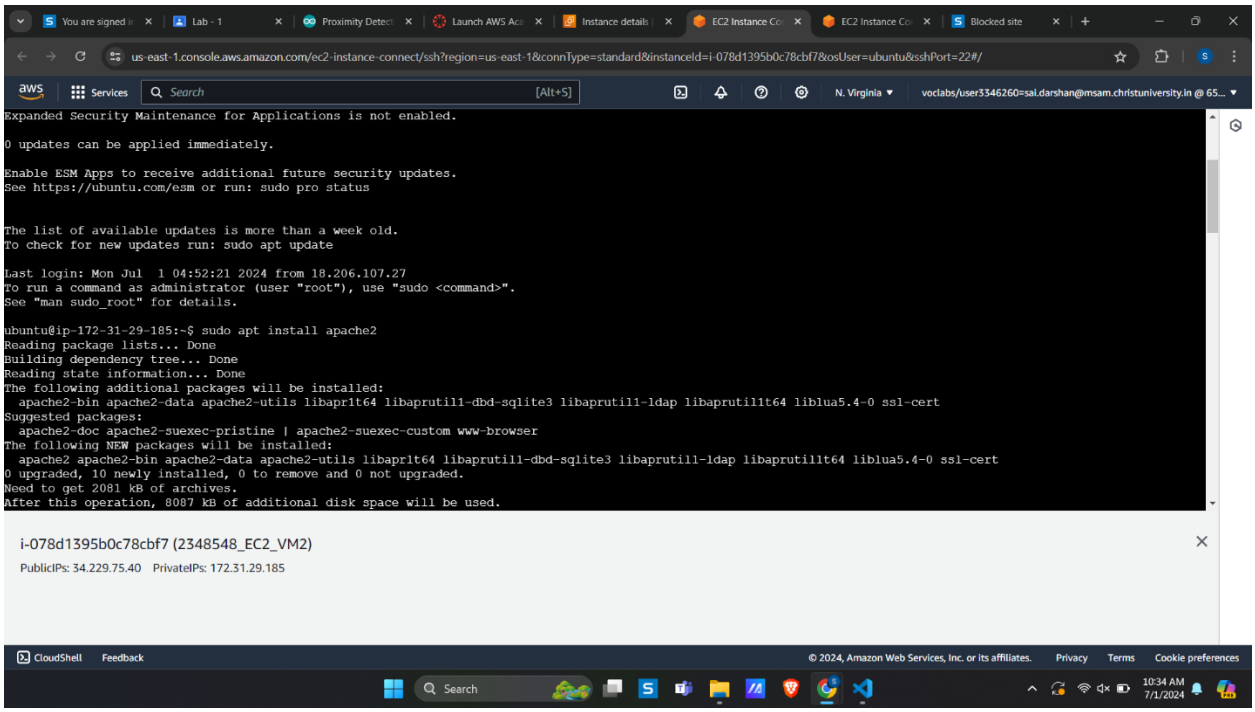
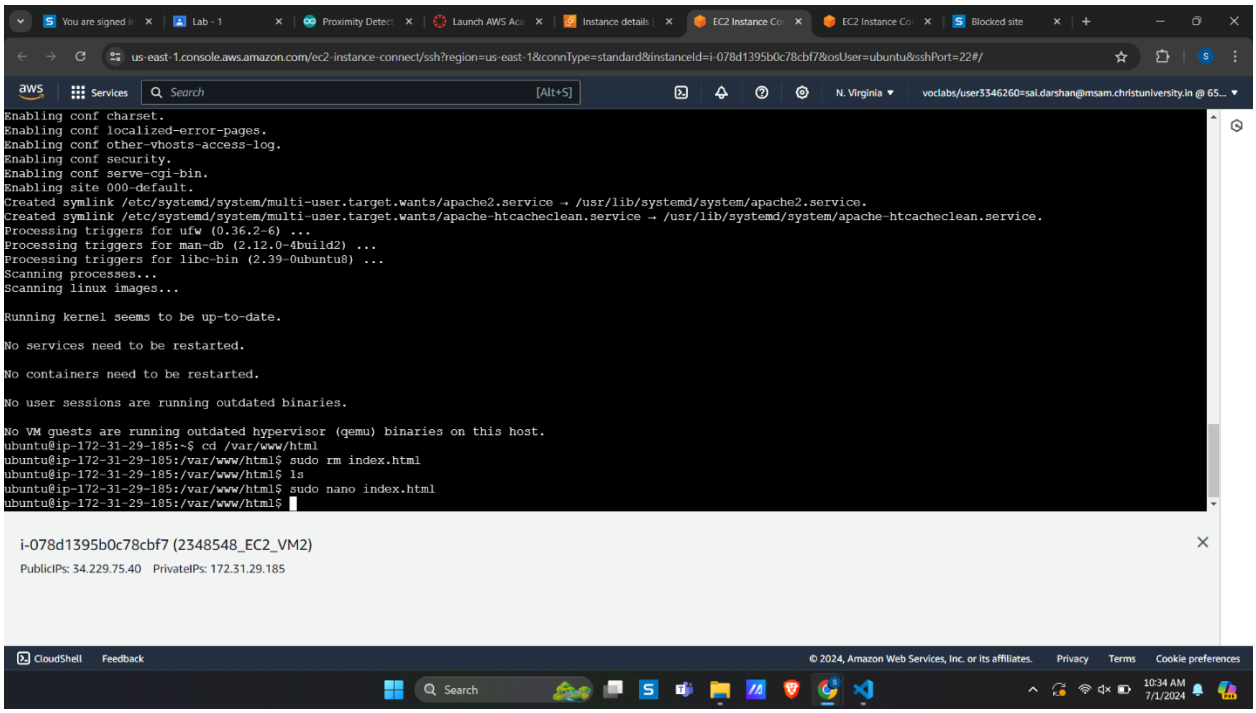
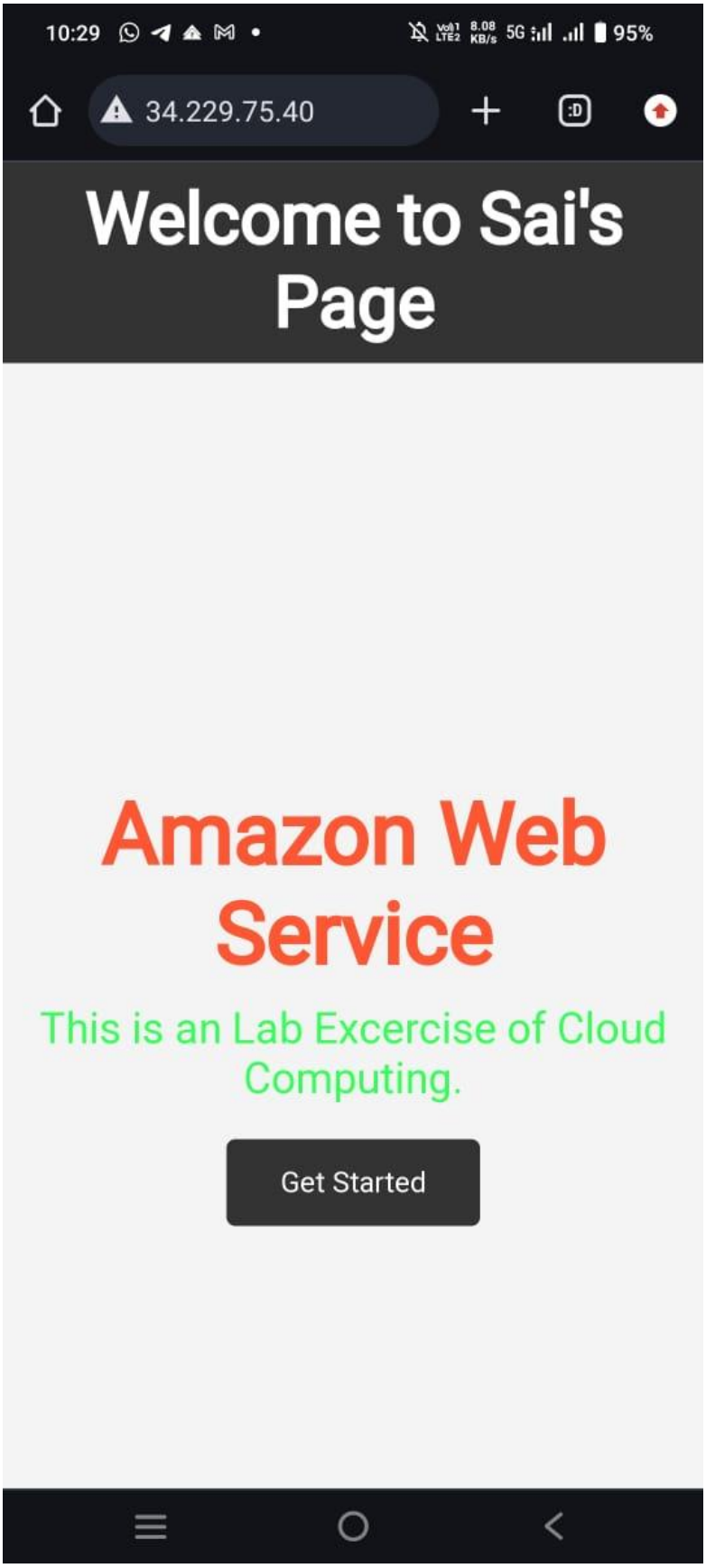
4. Configure a Webserver on ‘Regno_EC2_VM2’ Instance and host your organizations website (Static Website) and provide access only to your machine.



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This is an Lab Excercise of Cloud Computing.
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