PRACTICAL: 1

AIM: To understand the fundamental concepts of cloud computing and explore the services provided by Amazon Web Services (AWS).

Scenario:

Frank and Martha are a married team who own and operate a small café business that sells desserts and coffee. Their daughter, Sofía, works at the café. Sofía is pursuing a degree in cloud computing at a local university in the evenings and on the weekends. She has Python development skills and is learning more about how to develop solutions in the cloud. Sofía is eager to start developing a web presence for the café. She thinks that before she starts coding, it would be a good idea to decide on a development environment for developing and running her code. She decides to explore at least two options that are available on AWS.

Lab overview and objectives:

- To introduce the basics of cloud computing.
- To explore AWS services and their applications.
- To understand different cloud models: IaaS, PaaS, and SaaS.
- To learn about the benefits of cloud computing, including scalability, security, and cost-effectiveness.

THEORY:

Introduction to Cloud Computing

Cloud computing is a technology that allows users to access and store data, applications, and computing power over the internet instead of relying on local servers or personal computers. AWS is one of the leading cloud service providers, offering various services such as computing power, storage, networking, and databases.

Cloud Computing Models:

1. **Infrastructure as a Service (IaaS):** Provides virtualized computing resources over the internet. Example: Amazon EC2.
2. **Platform as a Service (PaaS):** Offers a platform for developing, managing, and running applications without worrying about infrastructure. Example: AWS Elastic Beanstalk.
3. **Software as a Service (SaaS):** Delivers software applications over the internet on a subscription basis. Example: Amazon WorkSpaces.

Key AWS Services in Cloud Computing:

- **Amazon EC2 (Elastic Compute Cloud):** Provides scalable virtual servers.
- **Amazon S3 (Simple Storage Service):** Object storage service for data backup and retrieval.
- **AWS Lambda:** Enables serverless computing by executing code without managing infrastructure.
- **Amazon RDS (Relational Database Service):** Manages databases with automated scaling and backups.

- **Amazon VPC (Virtual Private Cloud):** Provides secure networking in the cloud.

CODE:

N/A

LATEST APPLICATIONS:

- **Artificial Intelligence and Machine Learning:** AWS provides AI/ML services like Amazon SageMaker for training and deploying machine learning models.
- **IoT (Internet of Things):** AWS IoT services help in managing and processing IoT data.
- **Big Data and Analytics:** Amazon Redshift and AWS Glue support big data processing.
- **Gaming Industry:** AWS GameLift helps in hosting multiplayer game servers.
- **Healthcare and Telemedicine:** AWS is used for secure patient data storage and telemedicine applications.

LEARNING OUTCOME:

- Gained knowledge of cloud computing fundamentals and AWS services.
- Understood the different cloud service models and their real-world applications.
- Learned how AWS services are used in various industries.
- Developed a basic understanding of how cloud computing enhances business operations.

Faculty Sign **Grade**