Exp.No.	01	**Cloud Account Setup and Services Overview**	Year/Sem	I/2
Date	08/03/2025		**Branch**	IT

Aim:

To create an AWS cloud account and explore its various services.

Procedure:

1. **Create an AWS Account**

   - Go to AWS Official Website.
   - Click on "Create an AWS Account" and enter the required details (email, password, account name).
   - Choose "Personal" or "Business" account type and provide billing information.
   - Complete identity verification using a phone number.
   - Select a support plan (Free Tier recommended for beginners).
   - Log in to the AWS Management Console.

2. Exploring AWS Services

   - Navigate through the AWS Management Console to explore services.
   - Access different categories such as Compute, Storage, Database, Networking, and Security.
   - Experiment with services like EC2 (Elastic Compute Cloud), S3 (Simple Storage Service), and RDS (Relational Database Service) using Free Tier options.

AWS:

Amazon Web Services (AWS) is a cloud computing platform that provides on-demand computing power, storage, and various services for businesses and developers.

Services in AWS:

Compute
EC2
Lightsail
Lambda
Batch
Elastic Beanstalk
Serverless Application Repository
AWS Outposts
EC2 Image Builder
AWS App Runner
AWS SimSpace Weaver
EC2 Global View
Parallel Computing Service

Containers
Elastic Container Service
Elastic Kubernetes Service
Red Hat OpenShift Service on AWS
Elastic Container Registry

Storage
S3
EFS
FSx
S3 Glacier
Storage Gateway
AWS Backup
AWS Elastic Disaster Recovery

Database
Aurora and RDS
ElastiCache
Neptune
Amazon QLDB
Amazon DocumentDB
Amazon Keyspaces
Amazon Timestream
DynamoDB
Amazon MemoryDB
Amazon Aurora DSQL
Oracle Database@AWS

Migration & Transfer
AWS Migration Hub
AWS Application Migration Service
Application Discovery Service
Database Migration Service
AWS Transfer Family
AWS Snow Family
DataSync
AWS Mainframe Modernization
Amazon Elastic VMware Service (Preview)

Networking & Content Delivery
VPC
CloudFront
API Gateway
Direct Connect
AWS App Mesh
Global Accelerator
AWS Cloud Map
Amazon Application Recovery Controller
AWS Private 5G
Route 53
AWS Data Transfer Terminal

Developer Tools
CodeCommit
CodeBuild
CodeDeploy
CodePipeline
Cloud9
CloudShell
X-Ray
AWS FIS
CodeArtifact
Amazon CodeCatalyst
AWS AppConfig
Amazon Q Developer (Including Amazon CodeWhisperer)
Infrastructure Composer
AWS App Studio

Customer Enablement
AWS IQ
Managed Services
Activate for Startups
Support
AWS re:Post Private

Robotics
AWS RoboMaker

Blockchain
Amazon Managed Blockchain

Satellite
Ground Station

Quantum Technologies
Amazon Braket

Management & Governance
AWS Organizations
CloudWatch
AWS Auto Scaling
CloudFormation
AWS Config
OpsWorks
Service Catalog
Systems Manager
Trusted Advisor
Control Tower
AWS Well-Architected Tool
Amazon Q Developer in chat applications (previously AWS Chatbot)
Launch Wizard
AWS Compute Optimizer
Resource Groups & Tag Editor
Amazon Grafana
Amazon Prometheus
AWS Resilience Hub
Incident Manager
AWS License Manager
Service Quotas
AWS Proton
CloudTrail
AWS Resource Explorer
AWS User Notifications
AWS Health Dashboard
AWS Telco Network Builder

Media Services
Kinesis Video Streams
MediaConvert
MediaLive
MediaPackage
MediaStore
MediaTailor
Elemental Appliances & Software
Elastic Transcoder
MediaConnect
Amazon Interactive Video Service
AWS Deadline Cloud

Machine Learning
Amazon SageMaker AI
Amazon Augmented AI
Amazon CodeGuru
Amazon DevOps Guru
Amazon Comprehend
Amazon Forecast
Amazon Fraud Detector
Amazon Kendra
Amazon Personalize
Amazon Polly
Amazon Rekognition
Amazon Textract
Amazon Transcribe
Amazon Translate
AWS DeepComposer
AWS DeepRacer
AWS Panorama
Amazon Monitron
AWS HealthLake
Amazon Lookout for Vision
Amazon Lookout for Equipment
Amazon Lookout for Metrics
Amazon Lex
Amazon Comprehend Medical
AWS HealthOmics
Amazon Bedrock
AWS HealthImaging
Amazon Q
Amazon Q Business

Analytics
Athena
Amazon Redshift
CloudSearch
Amazon OpenSearch Service
Kinesis
QuickSight
AWS Data Exchange
AWS Lake Formation
MSK
AWS Glue DataBrew
Amazon FinSpace
AWS Glue
Amazon Data Firehose
EMR
AWS Clean Rooms
Amazon SageMaker
AWS Entity Resolution
Managed Apache Flink
Amazon DataZone

Security, Identity, & Compliance
Resource Access Manager
Cognito
Secrets Manager
GuardDuty
Amazon Inspector
Amazon Macie
IAM Identity Center
Certificate Manager
Key Management Service
CloudHSM
Directory Service
AWS Firewall Manager
AWS Artifact
Detective
AWS Signer
AWS Private Certificate Authority
Security Hub
AWS Audit Manager
Security Lake
WAF & Shield
Amazon Verified Permissions
AWS Payment Cryptography
AWS Security Incident Response
IAM

Cloud Financial Management
AWS Marketplace
AWS Billing Conductor
Billing and Cost Management

Front-end Web & Mobile
AWS Amplify
AWS AppSync
Device Farm
Amazon Location Service

Application Integration
Step Functions
Amazon AppFlow
Amazon MQ
Simple Notification Service
Simple Queue Service
SWF
Managed Apache Airflow
Amazon EventBridge
AWS B2B Data Interchange

Business Applications
Amazon Connect
Amazon Chime
Amazon Simple Email Service
Amazon WorkDocs
Amazon WorkMail
AWS Supply Chain
AWS AppFabric
AWS Wickr
Amazon Chime SDK
Amazon One Enterprise
Amazon Pinpoint
AWS End User Messaging

End User Computing
WorkSpaces
AppStream 2.0
WorkSpaces Secure Browser
WorkSpaces Thin Client

Internet of Things
IoT Analytics
IoT Device Defender
IoT Device Management
IoT Greengrass
IoT SiteWise
IoT Core
IoT Events
AWS IoT FleetWise
IoT TwinMaker

Game Development
Amazon GameLift Servers
Amazon GameLift Streams

i. Compute & Networking

These services provide cloud computing power and networking capabilities to support scalable applications.

- **Amazon EC2 (Elastic Compute Cloud)** – Scalable virtual servers in the cloud.
- **AWS Lambda** – Serverless computing that runs code in response to events.
- **Amazon VPC (Virtual Private Cloud)** – Secure and customizable cloud networks.
- **AWS Fargate** – Serverless compute engine for containers.
- **Amazon Elastic Load Balancer (ELB)** – Distributes incoming traffic across multiple EC2 instances.
- **AWS Auto Scaling** – Automatically adjusts compute resources based on demand.
- **Amazon Lightsail** – Simplified cloud hosting with virtual servers, databases, and networking.
- **AWS Batch** – Batch processing at any scale without managing infrastructure.
- **AWS Outposts** – AWS infrastructure and services on-premises for hybrid cloud environments.

ii. Storage & Content Delivery

These services handle scalable storage, data backup, and content delivery.

- **Amazon S3 (Simple Storage Service)** – Scalable object storage for data backup and hosting.
- **Amazon EBS (Elastic Block Store)** – Persistent block storage for EC2 instances.
- **Amazon CloudFront** – Global content delivery network (CDN) for faster content delivery.
- **Amazon Glacier** – Low-cost archival storage for long-term backups.
- **AWS Snowball** – Physical data transfer device for migrating large datasets to AWS.
- **AWS Storage Gateway** – Hybrid cloud storage integration for on-premises applications.
- **Amazon FSx** – Fully managed Windows and Lustre file systems.
- **Amazon Elastic File System (EFS)** – Scalable file storage for Linux-based applications.

iii. Database

AWS provides managed databases for different workloads, from relational to NoSQL and data warehousing.

- **Amazon RDS (Relational Database Service)** – Managed relational databases (MySQL, PostgreSQL, SQL Server, Oracle).
- **Amazon DynamoDB** – Fully managed NoSQL database for key-value storage.
- **Amazon Redshift** – Data warehouse for large-scale analytics and business intelligence.
- **Amazon ElastiCache** – In-memory caching using Redis and Memcached.
- **Amazon Neptune** – Managed graph database for relationship-based applications.
- **Amazon Aurora** – High-performance relational database compatible with MySQL and PostgreSQL.
- **Amazon Keyspaces (for Apache Cassandra)** – Managed Cassandra-compatible database.

iv. Deployment & Management

AWS simplifies application deployment and infrastructure management.

- **AWS Elastic Beanstalk** – Automated deployment and scaling for web applications.
- **AWS CloudFormation** – Infrastructure as code (IaC) for provisioning AWS resources.
- **AWS OpsWorks** – Configuration management with Chef and Puppet.
- **AWS Systems Manager** – Centralized management for AWS resources.
- **AWS CodeDeploy** – Automates code deployments across instances.
- **AWS CodePipeline** – CI/CD service for automating application delivery.
- **AWS CloudTrail** – Tracks API activity and user actions in AWS.
- **AWS Config** – Monitors and audits AWS resource configurations.

v. Analytics & AI

AWS provides powerful analytics and AI tools for processing and analyzing large datasets.

- **AWS Glue** – ETL (Extract, Transform, Load) service for data integration.
- **Amazon Kinesis** – Real-time data streaming and analytics.
- **Amazon QuickSight** – Business intelligence (BI) for data visualization.
- **AWS Lake Formation** – Automates the setup of a secure data lake.
- **Amazon Elasticsearch Service** – Managed search and log analytics.
- **Amazon Athena** – Serverless SQL querying for S3-based data lakes.
- **Amazon SageMaker** – AI/ML model training and deployment.
- **AWS DeepLens** – AI-powered deep learning camera for developers.
- **Amazon Comprehend** – Natural language processing (NLP) for sentiment analysis.
- **Amazon Polly** – Text-to-speech conversion.
- **Amazon Rekognition** – Image and video analysis using AI.

vi. Mobile & Application Services

AWS provides tools to build, deploy, and manage mobile and web applications.

- **AWS Amplify** – Full-stack mobile and web app development.
- **Amazon Cognito** – User authentication and identity management.
- **Amazon API Gateway** – Managed API hosting and management.
- **AWS AppSync** – GraphQL API service for real-time data sync.
- **AWS Device Farm** – Testing mobile apps on real devices in the cloud.
- **Amazon Simple Notification Service (SNS)** – Push notifications for mobile and web apps.
- **Amazon Simple Queue Service (SQS)** – Message queue service for microservices.
- **AWS Step Functions** – Serverless orchestration of AWS services.

vii. Security, Identity & Compliance

AWS provides services to protect cloud resources and ensure security compliance.

- **AWS Identity and Access Management (IAM)** – Manages access to AWS services securely.
- **AWS Shield** – DDoS protection for applications.
- **AWS Web Application Firewall (WAF)** – Protects applications from common web attacks.
- **AWS Security Hub** – Centralized security monitoring across AWS accounts.
- **AWS Artifact** – Provides compliance and security reports for audits.
- **Amazon GuardDuty** – Threat detection service using AI.
- **AWS Secrets Manager** – Securely stores API keys, passwords, and credentials.
- **AWS Key Management Service (KMS)** – Manages encryption keys for data security.

viii. Internet of Things (IoT)

AWS provides IoT services for connecting and managing smart devices.

- **AWS IoT Core** – Connects IoT devices securely to AWS.
- **AWS IoT Greengrass** – Extends AWS capabilities to edge devices.
- **AWS IoT Analytics** – Analyzes IoT data for insights.
- **AWS IoT Device Defender** – Secures and monitors IoT devices.
- **AWS IoT SiteWise** – Industrial IoT for monitoring equipment performance.

ix. Machine Learning

AWS offers tools for training and deploying AI models.

- **Amazon SageMaker** – End-to-end ML model training and deployment.
- **AWS Deep Learning AMIs** – Pre-configured environments for AI workloads.
- **Amazon Textract** – Extracts text from scanned documents.
- **Amazon Lex** – AI-powered chatbot development.
- **Amazon Forecast** – Predictive analytics for business trends.
- **Amazon Personalize** – AI-driven recommendations engine.

x. Business Applications

AWS provides cloud applications for enterprise productivity and collaboration.

- **Amazon WorkSpaces** – Virtual desktop service for remote work.
- **Amazon Chime** – Cloud-based video conferencing and chat.
- **Amazon Connect** – Cloud contact center solution for customer service.
- **Amazon WorkMail** – Secure email and calendar service.
- **AWS Directory Service** – Active Directory integration for enterprise users.

Output:
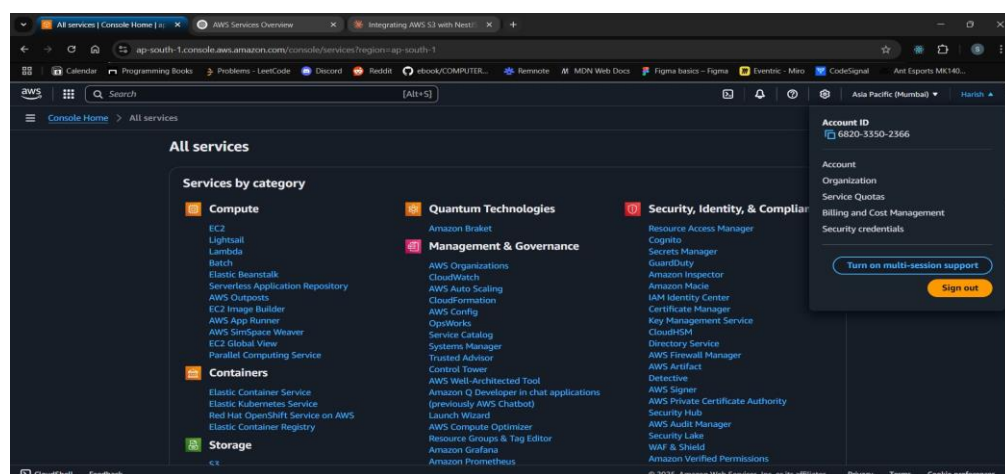
Snapshot 1 : cloud account creation in AWS platform.

Conclusion:

AWS provides a wide range of cloud services that enable businesses and developers to build, deploy, and manage applications efficiently. Exploring AWS services gives hands-on experience in cloud computing, storage, networking, and security.

References:

Result:

Successfully created an AWS account and explored various AWS services.