**Day to Day Activities**

**SAJAG AGRAWAL**

**21BCT0438**

**28/08/2023**

**Got introduced to canva for learning AWS and also get familiarized with AWS**

**29/08/2023**

**Explored the fundamentals of cloud computing, understanding its benefits (scalability, cost -effectiveness, agility) and real world applications**

**30/08/2023**

**Started delving into the AWS cloud platform, learning, about its core services (compute, storage, networking, database) and their potential use cases**

**31/08/2023**

**AWS Account setup: Created my AWS Account, familiarized myself with the AWS Management Console and navigated through key service categories.**

**01/09/2023**

**EC2 Instances: Learned about Amazon Elastic Compute Cloud (EC2) for launching virtual servers, exploring instance types (general-purpose, compute-optimized, memory-optimized) and their selection criteria.**

**02/09/2023**

**Amazon S3: Began exploring Amazon Simple Storage Service (S3) for object storage, understanding its scalability, durability, and cost-effectiveness for various data storage needs.**

**03/09/2023**

**S3 Buckets: Learned about S3 buckets as fundamental storage units, practiced creating and managing buckets, and explored access control mechanisms (public, private, ACLs).**

**04/09/2023**

**S3 Object Lifecycle Management: Dived deeper into S3 object lifecycle management, configuring rules to automate data lifecycle transitions (e.g., archiving to Glacier for long-term storage).**

**05/09/2023**

**S3 Versioning: Enabled S3 versioning for object version control, ensuring rollback capabilities and data protection in case of accidental modifications.**

**06/09/2023**

**Amazon VPC: Started learning about Amazon Virtual Private Cloud (VPC) for creating isolated network environments within AWS, enabling secure communication with on-premises resources.**

**07/09/2023**

**VPC Subnets: Learned about VPC subnets for segmenting networks within a VPC, understood the concept of public and private subnets for differentiated access control.**

**08/09/2023**

**Internet Gateways and NAT Gateways: Explored how Internet Gateways provide public connectivity to a VPC for outbound traffic, while NAT Gateways enable outbound internet access for resources in private subnets**

**09/09/2023**

**Security Groups: Learned about security groups as firewall rules for controlling inbound and outbound traffic to and from EC2 instances within a VPC.**

**10/09/2023**

**Amazon EC2 Auto Scaling: Began learning about Amazon EC2 Auto Scaling for automatically provisioning and scaling EC2 instances based on predefined rules, ensuring application availability and optimal resource utilization.**

**11/09/2023**

**EC2 Launch Templates: Dived into EC2 Launch Templates for defining standardized configurations for launching EC2 instances, ensuring consistency and repeatability in deployments.**

**12/09/2023**

**AWS CloudFormation: Introduced to AWS CloudFormation for infrastructure as code (IaC), enabling automated provisioning and management of AWS resources through templates.**

**13/09/2023**

**CloudFormation Templates: Explored the structure of CloudFormation templates, including resources, properties, outputs, and parameters, for defining infrastructure configurations.**

**14/09/2023**

**CloudFormation Stacks: Learned about CloudFormation stacks as deployments of CloudFormation templates, practiced creating and managing stacks.**

**15/09/2023**

**Amazon Route 53: Explored Amazon Route 53, a highly available and scalable Domain Name System (DNS) service for routing internet traffic to EC2 instances and other AWS resources.**

**16/09/2023**

**Route 53 Hosted Zones: Created and managed Route 53 hosted zones, which are collections of DNS records that map domain names to resources.**

**17/09/2023**

**Route 53 Record Types: Learned about various Route 53 record types (A records, CNAME records, etc.) and their purposes for directing traffic to different types of resources.**

**18/09/2023**

**Route 53 Alias Records: Explored using Route 53 alias records to route traffic to resources like Elastic Load Balancers for scalability and fault tolerance.**

**19/09/2023**

**Amazon Elastic Load Balancing (ELB): Began learning about ELB, a service that automatically distributes incoming traffic across multiple EC2 instances for high availability and scalability.**

**20/09/2023**

**ELB Types: Explored different ELB types (Application Load Balancer, Network Load Balancer) and their suitability based on application needs**

**21/09/2023**

**ELB Health Checks: Learned about configuring health checks in ELBs to monitor the health of EC2 instances and redirect traffic only to healthy instances.**

**22/09/2023**

**Auto Scaling Groups: Began understanding how Auto Scaling groups work with ELBs to automatically scale instances based on demand and ensure application availability under load.**

**23/09/2023**

**Amazon CloudWatch: Explored Amazon CloudWatch, a monitoring and observability service that provides insights into AWS resources, applications, and metrics.**

**24/09/2023**

**CloudWatch Alarms: Learned about setting CloudWatch alarms to trigger notifications or actions when metrics exceed predefined thresholds, ensuring proactive problem detection.**

**25/09/2023**

**Amazon SQS: Learned about Amazon Simple Queue Service (SQS) as a highly scalable message queuing service for decoupling applications and ensuring message delivery even if receiving applications are unavailable.**

**26/09/2023**

**SQS Queues: Practiced creating and managing SQS queues, understanding how messages are sent and received asynchronously.**

**27/09/2023**

**Amazon SNS: Explored Amazon Simple Notification Service (SNS) for delivering messages to various endpoints like email, SMS, and other applications.**

**28/09/2023**

**SNS Topics and Subscriptions: Learned about creating SNS topics for messaging topics and configuring subscriptions for recipients like SQS queues or email addresses.**

**29/03/2023**

**Amazon Lambda: Began learning about Amazon Lambda, a serverless compute service that allows you to run code without managing servers.**

**30/09/2023**

**Lambda Functions: Explored creating and deploying Lambda functions, triggered by events like S3 object uploads or changes in DynamoDB tables.**

**01/10/2023**

**API Gateway: Explored Amazon API Gateway, a service for creating, publishing, and managing APIs that access Lambda functions, enabling application integration and access control.**

**02/10/2023**

**API Gateway Endpoints: Learned about creating API Gateway endpoints that receive API requests and route them to Lambda functions for processing.**

**03/10/2023**

**AWS Identity and Access Management (IAM): Began learning about IAM for managing user access to AWS resources, enforcing access control policies using roles and policies.**

**04/10/2023**

**IAM Users and Roles: Created IAM users and assigned roles to users and EC2 instances, enabling secure access control within AWS.**

**05/10/2023**

**IAM Policies: Explored writing IAM policies to define permissions for users and roles, ensuring least privilege access to resources.**

**06/10/2023**

**IAM Policy Simulator: Practiced using the IAM Policy Simulator to test and validate IAM policies before applying them to users or roles.**

**07/10/2023**

**AWS CloudTrail: Learned about AWS CloudTrail, a service that logs API calls made to AWS services, enabling activity tracking for security and compliance purposes.**

**08/10/2023**

**CloudTrail Logs: Explored analyzing CloudTrail logs to understand user activity and identify potential security risks.**

**09/10/2023**

**AWS CloudFormation StackSets: Dived into using CloudFormation StackSets for deploying CloudFormation templates across multiple AWS regions, ensuring consistent infrastructure across different locations.**

**10/10/2023**

**StackSet Operations: Learned about performing StackSet operations like creating, updating, and deleting stacks across multiple regions simultaneously.**

**11/10/2023**

**Amazon Kinesis: Explored Amazon Kinesis, a service for real-time data processing and streaming, enabling handling of large volumes of data streams.**

**12/10/2023**

**Kinesis Data Streams: Learned about creating and managing Kinesis data streams for capturing and storing continuous data streams.**

**13/10/2023**

**Amazon DynamoDB: Began learning about Amazon DynamoDB, a NoSQL database service**

**14/10/2023**

**DynamoDB Key Types: Explored primary and secondary keys in DynamoDB for efficient data access and querying based on specific attributes.**

**15/10/2023**

**DynamoDB Scaling: Learned about automatic scaling capabilities in DynamoDB, ensuring read and write capacity scales to meet application demands.**

**16/10/2023**

**Amazon Elastic Beanstalk: Began learning about Amazon Elastic Beanstalk, a service for deploying and managing web applications in the AWS cloud, simplifying deployment processes.**

**17/10/2023**

**Elastic Beanstalk Environments: Explored creating and managing Elastic Beanstalk environments that encapsulate application code, configuration, and resources.**

**18/10/2023**

**AWS CodeDeploy: Learned about AWS CodeDeploy, a service for automating code deployments to various AWS services like Elastic Beanstalk and Amazon EC2 instances.**

**19/10/2023**

**CodeDeploy Deployment Pipelines: Created and managed CodeDeploy deployment pipelines to automate the process of uploading code, performing deployments, and rolling back deployments if necessary.**

**20/10/2023**

**Amazon CloudFront: Explored Amazon CloudFront, a content delivery network (CDN) service that delivers content with low latency and high availability to users worldwide.**

**21/10/2023**

**CloudFront Distributions: Learned about creating and managing CloudFront distributions, configuring security policies, and optimizing content delivery for your applications.**

**22/10/2023**

**AWS Cost Management: Began learning about AWS Cost Management services like AWS Cost Explorer and Budgets, enabling you to track costs, identify spending trends, and set budgets to avoid unexpected charges.**

**23/10/2023**

**Cost Explorer Reports: Explored generating AWS Cost Explorer reports to understand your resource usage and cost breakdown across different services and regions.**

**24/10/2023**

**AWS Billing and Payment Methods: Learned about managing AWS billing and configuring various payment methods like credit cards, linked accounts, and prepaid options.**

**25/10/2023**

**Reserved Instances: Explored reserved instances, a cost-saving option for predictable workloads, ensuring significant discounts compared to on-demand pricing.**

**26/10/2023**

**AWS Security Best Practices: Focused on security best practices in AWS, emphasizing strong IAM policies, encryption of data at rest and in transit, and regular security audits.**

**27/10/2023**

**AWS Security Identity and Access Management (SIAM): Explored Amazon Web Services Security Identity and Access Management (SIAM), a service that helps you aggregate and analyze security logs across your AWS accounts to detect potential threats.**

**28/10/2023**

**AWS Data Backup and Recovery: Learned about different strategies for data backup and recovery in AWS, including using services like S3 Glacier for long-term archival and Amazon RDS backups for database recovery.**

**29/10/2023**

**AWS Backup: Explored AWS Backup, a service that simplifies backup and recovery across various AWS services like EBS volumes, DynamoDB tables, and ElastiCache clusters.**

**30/10/2023**

**AWS Well-Architected Framework: Began learning about the AWS Well-Architected Framework, a set of best practices for designing and running cloud applications on AWS, focusing on areas like security, performance, cost, reliability, and operational excellence.**

**31/10/2023**

**The Five Pillars of Well-Architected Framework: Explored the five pillars of the Well-Architected Framework: Operational Excellence, Security, Reliability, Performance Efficiency, and Cost Optimization.**

1/11/2023

**AWS Global Infrastructure: Learned about AWS's global infrastructure, including regions and Availability Zones, ensuring redundancy and fault tolerance for your applications.**

**2/11/2023**

**AWS Service Level Agreements (SLAs): Explored AWS service level agreements (SLAs) that define the uptime and performance guarantees offered by different AWS services.**

**3/11/2023**

**Amazon Cognito: Began learning about Amazon Cognito, a service for user authentication and authorization in your web and mobile applications, providing built-in features like user registration, login, and social identity integration.**

**4/11/2023**

**Cognito User Pools: Explored creating Cognito user pools to manage user accounts and integrate with your applications for secure access control.**

**5/11/2023**

**Amazon SQS FIFO Queues: Learned about Amazon SQS FIFO (First-In, First-Out) queues that guarantee the order of message delivery, ensuring consistent processing for applications that require strict message order.**

**6/11/2023**

**SQS Dead Letter Queues (DLQs): Explored SQS Dead Letter Queues (DLQs) for handling messages that fail to be delivered to receiving applications, enabling troubleshooting and retries.**

**7/11/2023**

**Amazon SNS Topics and Fanout: Learned about the fanout model in Amazon SNS, where a single message sent to a topic is delivered to all subscribed endpoints simultaneously.**

8/11/2023

**SNS Filtering: Explored SNS filtering to allow subscribers to receive only messages that meet specific criteria, optimizing message delivery based on application needs.**

**9/11/2023**

**Amazon Route 53 Traffic Routing: Dived deeper into Amazon Route 53 traffic routing methods like weighted routing and latency-based routing for distributing traffic across resources based on specific criteria.**

**10/11/2023**

**Route 53 Health Checks: Explored customizing health checks in Route 53 to monitor the health of various resources like web servers and databases, ensuring reliable traffic routing.**

**11/11/2023**

**AWS CloudFormation Macros: Learned about AWS CloudFormation macros for writing reusable code snippets within templates, simplifying complex configurations and template logic.**

**12/11/2023**

**CloudFormation Outputs: Explored defining outputs in CloudFormation templates to capture values from created resources after stack deployment, enabling integration automation.**

**13/11/2023**

**AWS CloudFormation Stack Drift Detection: Began learning about CloudFormation stack drift detection, allowing you to identify changes in resources outside of the defined template and ensure infrastructure remains compliant.**

**14/11/2023**

**Stack Drift Remediation: Explored remediating stack drift by automatically updating resources to match the desired state defined in the CloudFormation template.**

**15/11/2023**

**Amazon SES: Learned about Amazon Simple Email Service (SES) for sending transactional and marketing emails with high scalability and deliverability rates.**

**16/11/2023**

**SES Email Verification: Explored verifying email addresses with SES to prevent spam and ensure emails reach intended recipients.**

**17/11/2023**

**AWS IoT Core: Began learning about AWS IoT Core, a managed service for connecting and managing internet-of-things (IoT) devices to AWS cloud services.**

**18/11/2023**

**IoT Core Device Registry: Explored creating and managing the IoT Core device registry, which stores information about your connected devices.**

**19/11/2023**

**IoT Core Rules Engine: Learned about the IoT Core rules engine, allowing you to define rules based on device data to trigger actions in other AWS services like Lambda or SQS.**

**20/11/2023**

**IoT Core Shadows: Explored IoT Core shadows, a lightweight representation of a device's state in the cloud, enabling data synchronization and remote configuration of devices.**

**21/11/2023**

**Amazon Kinesis Firehose: Dived deeper into Amazon Kinesis Firehose, a service for delivering real-time streaming data to various destinations like S3, Elasticsearch, and Splunk.**

**22/11/2023**

**Firehose Delivery Streams: Learned about creating Kinesis Firehose delivery streams to configure data transformation and encryption before delivery to target destinations.**

**23/11/2023**

**Amazon Redshift: Began learning about Amazon Redshift, a data warehouse service optimized for large-scale data analytics and querying.**

**24/11/2023**

**Redshift Clusters: Explored creating and managing Redshift clusters, selecting appropriate cluster types based on data volume and performance requirements.**

**25/11/2023**

**Redshift Spectrum: Learned about Redshift Spectrum, a serverless service that allows you to query data stored in S3 directly using Redshift SQL syntax, facilitating cost-effective data analysis for large datasets.**

**26/11/2023**

**Redshift Data Loading: Explored various options for loading data into Redshift clusters, including manual loading, COPY commands, and scheduling data imports using AWS services like Lambda.**

**27/11/2023**

**Amazon Aurora: Began learning about Amazon Aurora, a relational database service that provides high availability and performance at a fraction of the cost of traditional databases.**

**28/11/2023**

**Aurora Database Clusters: Explored creating and managing Aurora database clusters, ensuring scalability and fault tolerance for mission-critical applications.Aurora Backups and Recovery: Learned about backup and recovery options for Aurora databases, including automated backups to Amazon S3 and point-in-time restore capabilities. Aurora Read Replicas: Explored using Aurora read replicas for read-heavy workloads, scaling read capacity without impacting the primary database performance.**

**29/11/2023**

**AWS Serverless Application Model (SAM): Began learning about the AWS Serverless Application Model (SAM), a template format for defining serverless applications using AWS Lambda functions and other serverless services. SAM Local Development Environment: Explored setting up a SAM local development environment to test and debug serverless applications locally without deploying them to AWS.**

**30/11/2023**

**AWS X-Ray: Learned about AWS X-Ray, a service for tracing and analyzing serverless applications, enabling you to identify bottlenecks and optimize application performance. X-Ray Service Maps: Explored X-Ray service maps to visualize the flow of requests through your serverless application and identify dependencies between services.**