MCA 2nd Semester, April 2025
Cloud Computing – Lab Assignments
Paper Code: 20MCA22DB1

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Using AWS Cloud

The following assignments cover a range of AWS services and concepts, providing you all with hands-on experience in different areas of cloud computing.

1. **Creating and Configuring an EC2 Instance:**
   - Task: Students to create a basic EC2 instance, configure security groups, and connect to it.
   - You can explore different instance types and understand how to launch and terminate instances.

2. **Setting up a Virtual Private Cloud (VPC):**
   - Task: Students to create a custom VPC with public and private subnets, configure route tables, and set up network access control lists (NACLs).
   - This assignment will help you understand network architecture in AWS.

3. **Implementing Auto Scaling:**
   - Task: Students to configure Auto Scaling for a group of EC2 instances based on specific criteria such as CPU utilization.
   - You can monitor the scaling activities and understand how it ensures high availability and cost optimization.

4. **S3 Bucket Configuration:**
   - Task: Students to create an S3 bucket, configure versioning, and set up access control policies.
   - You can explore features like static website hosting, logging, and object lifecycle policies.

5. **Database Setup using Amazon RDS:**
   - Task: Provision a relational database using Amazon RDS, configure security settings, and connect an application to the database.
   - You can explore different database engines like MySQL, PostgreSQL, or Aurora.

6. **Implementing AWS Lambda Functions:**
   - Task: Create Lambda functions that respond to events, such as S3 uploads, API Gateway requests, or CloudWatch events.
   - This will help you understand serverless computing and event-driven architecture.

7. **Configuring Load Balancers:**
   - Task: Set up an Application Load Balancer or Network Load Balancer to distribute incoming traffic across multiple EC2 instances.
   - You should configure health checks and explore features like SSL termination.

8. Implementing CloudFormation Templates:

- Task: Create AWS CloudFormation templates to define and provision infrastructure as code.
- You should design templates for common architectures like web applications or multi-tiered systems

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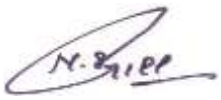
9. Monitoring and Logging with CloudWatch:

- Task: Configure CloudWatch alarms based on specific metrics, set up logging for EC2 instances, and create custom dashboards.
- You should understand how to monitor and troubleshoot AWS resources.

10. Security and Identity Access Management (IAM) Configuration:

- Task: Students can implement IAM roles and policies to control access to AWS resources.
- You should explore features like cross-account access, MFA, and IAM roles for EC2 instances.



(Prof. Nasib Singh Gill)