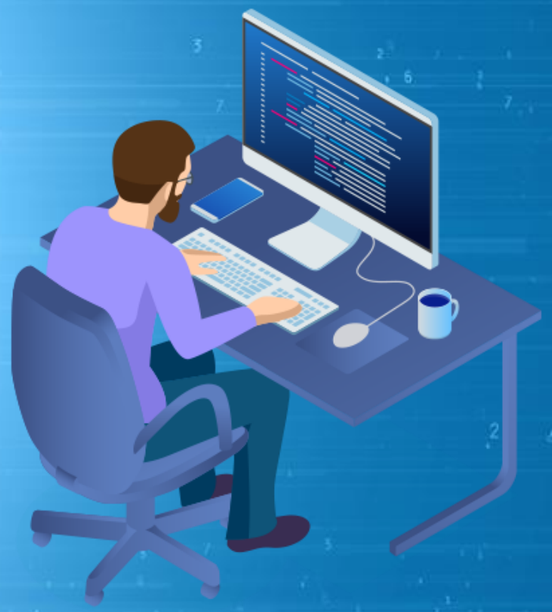
TECHNOLOGY



AWS Cloud Fundamentals: Course-End Project

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Creating a VPC with Database and EC2 Instances

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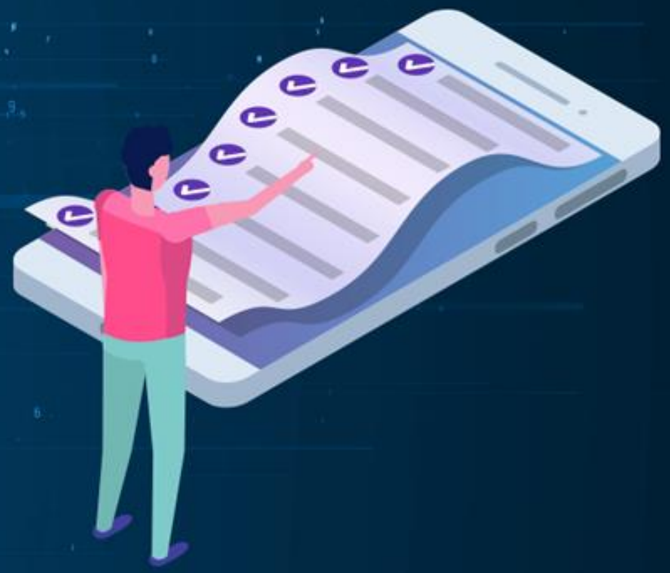
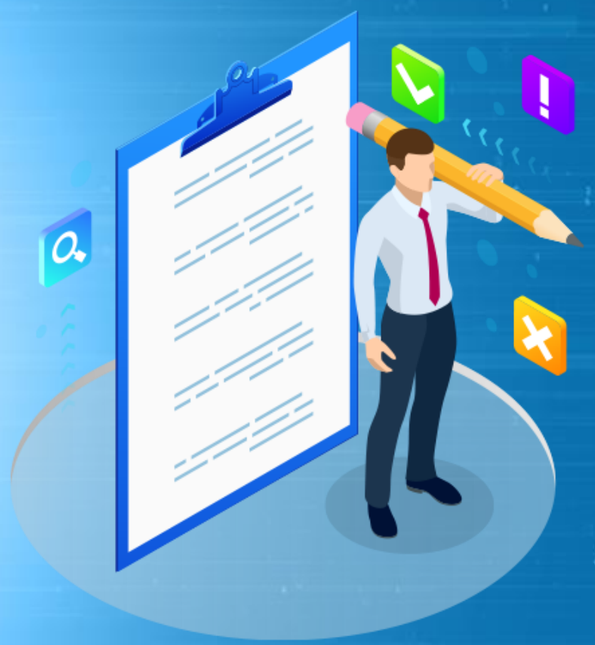
Objectives

To design and construct an Amazon Virtual Private Cloud (VPC) architecture that includes an EC2 instance within a public subnet and a database instance within a private subnet



Problem Statement and Motivation



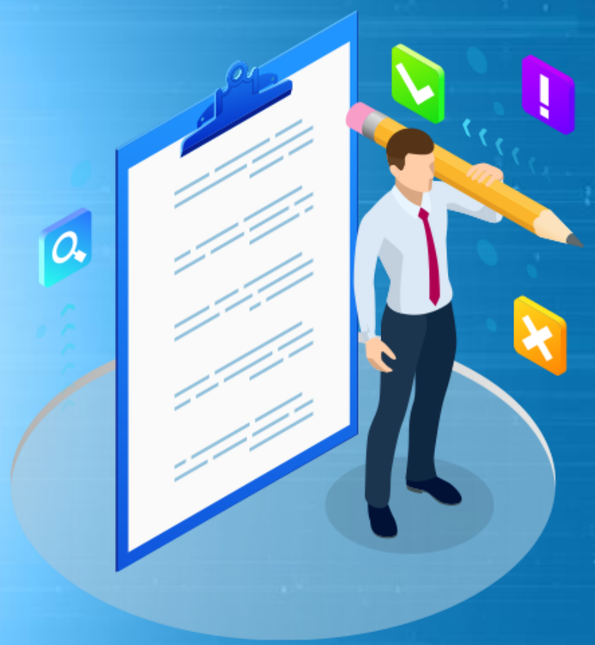
Real-Time Scenario:

James, a systems engineer at a startup company, is tasked with developing a web application with a secure, robust, and scalable backend database.

The company plans to utilize AWS RDS for the database, while the application will be deployed on an EC2 instance.

James must ensure a secure VPC setup where the EC2 instance resides in the public subnet and the RDS DB instance in a private subnet.

Problem Statement and Motivation



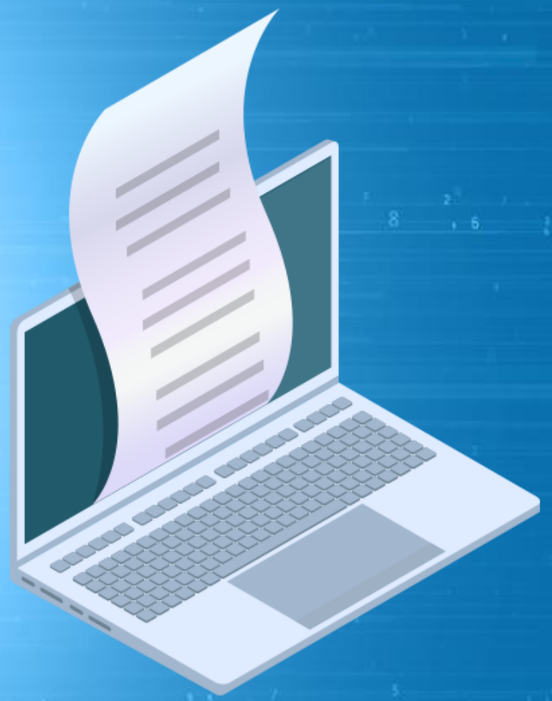
Expected Solution:

As a cloud architect, your objective is to assist James in developing an AWS VPC that hosts both an EC2 instance and a database instance.

The EC2 instance, serving the web application, should be placed in a public subnet, while the DB instance should be secured in a private subnet.

You are expected to provide step-by-step instructions for creating and configuring these AWS resources, ensuring system security, reliability, and accessibility.

Industry Relevance



The following AWS services and skills utilized in this project are widely applied in the industry:

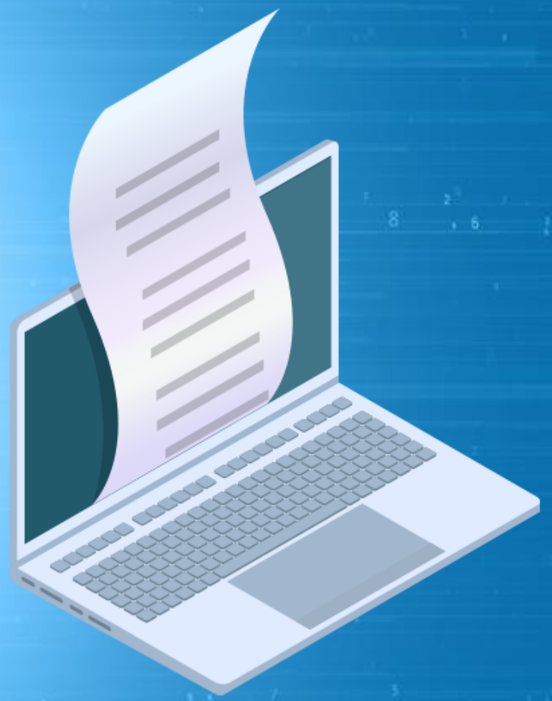
1. **Elastic IP:** Enables consistent public-facing addresses for AWS resources by routing internet traffic to these instances

2. **Amazon VPC:** Offers a secure and private environment within the AWS Cloud where resources can be deployed

3. **Security groups:** Function as a virtual firewall for EC2 instances, essential for managing inbound and outbound traffic

4. **Subnet groups:** Allow effective network organization within a VPC, playing a crucial role in controlling data flow

Industry Relevance



The following AWS services and skills utilized in this project are widely applied in the industry:

5. **RDS DB instances:** Provide a convenient way to manage a relational database, commonly used for structured data storage

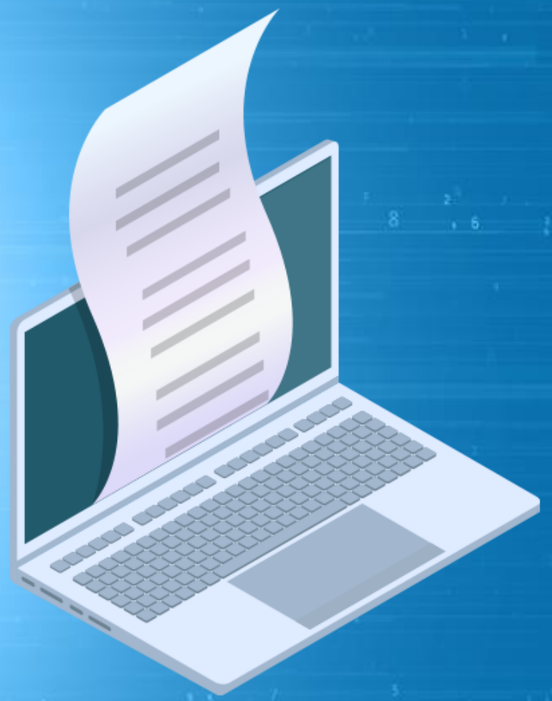
6. **Amazon EC2 instances:** Enable scalable computing in AWS, fundamental for deploying applications on flexible and resizable compute capacity

Tasks

The following tasks outline the AWS VPC creation process:

1. Allocating an Elastic IP address
2. Creating a VPC with public and private subnets
3. Creating an additional private subnet
4. Creating a VPC security group
5. Creating a VPC security group for a private DB instance
6. Creating a DB subnet group
7. Creating a DB instance in the private subnet
8. Creating an EC2 instance in the public subnet

Project Reference



- **Task 1:** Lesson 3
- **Task 2:** Lesson 6, Lesson-end project
- **Task 3:** Lesson 4
- **Task 4:** Lesson 4 and 6
- **Task 5:** Lesson 4 and 6
- **Task 6:** Lesson 4 and 6
- **Task 7:** Lesson 4 and 6
- **Task 8:** Lesson 3

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Thank You

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