DESCRIPTION

EXP-01

An Amazon EC2 (Elastic Compute Cloud) instance is a virtual server in Amazon's cloud that provides scalable computing power for running applications. It allows users to choose the operating system, CPU, memory, storage, and network configurations according to their needs. EC2 instances can be quickly launched, stopped, or terminated, giving flexibility to handle varying workloads efficiently. They are commonly used for hosting websites, running applications, data analysis, and machine learning. With different pricing models such as On-Demand, Reserved, and Spot Instances, EC2 helps optimize costs. It also offers strong security through AWS Identity and Access Management (IAM), key pairs, and security groups, making it a reliable and customizable cloud computing service.

EXP-02

An Amazon S3 (Simple Storage Service) bucket is a cloud-based storage service provided by AWS that allows users to store and retrieve any amount of data at any time. It works like an online folder where you can save files such as documents, images, videos, or backups. Each S3 bucket has a unique name and can hold an unlimited number of objects. It is highly durable, scalable, and secure, ensuring that your data is always available and protected. Users can control access to their data using permissions, bucket policies, and AWS Identity and Access Management (IAM). S3 is commonly used for data backup, website hosting, content distribution, and big data analytics. Its pay-as-you-go pricing model and integration with other AWS services make it a flexible and cost-effective storage solution.

EXP-03

An Amazon SQS (Simple Queue Service) queue is a fully managed message queuing service provided by AWS that enables decoupling and communication between different parts of a distributed system. It allows applications or microservices to send, store, and receive messages asynchronously, ensuring smooth data flow even if some components are temporarily unavailable. SQS helps improve reliability and scalability by preventing message loss and handling large volumes of requests efficiently. There are two types of queues: Standard Queues (for high throughput and best-effort ordering) and FIFO Queues (for first-in-first-out order and exactly-once processing).

EXP-04

Amazon SNS (Simple Notification Service) is a fully managed messaging and notification service provided by AWS that allows applications, services, and users to communicate with each other easily. It uses a publish-subscribe (pub/sub) model, where a publisher sends messages to a topic, and all subscribers to that topic automatically receive the messages.

SNS is designed for real-time, push-based message delivery, meaning messages are instantly sent to subscribers without them having to request or poll for updates. Subscribers can receive messages through various protocols such as email, SMS, HTTP/S endpoints, AWS Lambda functions, or SQS queues.

It is widely used for alerting systems, monitoring notifications, and event-driven applications. For example, it can notify system administrators via email when an application fails, or it can trigger AWS Lambda functions when a new message arrives.

EXP-05

Setting up a WordPress website using Amazon Lightsail involves launching a simplified, pre-configured virtual server that comes with WordPress already installed. Lightsail is designed to make deploying websites easy by bundling compute power, storage, and networking into a single package with straightforward pricing. When you create a WordPress instance on Lightsail, AWS provides a managed environment that includes the web server, database, and necessary software, so you don't have to configure these components manually.

This setup enables you to quickly deploy a fully functional WordPress site with options for managing DNS, attaching static IP addresses, and creating automatic backups. Lightsail also offers an intuitive web-based console and CLI tools to manage your instance. Because it abstracts much of the underlying infrastructure complexity, Lightsail is ideal for users who want to launch and maintain WordPress websites with minimal technical overhead. Overall, Amazon Lightsail streamlines the process of hosting WordPress sites by offering a simple, cost-effective, and scalable solution.

EXP-06

AWS Backup is a fully managed service that enables you to automate and centrally manage backups across AWS resources such as EC2 instances, EBS volumes, RDS databases, and more. When used with EC2, AWS Backup automatically creates and manages backups of the instance's attached EBS volumes, ensuring data protection without manual effort. These backups, stored as snapshots, can be used to restore the entire EC2 instance or individual volumes if needed.

The service allows you to define backup plans with schedules, retention policies, and lifecycle rules, ensuring that backups occur automatically and are retained for the required period. It also provides encryption, access control, and monitoring features to maintain data security and compliance.

In short, AWS Backup offers a centralized, automated, and reliable way to protect EC2 data, reducing the risk of data loss and simplifying disaster recovery operations.

EXP-07

Amazon RDS (Relational Database Service) provides managed relational databases, including MySQL, in the cloud. Connecting to an RDS MySQL instance via MySQL Workbench involves using the database's endpoint, port, and authentication credentials to access it remotely. The RDS instance must be configured to allow connections—typically by making it publicly accessible or accessible within a VPC, and by setting appropriate security group rules to permit inbound MySQL traffic on port 3306. This setup enables users to manage and interact with their cloud-hosted

MySQL databases through the familiar MySQL Workbench interface, offering the same capabilities as with traditional on-premises databases but with the benefits of AWS's managed infrastructure.

EXP-08

Amazon DynamoDB is a fully managed NoSQL database service that stores data in tables with items identified by primary keys. Creating a DynamoDB table involves defining its schema, including primary key attributes, and configuring its throughput capacity. Data operations such as inserting, retrieving, and deleting items are performed by specifying the table and the primary key values. Using the AWS CLI, these operations allow you to manage your DynamoDB tables programmatically—enabling efficient, scalable, and flexible data handling without the need for complex infrastructure management.

EXP-09

Amazon Rekognition is a powerful AWS service that uses machine learning to analyze images and videos. For object detection, Rekognition can automatically identify and locate multiple objects, scenes, and activities within an image. It recognizes a wide variety of objects—like cars, people, animals, furniture, and more—by returning labels with confidence scores and bounding boxes showing where each object appears in the image.

This makes it useful for applications like content moderation, inventory tracking, security monitoring, or any scenario where understanding the visual content of images is important. The service is fully managed and scales automatically, allowing developers to easily integrate object detection capabilities into their apps without needing deep expertise in computer vision or machine learning.

EXP-10

Amazon SageMaker is a fully managed service that enables developers and data scientists to build, train, and deploy machine learning models at scale. Creating a Jupyter Notebook instance in SageMaker provides an interactive environment where you can write and run code to prepare data, build models, and perform experiments—all without managing the underlying infrastructure.

Once the notebook instance is set up, you can use it to develop and train basic machine learning models by leveraging built-in algorithms or custom code. SageMaker handles the heavy lifting of resource provisioning, so you can focus on writing code for data preprocessing, model training, and evaluation. The platform also supports easy deployment of trained models for real-time predictions.