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| **Assignment 2**   1. *Explain all the points for IAM in brief*   Identity and Access Management (IAM) is a web service that helps in securely controlling AWS. IAM is used to control authentication (using tools Multi-factor Authentication aka MFA) and authorizations of resources.  A few important terms are:   * Resources   The user, group, role, policy, and identity provider objects that are stored in IAM. As with other AWS services, you can add, edit, and remove resources form IAM.   * Identitiies   IAM resource object to identify and group by attaching policies to the IAM identity to either users, roles (assigned a task) or a group of users.   * Entities   Object used for authentication that includes IAM users, federated users, and assumed IAM roles.   * Principals   A person or an application that uses the AWS Account root user, an IAM user, or an IAM role to sign in and make requests to AWS.   1. *Explain all the points for EC2 in brief*   Amazon Elastic Cloud Compute (EC2) is a web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers.  It’s features are:   * We can pause and resume our instances (this helps in saving costs) * We can choose from a range of GPU instances as per our requirement. * We also have the option to choose from a range of GPU Graphic Instances * We pay only for what we use * It is available at multiple locations * It has elastic IP Addresses that help mask instance and availability zone. * The autoscaling feature helps in scaling up or down as per the requirement.  1. *Explain all the points for EBS in brief*   Amazon Elastic Block Store (EBS) is an easy to use, high-performance, block-storage service designed for EC2 for both throughput and transaction intensive workloads at any scale.  Amazon EBS Snapshots provide a simple and secure data protection solution that is designed to protect block storage data such as EBS volumes, boot volumes, as well as on-premises block-data.   1. *Explain all the points for ASG in brief*   AWS Autoscaling monitors applications and automatically adjusts to maintain steady, predictable performance at the lowest possible costs. ASG stands for Auto Scaling Groups.  Its features are:   * It offers unified scaling over EC2, ECS, DynamoDB and Aurora. * It automatically discovers the scalable cloud resources underlying in the application without the requirement of manual identification. * It has built-in scaling strategies * It can predict future traffic and scale accordingly * Fully-managed * It has smart scaling policies  1. *Explain all the points for S3 in brief*   Amazon Simple Storage Service (S3) is an objects storage service that offers industry-leading scalability, data availability, security and performance.  It features are:   * Access Points   Customers increasingly use Amazon S3 to store shared data sets , where data is aggregated and accessed by different applications, teams and individuals, whether for analytics, machine-learning, real-time monitoring or other data lake uses.   * Batch Operations   It is a data management feature that lets manage billions of objects at scale with just a few clicks in Amazon S3 Management Console or a single API request.   * Block Public Access   Helps in securing S3 data from unauthorized access with S3 Block Public Access.   * Cost Optimization   On-premises storage can be costly and complex, with expensive hardware refresh cycles, and data migrations due to system upgrades.   * Replication   It is an elastic, fully managed, low cost feature that replicates objects between buckets.   * Storage Lens   Delivers organization-wide visibility into object storage usage , activity trends, and makes actionable recommendations to improve cost-efficiency and apply data protection best practices. |