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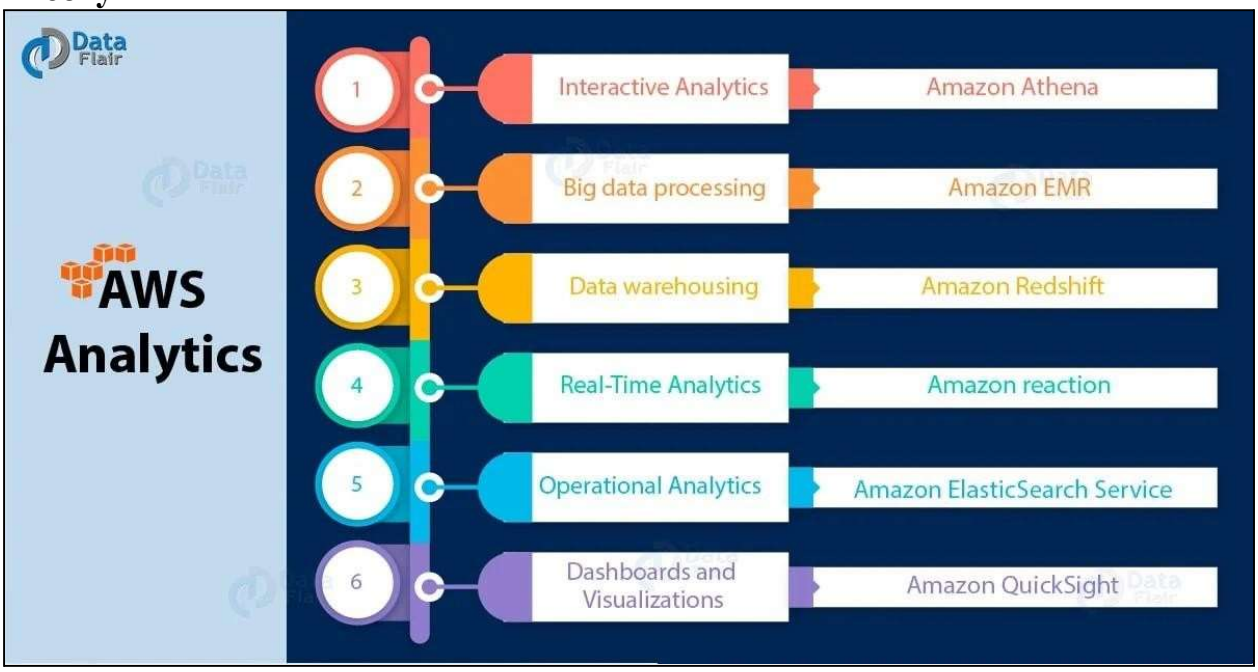
57 D20B

IOE Assignment 2

Aim - Explore AWS Analytics tools.

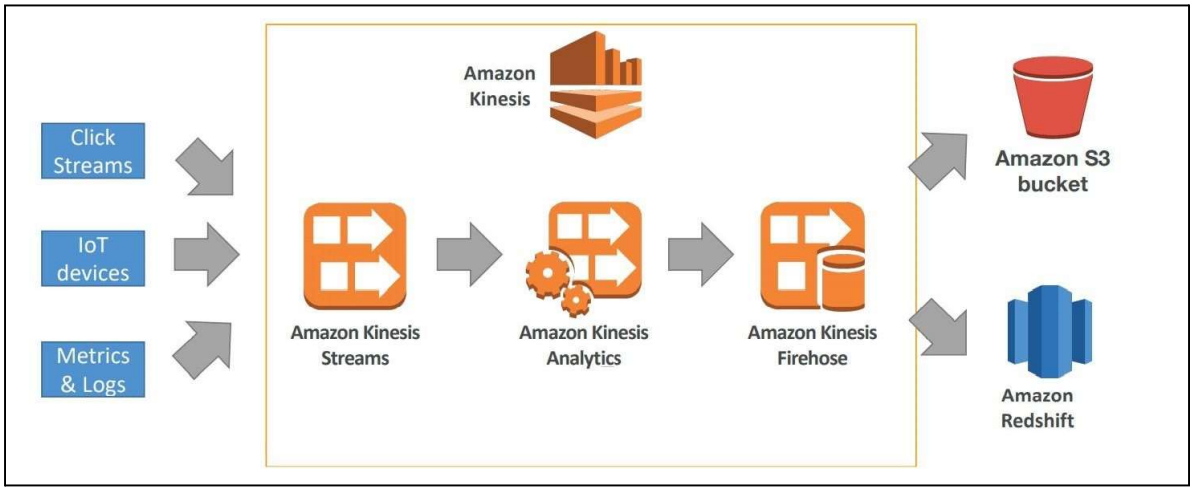
Theory -



Amazon Web Services (AWS) offers a variety of analytics tools and services that can be highly valuable for Internet of Things (IoT) projects. These tools help you collect, store, process, analyze, and visualize data generated by IoT devices. Here are some useful AWS analytics tools for beginners working on IoT projects:

1. **AWS IoT Core:** AWS IoT Core is a managed cloud service that enables you to connect IoT devices to the AWS cloud securely. It provides features like device authentication, MQTT support, and rules engine for routing messages to other AWS services.

2. **Amazon Kinesis:** Kinesis is a suite of real-time data streaming services, including Kinesis Data Streams, Kinesis Data Firehose, and Kinesis Data Analytics. It allows you to ingest, process, and analyze real-time data from IoT devices. You can use Kinesis Data Streams to handle real-time data ingestion and Kinesis Data Analytics for real-time data processing.



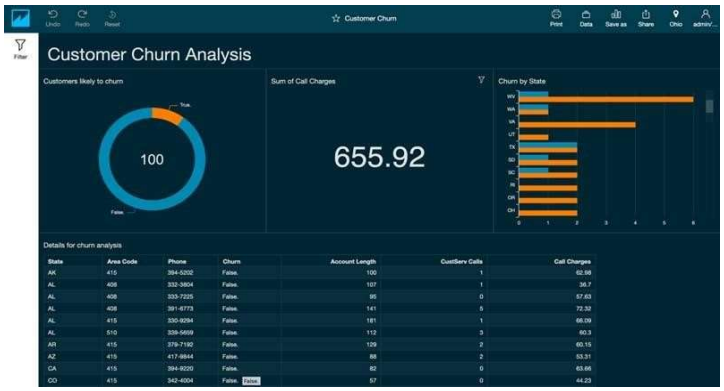
3. **AWS Lambda**: Lambda is a serverless compute service that can be used in combination with other AWS services to create event-driven IoT applications. You can use Lambda to run code in response to events generated by IoT devices or to process data from various sources.

4. **Amazon S3:** Amazon Simple Storage Service (S3) is an object storage service that is often used to store large volumes of IoT data. It provides durability, scalability, and the ability to manage data using lifecycle policies.

5. **AWS Glue:** AWS Glue is a fully managed ETL (Extract, Transform, Load) service that helps you prepare and transform data for analytics. It's useful for cleaning and preparing IoT data before analysis.

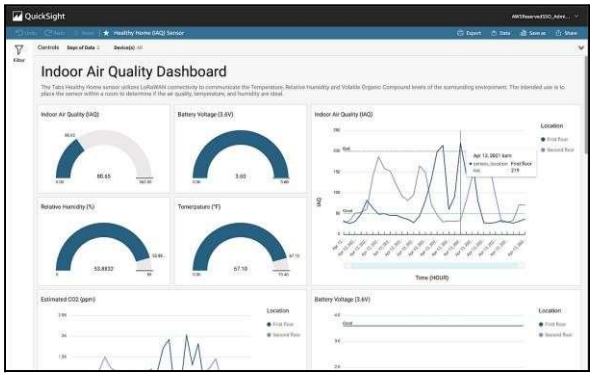
6. **Amazon QuickSight:** QuickSight is a business intelligence and data visualization service. You can use it to create dashboards and reports to visualize IoT data and gain insights from it. Amazon QuickSight is a cloud-powered business intelligence service that allows you to easily create and publish interactive dashboards for IoT data visualization.

7. **Amazon SageMaker:** If your IoT project involves machine learning, SageMaker is a managed machine learning service that makes it easy to build, train, and deploy machine learning models for IoT data analysis.



8. **Amazon Redshift**: Redshift is a fully managed data warehousing service that can be used for storing and analyzing large datasets generated by IoT devices. It's particularly useful for complex analytics and reporting.

9. **AWS IoT Analytics:** AWS IoT Analytics is a fully managed service that simplifies the process of collecting, processing, and analyzing IoT data. It offers features like data transformation, enrichment, and the ability to run analytics on IoT data.



For IoT projects on AWS, it's important to start with the basics, such as AWS IoT Core for device management and data ingestion, and then gradually explore other services like Amazon S3 for data storage, Kinesis for real-time processing, and analytics services like AWS Glue and Amazon QuickSight as your project requirements grow. Additionally, AWS provides comprehensive documentation and tutorials to help you get started with these services and build your IoT analytics solutions effectively.