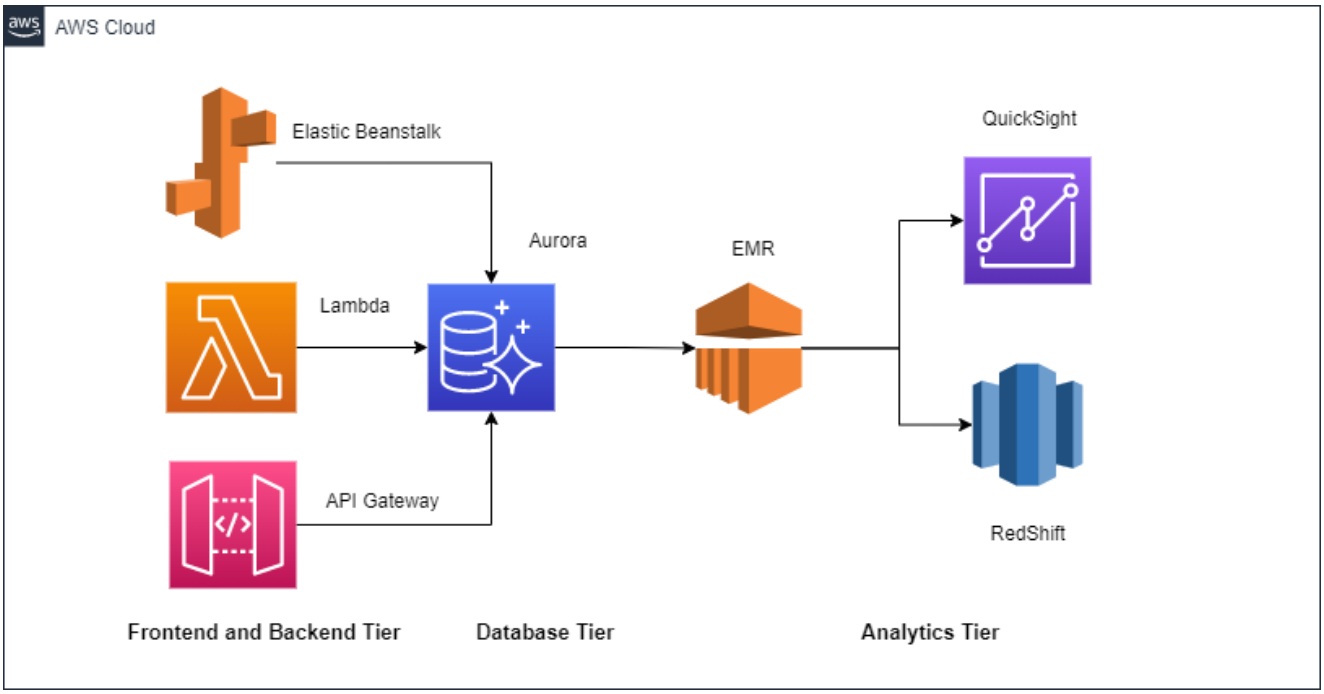
Architecting Solutions on AWS Capstone Project

Scenario: You are working for a customer that runs their workloads on premises. Your customer has two workloads:

- A three-tier architecture composed of a frontend (HTML, CSS, JavaScript), backend (Apache Web Server and a Java application), and database (MySQL). The three-tier application hosts a dynamic website that accepts user traffic from the internet.
- A data analytics workload that runs Apache Hadoop. The analytics workload analyzes a massive amount of data that stored on premises and it also uses visualization tools to derive insights.

These components are currently running in the data center on physical servers. Currently, if a power outage occurred in the data center, all systems would be brought offline. Because of this issue (in addition to other benefits of the cloud), your customer wants to migrate all components to the cloud and, when possible, use AWS services to replace on-premises components.

My Architecture and Explanation:



This Architecture can help the customer solve the given scenario.

AWS offers many services, and for this scenario, I used serverless and fully-managed services to take advantage of AWS Cloud. Going cloud-native will be helpful for this scenario as it can save costs and make the application resilient and highly available.

For frontend and backend tiers, I used Elastic Beanstalk, Lambda, and API Gateway. Elastic Beanstalk and Lambda were used to serve frontend and API Gateway was used for the backend. For the database tier, I used Aurora Serverless. For the analytics tier, I employed Elastic MapReduce, QuickSight and Redshift. Elastic MapReduce processed and transformed the data before sending to Redshift and QuickSight to gain insights about the data.