School of Computing and Engineering: University of Missouri – Kansas City

Course Name: CS 5525 Cloud Computing

Group Name: Cloud Geeks

Title: Cloud-Based Patient Engagement: Revolutionizing Healthcare Experience

Group Member's:

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Tasks Completed:

We have successfully set up a cloud infrastructure and data storage on Amazon Web Services (AWS). This infrastructure provides a scalable and secure platform for running our applications and services, as well as a robust and reliable solution for storing and managing our data.

The infrastructure includes multiple Elastic Compute Cloud (EC2) instances running in a Virtual Private Cloud (VPC). We have also set up an Elastic Load Balancer (ELB) to distribute traffic across the EC2 instances and configured Auto Scaling to automatically adjust the number of instances based on demand.

In addition to the cloud infrastructure, we have also set up data storage solutions on AWS, including Amazon S3 and Amazon RDS. Amazon S3 provides an object storage solution for storing and retrieving any amount of data, while Amazon RDS provides a fully managed relational database service. We have configured these services to ensure high availability, durability, and scalability of our data storage.

We have taken a sample of data containing feedback of patients from the Kaggle. To ensure the security of our infrastructure and data, we have configured security groups to control inbound and outbound traffic to our EC2 instances and data storage solutions. We have also set up monitoring and logging to track the health and performance of our infrastructure and detect any security issues.

The infrastructure and data storage are deployed in the region closest to our target users, ensuring low latency and high performance. We have also implemented backup and disaster recovery solutions to ensure the availability of our applications and data in case of any unexpected events.

We have utilized various AWS services and technologies to build a robust and scalable cloud infrastructure and data storage solution. Our team has worked hard to ensure that the infrastructure and data storage meet our requirements and are designed for optimal performance and security.

Overall, we successful completed the setting up a cloud infrastructure and data storage on AWS. This infrastructure provides a reliable and cost-effective platform for running our applications and services, as well as a secure and scalable solution for storing and managing our data.

Tasks to be performed:

We need to focus on application development, APIs, and analytics in our cloud infrastructure on Amazon Web Services (AWS). We should consider leveraging AWS services such as AWS Lambda, Amazon API Gateway, and AWS Elastic Beanstalk to develop, deploy, and manage our applications in a scalable and cost-effective way. We should also explore using modern development methodologies and tools such as DevOps, Agile, and containerization to streamline our development processes and improve the quality and reliability of our applications.

APIs are essential for integrating our applications with other systems and services, enabling us to create new products and services and deliver them to our customers quickly. We should consider building a robust and secure API ecosystem using AWS API Gateway and AWS Lambda. This will enable us to manage and scale our APIs effectively, while also providing features such as authentication, authorization, and caching.

Analytics is a crucial area for us to understand the behavior and needs of our customers and make data-driven decisions. We should consider using AWS services such as Amazon Kinesis, AWS Glue, and Amazon QuickSight to collect, process, and analyze data from various sources such as our applications, APIs, and third-party systems. This will enable us to gain insights into customer behavior and preferences, identify opportunities for improvement, and optimize our business processes.

Challenges:

During the process of setting up cloud infrastructure and data storage in AWS, we faced several challenges that required careful planning and execution to overcome. AWS offers a wide range of services that can be overwhelming for beginners. We needed to invest a significant amount of time and effort to learn and understand the various services and how they integrate with each other. Managing and maintaining the configuration of AWS services can be challenging. Configuring and maintaining instances, setting up security groups, and establishing access control can be tedious tasks that require a significant amount of attention to detail.

One of the most significant challenges we faced was ensuring the security and privacy of patient data. We needed to establish strict access controls, encryption mechanisms, and data backup policies to safeguard patient data from unauthorized access and potential data breaches.

Overall, these challenges required careful planning, attention to detail, and collaboration between the team members. We had to invest a significant amount of time and effort to overcome these challenges, but with appropriate planning and execution, we were able to successfully set up cloud infrastructure and data storage in AWS.