

Computer Network Lab 5 Report

Registration Number: [2021-CS-118]
Name: [Muhammad Yaqoob]

Questions 1

In the scenario of encountering 200,000 concurrent users on your web or mobile project, how would you manage the load, and what technologies would you employ to handle such traffic efficiently?

Your Solution: I will use **Load Balancer** because it distributes network or application traffic across a number of servers. Load balancers are used to increase capacity (concurrent users) and reliability of applications.

Question 2

While your mobile or web application is live, you need to make updates without causing any downtime. How would you achieve this goal and ensure the site remains operational throughout the update process?

Your Solution: I will use **Blue-Green Development**. In blue-green development blue development is meant to for mobile or web application is live and green development is used to make updates without causing any downtime

Question 3

If your website faces a Distributed Denial of Service (DDoS) attack, describe your strategy for detecting and preventing it effectively. What tools or techniques would you employ to safeguard your site?

Your Solution: i will use **Firewall** because it is a network security device that monitors and filters incoming and outgoing network traffic based on an organization's previously established security policies.

Question 4

When dealing with unstructured data in your project that needs to be stored in a database, how would you resolve this issue? Which database system would you choose, and what are the reasons behind your selection?

Your Solution: I will use **MongoDB** because MongoDB makes it easy for developers to store structured or unstructured data. It uses a JSON-like format to store documents.

Question 5

If your website handles critical transactional data that requires robust security measures, what technology stack would you use, and why? Explain your choice in detail.

Your Solution: If my website handles critical transactional data that requires robust security measures i will use **MySQL**

Question 6

Given an audience spanning Pakistan and the USA, how would you determine the optimal server locations and implement traffic redirection to ensure users are directed to the nearest server based on their location?

Your Solution: CDN

Question 7

When dealing with static data like images, icons, and fonts on your website, how would you optimize the storage and delivery of such content? What technologies or methods would you employ for efficient management?

Your Solution: I will use **CDN(Content Delievery Network)** that is a geographically distributed group of servers that caches content close to end users.

Questionn 7

To implement a real-time notification system within your application, what technology stack or method would you choose, and why? Provide a comprehensive explanation of the chosen approach and its advantages.

Your Solution: I will use **Web Sockets** because WebSockets are an essential technology that enables two-way communication between a client and a server over a single, long-lived connection. They are designed to provide real-time, low-latency communication between a web application and a server, allowing for a more interactive and dynamic user experience.