Lab Manual 5

Course Code: CS-165L   **Course Title: Software Engineering**

Course Instructor: Laeeq Khan Niazi

Last Week tasks progress?

Part 1 (35 minutes):

Learn the following online system diagram drawing tool

https://app.diagrams.net/

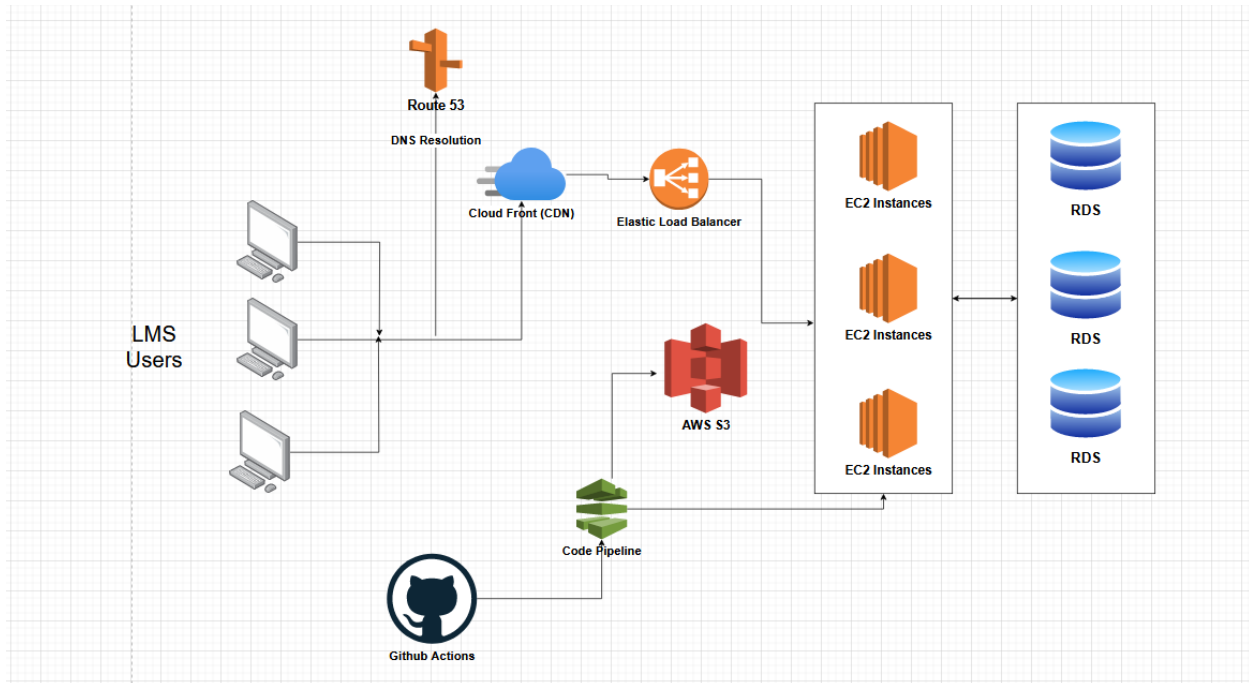Draw the following diagrams.

Diagram 1
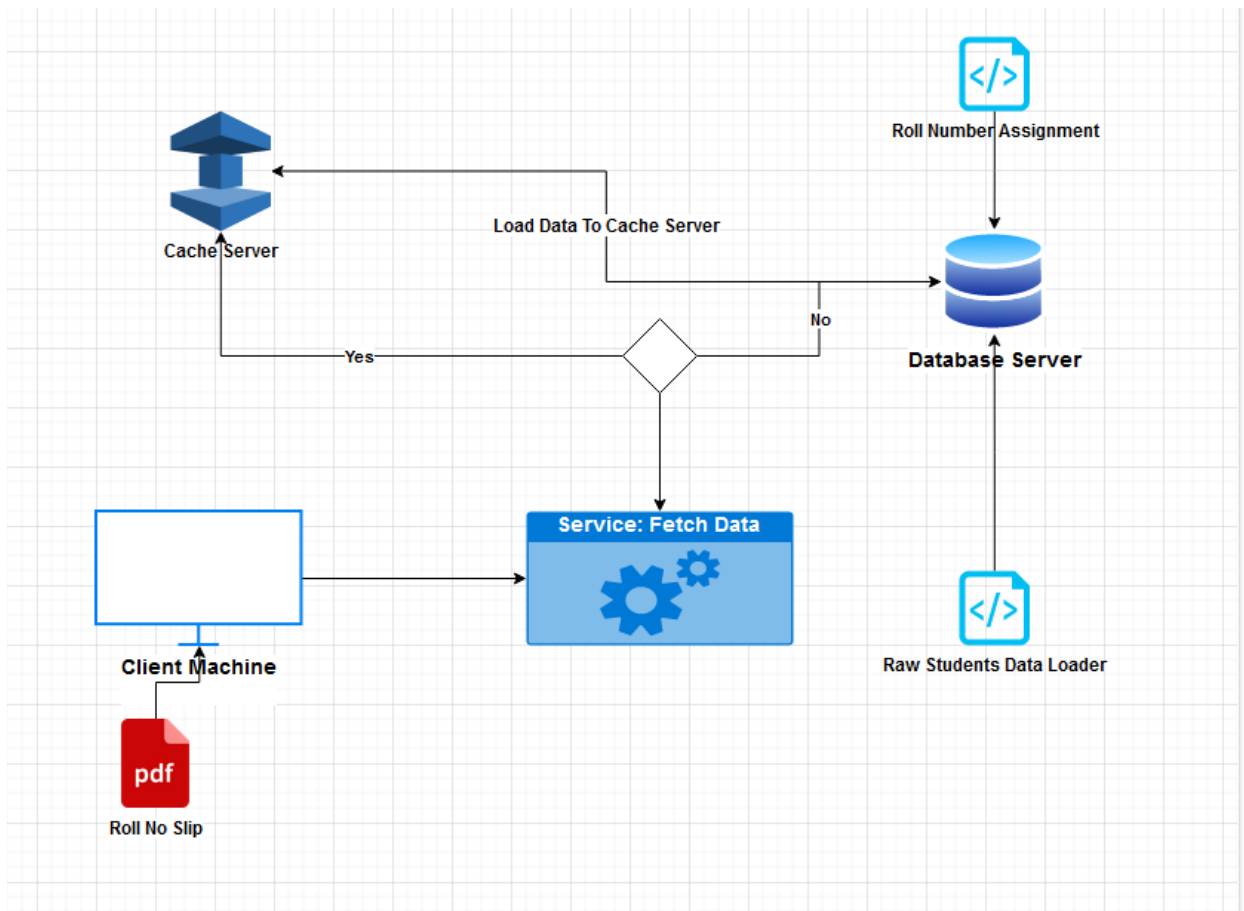
Diagram 2

Diagram 3

Draw the diagram for your software. Maybe you will be not aware of some technologies but as per your current knowledge give your best to make system diagram of your project. We will discuss these things in the last 4 weeks of this semester in greater detail.

Part 2 (1 Hour 40 Minutes Task):

Before you deal with functional requirements of your system if have been given with the following scenarios in your project how will you manage these? Give detailed answer in lab report.

Read about the following technologies and answer the below questions.

Reading Task 40 Minutes Task

Load Balancer, CDN, Rate Limiter, Caching Server, Blue-Green Deployment, CI/CD, Firewall, Authentication, Authorization, JWT, Sessions, Web Socket, Queuing Server.

Answer the Questions Task 1 Hours Task

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?

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?
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?
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?
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.
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?
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?
8. 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.

Part 3 (20 Minutes Task):

Improve your project system diagram.

How to submit?

- Make a PDF document of all tasks in the same sequence and upload before deadline on google classroom.