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Subject - CSX 202

Assignment-01

Question - Why is Node.js preferred for Real-time applications?

Ans - Node.js is widely used for real-time applications like chat apps, gaming, live notifications, and streaming services. The main reason is that it can handle multiple users at the same time without slowing down. Below are the key reasons why Node.js is the best choice for real time applications :-

- 1) A Synchronous and Non-Blocking - most traditional servers work in a blocking way, meaning they handle one request at a time. If one request takes too long, others have to wait.

But Node.js is non-blocking, meaning it handles multiple request at once without waiting. Some examples are :- chat applications, live streaming, etc.

- 2) Event-driven Architecture - Node.js uses an event-driven model which means it listens for events (like new messages, updates, or changes) and reacts instantly.

Example - When a new message arrives in a chat app, Node.js pushes it immediately to all users in the chatroom.

- 3) Websockets for Instant Communication - Websockets allows two way communication b/w the server and client without reloading the page. In short it allows instant updates.

- 4) High Speed and performance - Node.js uses the V8 engine (created by Google) to execute JS super fast. This makes Real-time apps smooth and responsive.
- 5) Single programming language (JS) - with Node.js, developers can use Javascript for both Front-end and Back-end. This makes developer easier, faster and cost-effective.
- 6) Handles many users at same time - It can handle thousands of users at once without slowing down.
- 7) Cloud and micro-services friendly - many real-time applications run on a cloud services (like AWS, Google cloud) and use microservices to scale. Node.js works well with both, making it easy to have big applications.
example - Uber used Node.js to track rides in real time.

Swati