

My approach to optimizing a backend application for high performance and scalability are as follow:

- i. **Micro Services:** Microservices are independent units of functionality. We can scale individual services based on their specific needs. Besides, microservices are isolated from each other, meaning that the failure of one service doesn't necessarily impact the entire system. Utilizing microservices will increase the scalability of the app.
- ii. **Query optimization:** Query optimization is a critical aspect of database performance tuning, and it plays a crucial role in improving the overall performance of a backend system. When interacting with a database, the efficiency of queries can significantly impact the response time of an application.
- iii. **Data Caching:** Implementing caching mechanisms both at the edge and server levels can reduce the load on the backend for frequently requested data. This can improve response times.
- iv. **Asynchronous Processing:** Offloading computationally intensive tasks like data analysis and reporting to the background. This keeps the main application responsive and minimizes latency.
- v. **Security:** Implementing robust security measures will protect against potential threats, including unauthorized access and data breaches.

These are the most common things I think should be focus for better performance and scalability of the application.