# Mock Interview Questions: Spring Boot with ELK Integration

**1. How do you configure Spring Boot to write logs to a file for ELK?**

You can configure logging in `application.yml` with `logging.file.name` to write logs to a specific file. These logs can then be read by Logstash using a file input plugin.

**2. How do you send Spring Boot logs to Logstash over TCP?**

Use Logback with the `logstash-logback-encoder` dependency. Define a `LogstashTcpSocketAppender` in `logback-spring.xml` and set the destination to the Logstash host and port.

**3. What is the role of Logstash in the ELK stack for Spring Boot apps?**

Logstash ingests logs from Spring Boot (via file or TCP), parses them using filters (like Grok), and forwards them to Elasticsearch.

**4. How do you format Spring Boot logs as JSON for ELK?**

Use the `logstash-logback-encoder` to configure Logback to output logs in structured JSON format.

**5. What is the purpose of Grok in Logstash when used with Spring Boot logs?**

Grok helps parse unstructured Spring Boot logs into structured fields like timestamp, level, message, etc., making them easy to index in Elasticsearch.

**6. How do you filter logs by application or traceId in Kibana?**

Ensure Spring Boot logs include these fields (e.g., service name, traceId). In Kibana, use filters or queries on those fields to narrow down results.

**7. What are common problems when integrating Spring Boot with ELK?**

Log format mismatches, incorrect file paths, Grok pattern errors, Elasticsearch index mapping issues, or Logstash input plugin misconfiguration.

**8. How can you improve performance when logging to ELK from multiple Spring Boot services?**

Use JSON logs, lightweight shippers like Filebeat, batch sending in Logstash, and optimize Elasticsearch indexing settings.

**9. Can you send logs from multiple services to a single Logstash instance?**

Yes. Use different input configurations (e.g., different paths or TCP ports) and tag logs with service names to differentiate them.

**10. How would you structure an ELK pipeline for a microservices-based Spring Boot system?**

Each service logs to a file or over TCP, Logstash reads and parses logs with metadata like service name, then sends structured logs to Elasticsearch, which are visualized in Kibana dashboards.