Lecture No. 1

■ Summary

- Essential skills for backend development include learning a programming language, version control system (like git), data structures and algorithms, design patterns, and web frameworks.

- JavaScript, Python, Ruby, Java, C, and Go are some programming language options, each with different uses and job opportunities.

- Git is a version control system used to track code changes.

- Data structures and algorithms are critical for problem-solving and often asked about in tech interviews.

- Design patterns are proven solutions to common software design problems, with classic examples used in web frameworks.

- Relational databases (e.g., MySQL, SQL Server) store data in tables, while NoSQL databases (e.g., MongoDB) store data without a predefined table structure.

- Web frameworks (e.g., Django, Spring Boot, Express.js) provide tools for building backends and handling tasks like routing, database interaction, and security.

■ Key Terms and Concepts

- Programming languages: JavaScript, Python, Ruby, Java, C, Go

- Git, GitHub

- Data structures, algorithms

- Design patterns

- Relational databases (e.g., MySQL, PostgreSQL, SQL Server, Oracle)

- NoSQL databases (e.g., MongoDB, CouchDB, Cassandra)

- Web frameworks (e.g., Django, Spring Boot, Express.js, Ruby on Rails, J)

■ Review Questions

1. What are some factors to consider when choosing a programming language for backend deve

lopment?

2. What is the importance of learning the ecosystem of tools and libraries for a programming language?

3. How long does it take to learn a programming language, according to the video?

4. What is the purpose of a version control system like git?

5. Why are data structures and algorithms important for backend developers?

6. How many classic design patterns are documented in the "Design Patterns" book?

7. What are the differences between relational and NoSQL databases?

8. Name some popular relational and NoSQL database engines.

9. How long does it take to learn a web framework, according to the video?

10. What additional skills are recommended for those who want to take their backend development skills to the next level?