

First Quarter Exam

Data Structures and Algorithms by Larry David

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1. Which of the following is a software design pattern that separates the creation of objects from their usage? A. Observer B. Factory C. Decorator D. Singleton E. Facade
2. What is the output of the following code?
3. What are the characteristics of a well-designed RESTful API?
4. Write a Python function to calculate the factorial of a non-negative integer using recursion.
5. Write a Python function to calculate the Fibonacci sequence.
6. Write a Python function to find the square root of a number using the Newton-Raphson method.
7. Which of the following are benefits of using a version control system? A. ☐ Easy debugging B. ☐ History tracking C. ☐ Enhancing code quality D. ☐ Automatic code deployment E. ☐ Faster development
8. Which of the following are benefits of using a version control system? A. ☐ History tracking B. ☐ Collaboration C. ☐ Automatic bug fixes D. ☐ Code review E. ☐ Backup
9. Which programming language was created by Guido van Rossum? A. Java B. Python C. C++ D. Ruby E. Perl
10. Which of the following is a popular relational database management system? A. MongoDB B. Redis C. Cassandra D. SQLite E. Elasticsearch
11. Which programming paradigm emphasizes immutability and pure functions? A. Procedural B. Object-Oriented C. Functional D. Structured E. Scripting
12. Which of the following are key benefits of pair programming? A. ☐ Reduced development time B. ☐ Increased code quality C. ☐ Limited communication D. ☐ Enhanced team collaboration E. ☐ Higher bug density
13. Which of the following are Python frameworks for web development? A. ☐ Django B. ☐ Flask C. ☐ React D. ☐ Vue.js E. ☐ Angular
14. Which of the following is an example of a programming language? A. HTML B. CSS C. Python D. JSON E. XML
15. What is the output of the following code?

16. Which of the following is a fundamental principle of object-oriented programming? A. Abstraction B. Global variables C. Code duplication D. Monolithic architecture E. Linear programming