First Quarter Exam

Data Structures and Algorithms by Larry David

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1. Discuss the concept of time complexity in algorithm analysis.

2. 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

3. Write a Python function to calculate the power of a number using recursion.

4. Discuss the advantages and disadvantages of using NoSQL databases compared to traditional relational databases.

5. Write a Python function to reverse a string.

6. Inheritance allows a subclass to override attributes and behaviors inherited from its superclass. [ ] True [ ] False

7. Which of the following is a data structure used for storing key-value pairs? A. Array B. Linked List C. Hash Map D. Stack E. Queue

8. What is the output of the following code?

9. Which data structure follows the Last-In-First-Out (LIFO) principle? A. Queue B. Heap C. Array D. Stack E. Tree

10. Which data structure allows us to store elements in a sorted order? A. Linked List B. Array C. Hash Map D. Binary Search Tree E. Stack

11. Explain the concept of method overloading in object-oriented programming.

12. Explain the concept of object-oriented programming.

13. Explain the concept of data encapsulation in object-oriented programming.

14. Write a Python function to find the greatest common divisor (GCD) of two numbers.

15. Discuss the concept of space complexity in algorithm analysis.

16. Write a Python function to find the factorial of a non-negative integer using a while loop.