\*\*Case Study: Algorithmic Thinking\*\*

\*\*Instructions:\*\*

- Answer the following questions using any programming language or pseudo-code.

- Explain your thought process and the steps you took to arrive at your solution.

- You may be asked to discuss your solutions during the interview.

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### Question 1:

\*\*Problem:\*\* Given an integer array, write an algorithm that reverses the array in place.

\*\*Explanation:\*\* This question tests your ability to work with arrays and create an algorithm.

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### Question 2:

\*\*Problem:\*\* Given two strings, write an algorithm to check if they are anagrams of each other.

\*\*Explanation:\*\* This question measures your ability to manipulate strings and use sorting algorithms.

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### Question 3:

\*\*Problem:\*\* Given a linked list, write an algorithm to detect if the list contains a cycle.

\*\*Explanation:\*\* This question tests your ability to work with linked lists and solve data structure problems like cycle detection.

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### Question 4:

\*\*Problem:\*\* Given an NxN matrix, write an algorithm to rotate the matrix 90 degrees clockwise.

\*\*Explanation:\*\* This question evaluates your ability to work with two-dimensional arrays and perform matrix manipulations.

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### Question 5:

\*\*Problem:\*\* Given an integer n, write an algorithm to compute the nth Fibonacci number.

\*\*Explanation:\*\* This question tests your ability to write recursive and iterative algorithms.

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These questions aim to evaluate your algorithmic thinking and problem-solving skills. Please ensure to provide clear and detailed explanations along with your solutions.