Maximum Product Subarray

1.What is the maximum product subarray problem?

- Finding the largest sum of a contiguous subarray
- Finding the smallest product of a contiguous subarray
- **Finding the largest product of a contiguous subarray**
- Finding the smallest sum of a contiguous subarray

Ans: Finding the largest product of a contiguous subarray

2. Which algorithm can be used to solve the maximum product subarray problem efficiently?

- Depth-First Search (DFS)
- Breadth-First Search (BFS)
- **Dynamic Programming (DP)**
- Binary Search

Ans: Dynamic Programming (DP)

3. What is the time complexity of the efficient algorithm for solving the maximum product subarray problem?

- **O(n)**
- O(n^2)
- O(log n)
- O(2^n)

Ans: O(n)

4. Which of the following is not a correct approach to solve the maximum product subarray problem?

- Using a brute-force approach
- Using Kadane's algorithm
- Using a sliding window technique
- **Using the Fibonacci sequence**

Ans: Using the Fibonacci sequence

5. Which of the following data structures can be used to efficiently solve the maximum product subarray problem?

- Array
- **Stack**
- Queue
- Binary Tree

Ans: Stack

6. What is the maximum product of a subarray in the array [1 5 -7 5 3]

- 6
- 0
- -35
- **15**

Ans: 15

7. What is the maximum product of a subarray in the array [2, 3, -2, 4,1]?

- **6**
- 8
- 12
- 16

Ans: 6

8.In the maximum product subarray problem, if the array contains only positive numbers, what will be the maximum product?

- **The product of all elements in the array**
- Zero
- The maximum element in the array
- One

Ans: The product of all elements in the array

9. Which of the following is an efficient approach to solve the maximum product subarray problem when all elements are non-negative?

- Brute-force algorithm
- **Kadane's algorithm**
- Sliding window algorithm
- Dynamic Programming algorithm

Ans: Kadane's algorithm

10. What is the maximum product of a subarray in the array [-1,2,-2,4,3,2,-1]?

- **24**
- 2
- 89
- 34

Ans: 24