Programming Exercises on Binary Search, Dynamic Arrays, and Linked Lists

1. Binary Search

1. Write a function that checks if a given number exists in a sorted list using binary search. The function should return True if the number exists and False otherwise.

2. Test your function with the list [2, 4, 6, 8, 10] and the number 6. What is the result?

2. Dynamic Arrays

1. Create a dynamic array and add the numbers 1, 2, and 3 to it. Then, print the array.

2. How does a dynamic array differ from a regular array in terms of resizing?

3. Linked Lists

1. Manually create a linked list with three nodes containing the values 1, 2, and 3.

2. Print the values of each node in the linked list, starting from the first node. How do you move from one node to the next?