Data Structures & Algorithms in Go

This repository provides solutions for the Data Structures & Algorithms In Go course.

Table of Contents

Arrays

- **SumArray**
- **Sequential Search**
- **Binary Search**
- **Largest Sum Subarray**: Find the subarray with the maximum sum (Kadane's Algorithm).
- **Rotating an Array by k Positions**
- **Array Waveform**: Rearrange the array elements in a wave-like pattern.
- **Index Array**: Map elements to their corresponding indices based on array values.
- **Sorting From 1 to n**
- **Smallest Positive Missing Number**: Identify the smallest positive integer missing from an array.
- **Maximum, Minimum Array**: Find the maximum and minimum elements in an array.
- **Array Index Maximum Difference**: Calculate the maximum difference between indices of an array such that the element at the smaller index is less than or equal to the element at the larger index.

Recursive Functions

- **Factorial**: Compute the factorial of a number recursively.
- **Print Base 16 Integers**: Convert and print integers in base 16 using recursion.
- **Greatest Common Divisor**: Find the greatest common divisor (GCD) of two numbers using the Euclidean algorithm.
- **Fibonacci Numbers**: Generate the nth Fibonacci number recursively.
- **All Permutations of an Integer List**: Recursively generate all permutations of a list of integers.
- **Tower of Hanoi**: Solve the Tower of Hanoi problem with recursive steps and explanations.

Usage

To explore the code and test the implementations:

1. Clone this repository:

```
git clone https://github.com/yourusername/ds-algo-go.git
cd ds-algo-go
```

2. Run the Go files:

```
go run arrays.go
go run recursive.go
```

Contributing

Contributions are welcome! Feel free to open issues or submit pull requests to improve this repository.

License

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