Assignment 08

1. Write a function to solve the problem of finding the longest increasing subsequence in a given array of integers. Test your function on a few examples.

2. Consider the problem of cutting a rod of length n into smaller pieces in order to maximize the total value obtained from selling the pieces. Write a function to solve this problem and find the optimal solution for a rod of length 10.

3. Write a function to find the minimum number of coins required to make change for a given amount using a given set of coin denominations.

4. Dynamic programming works by breaking down problems into smaller subproblems and storing them in a cache. However, there are some types of problems where dynamic programming will not work or not be as effective. Describe an example where applying dynamic programming fails.