Problem 1

Write a program to reverse a stack using recursion. You are not allowed to use loop constructs like while, for..etc, and you can only use the following ADT functions on Stack S:

- isEmpty(S)
- push(S)
- pop(S)

Problem 2

Given a string that contains only the following => '{', '}', '(', ')', '[', ']'. At some places there is 'X' in place of any bracket. Determine whether by replacing all 'X's with appropriate bracket, is it possible to make a valid bracket sequence.

Prerequisite: Balanced Parenthesis Expression

Examples
`{X[X([X)}}` Yes, `{{[]([])}}` is a solution

Problem 3

Find the largest rectangular area possible in a given histogram where the largest rectangle can be made of a number of contiguous bars. For simplicity, assume that all bars have the same width and the width is 1 unit.

Problem 4

Design a stack that returns a minimum element without using an auxiliary stack