Sheet # (3): Stack

Write the appropriate algorithms to perform the following:

1. Get the maximum element in a stack.
2. Get the average of the elements in a stack.
3. Check if two stacks are equal.
4. Check if two stacks are reverse to each other.
5. Check if the sum of the upper half of a stack is the same as the sum of the lower half.
6. What change should be made to the basic structure of the stack data structure in order to support the operation ***Find Minimum*** which returns the smallest element in the stack. Propose the most efficient method that minimizes the number of comparisons.
7. Given a mathematical expression written in the infix notation and consisting of the operations +,-,*,/,^. It is required to use the stack to convert the expression to the postfix notation.
8. Use a stack to evaluate a mathematical expression written in the postfix notation.