

Sort a stack using recursion

1) Base

↳ If size == 1
return;

for stack $\begin{bmatrix} 2 \\ 5 \\ 3 \\ 1 \end{bmatrix}$

2) Hypothesis
int ele = a.pop();

Stack<Integer> res = sortedStack(a);

②

$\begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix}$ → in sorted format

3) Insert Ele at position

insertAtEle(a, ele)

for insertAtEle

1) If (stk.size == 0) || ele > stk.peek()) { Base step
stk.push(ele);

2) int temp = stk.pop();
insertAtEle(stk, ele); } hypothesis
we assume element get inserted correctly

3) stk.push(temp); → Induction step