

WEEK2 SUBMISSION TASK

a) `SLLSTACK MyStack = NEW SLLSTACK();`

~~Top~~ ~~→~~ ~~∅~~ ~~Top~~ ~~→~~ ~~∅~~

`MyStack.SPUSH(1)`

`Top` \rightarrow `1` \rightarrow \emptyset

`MyStack.SPUSH(2)`

`Top` \rightarrow `2` \rightarrow `1` \rightarrow \emptyset

$\left\{ \begin{array}{l} \text{Top} \rightarrow \text{1} \rightarrow \emptyset \\ \text{TEMP} \rightarrow \text{2} \rightarrow \emptyset \end{array} \right. = \begin{array}{l} \text{Top} \rightarrow \text{1} \rightarrow \emptyset \\ \text{TEMP} \rightarrow \text{2} \rightarrow \text{1} \rightarrow \emptyset \end{array}$

\parallel
`Top` \rightarrow `2` \rightarrow `1` \rightarrow \emptyset

`MyStack.SPUSH(3)`

`Top` \rightarrow `3` \rightarrow `2` \rightarrow `1` \rightarrow \emptyset

$\left\{ \begin{array}{l} \text{Top} \rightarrow \text{2} \rightarrow \text{1} \rightarrow \emptyset \\ \text{TEMP} \rightarrow \text{3} \rightarrow \emptyset \end{array} \right. = \begin{array}{l} \text{Top} \rightarrow \text{2} \rightarrow \text{1} \rightarrow \emptyset \\ \text{TEMP} \rightarrow \text{3} \rightarrow \text{2} \rightarrow \text{1} \rightarrow \emptyset \end{array}$

\parallel
`Top` \rightarrow `3` \rightarrow `2` \rightarrow `1` \rightarrow \emptyset

`INT x = MyStack.SPOP();`

`Top` \rightarrow `2` \rightarrow `1` \rightarrow \emptyset

`x` \rightarrow 3

$\left\{ \begin{array}{l} \text{Top} \rightarrow \text{3} \rightarrow \text{2} \rightarrow \text{1} \rightarrow \emptyset \\ \text{x} \rightarrow \text{3} \end{array} \right. = \begin{array}{l} \text{Top} \rightarrow \text{3} \rightarrow \text{2} \rightarrow \text{1} \rightarrow \emptyset \\ \text{PC} = 3 \end{array}$

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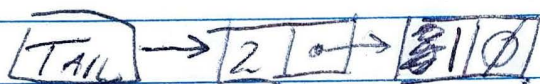
B). SLL QUEUE MY QUEUE = NEW SLLQUEUE();



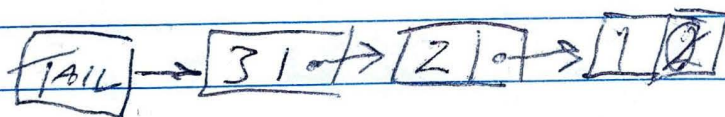
My ^{QUEUE} ~~Stack~~. QPUSH(1);



My QUEUE. QPUSH(2);



My QUEUE. QPUSH(3);



int i = My QUEUE. QPOP();

20 = 1



/ / / / / / / / / / /

C) The nature of ~~qpop~~ is $O(N)$ or linearly increasing meaning the more elements in the queue the longer it takes to Find the last element. this is because a queue will store head as the last & element in the queue.