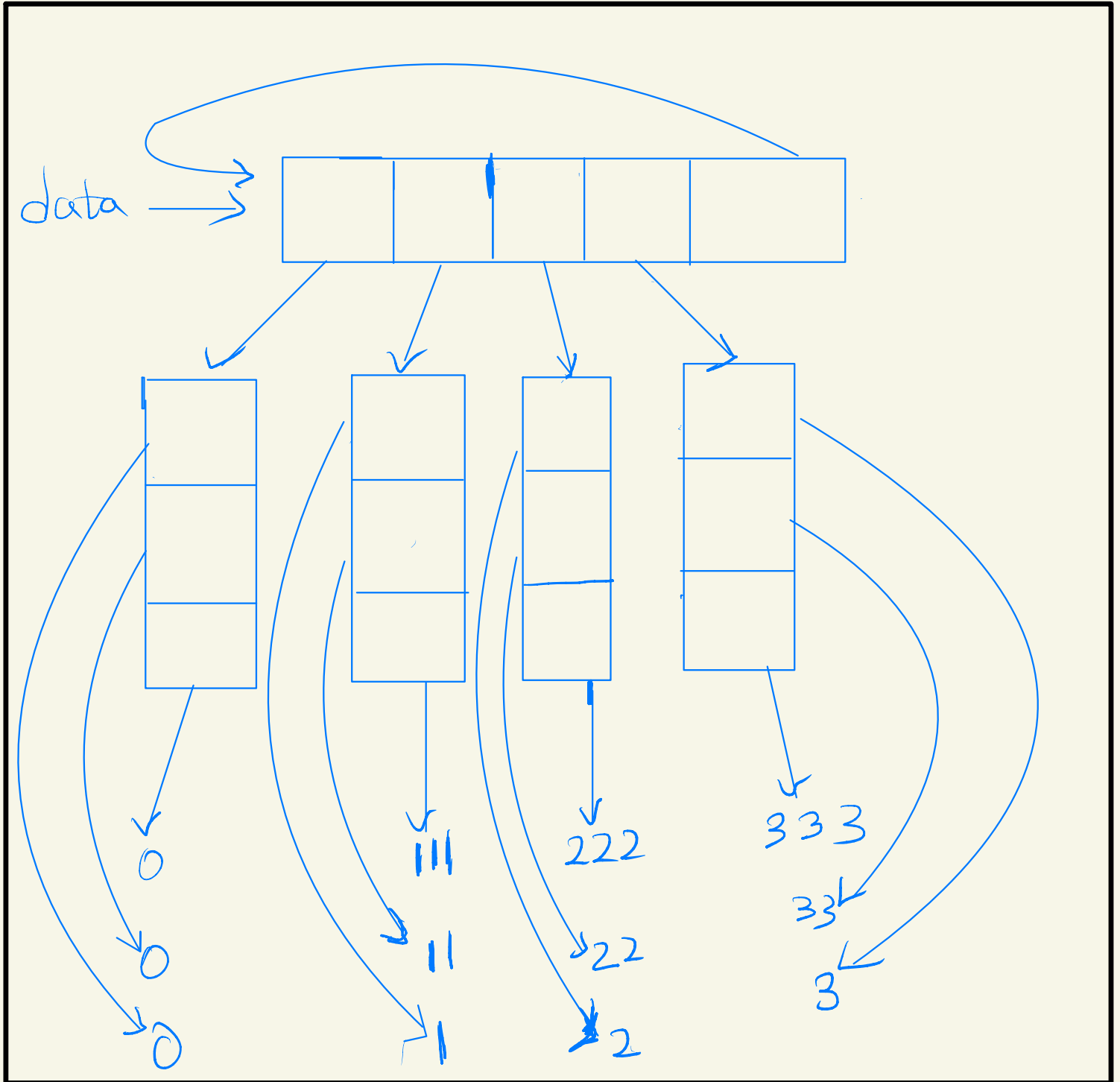
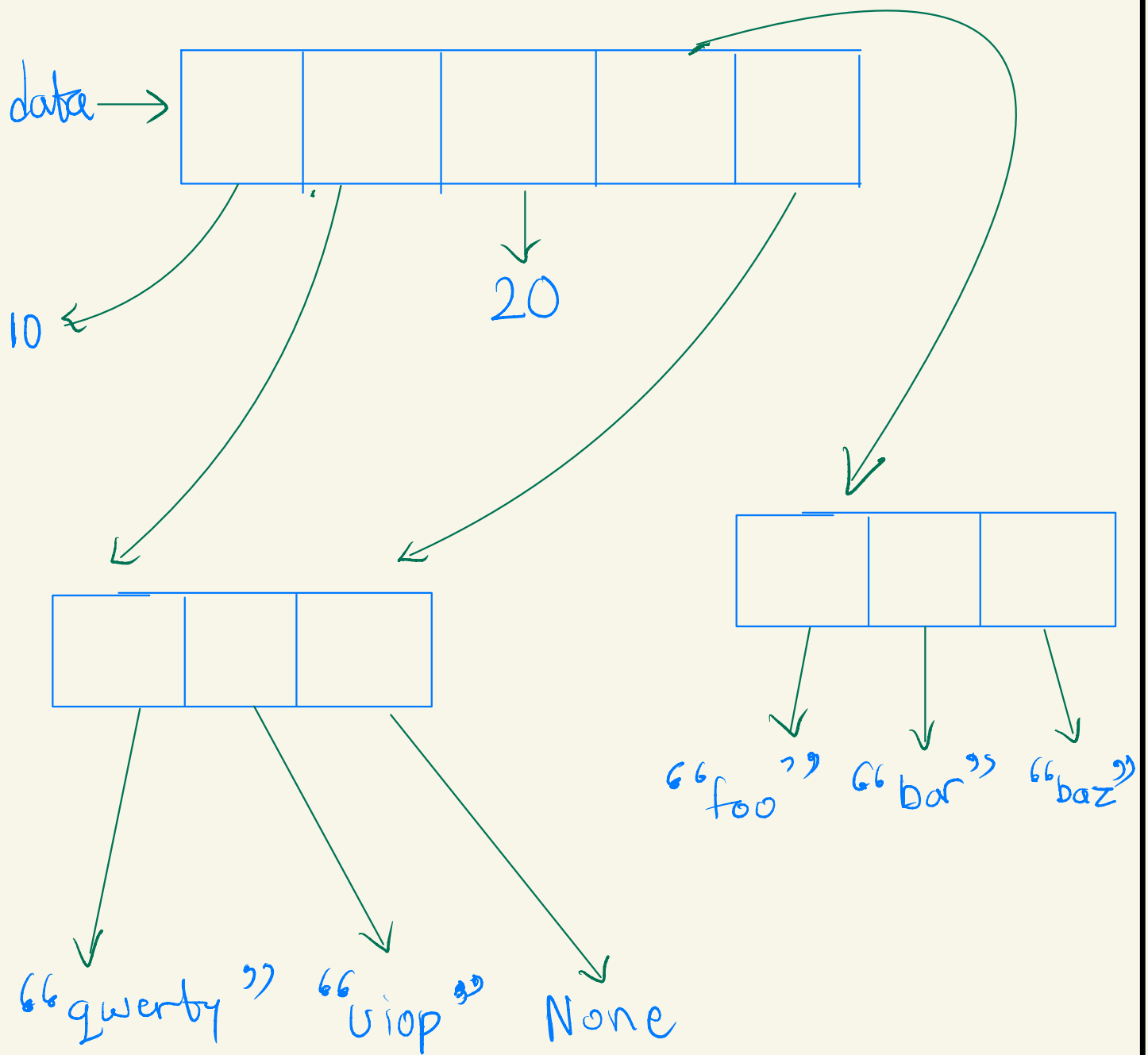


Q4

4.1 Diagram A
Final State

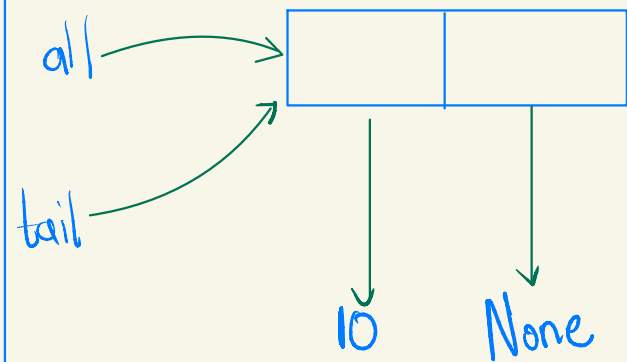


4-2 Diagram B

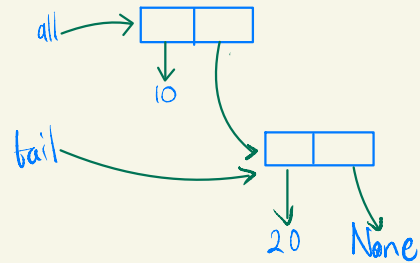


4.3 Diagram C

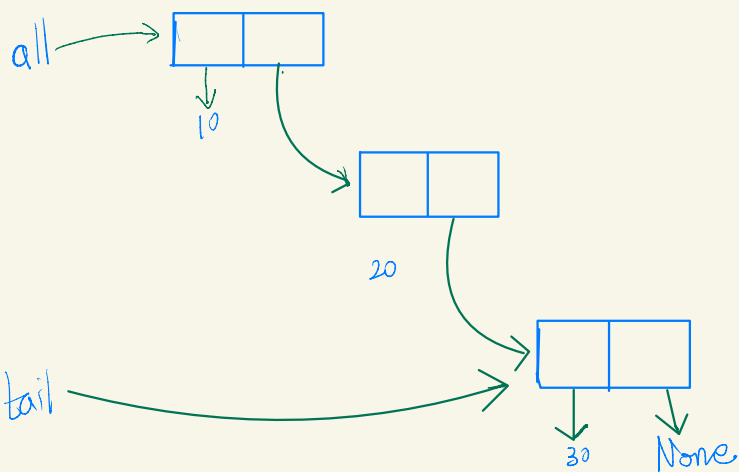
Initially



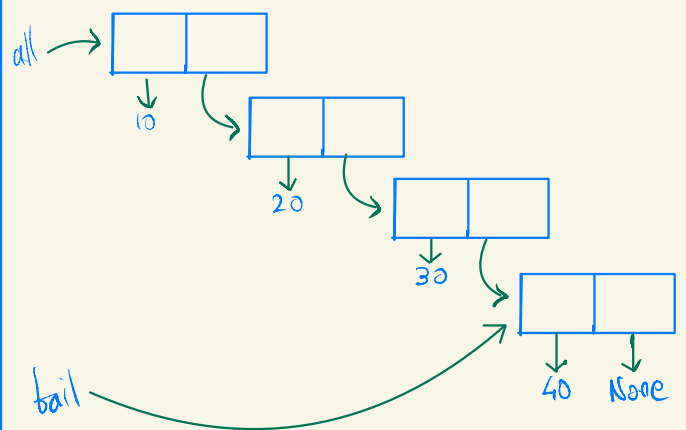
$i=0$



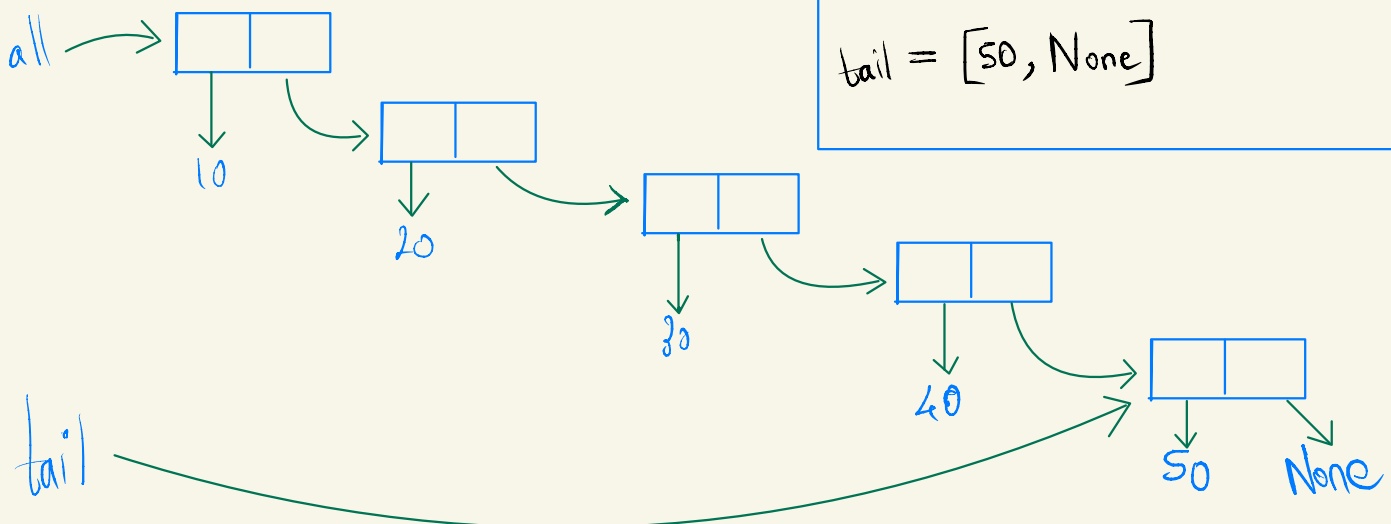
$i=1$



$i=2$



$i=3$



Output:-

$all = [10, [20, [30, [40, [50, None]]]]]$

$tail = [50, None]$