

# COL202 Quiz 1

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TOTAL POINTS

0 / 5

QUESTION 1

1 Loop invariant 0 / 5

! + 0 pts *Incorrect/Not attempted*

⌘ + 0.5 pts The algorithm returns a linked list of length  $2^{\text{length}(l)}$ .

⌘ + 1 pts Invariant- for all  $0 \leq i \leq \text{len}(l)$ :  
 $\text{len}(l_i) = 2^i$  at the end of  $i^{\text{th}}$  iteration.

⌘ + 0.5 pts Proof by induction on the outer loop.

⌘ + 1 pts Base Case

⌘ + 0.5 pts Induction Hypothesis

⌘ + 1 pts Induction Step

⌘ + 0.5 pts Conclusion- At the end of the algorithm the value of  $i = \text{length}(l)$  and hence the length of  $l'$  is  $2^{\text{length}(l)}$ .

