CS200 - Worksheet 2

Prove using induction that the program $\texttt{Sum}(A)$ outputs the sum of an List A

Input : List A of integers

Output: Sum of the elements of A.

1   l=length(A);

     // Base Case

2   **if** l equals 1 **then**

3 | return $A[1]$;

4   **else**

      // Recursive step

5 | return $\texttt{Sum}(A[1:l-1]) + A[l]$;

      // $A[1:l-1]$ is a list containing the first $l-1$ elements of A.

6   **end**

Algorithm 1: $\texttt{Sum}(A)$