

In []:

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'''4. Solve the following using Recursion:  
i)find the length of a string  
ii)find the smallest element in a list'''
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In [1]:

```
def find_length(s):  
    # base case: an empty string has length 0  
    if s == "":  
        return 0  
    # recursive case: remove the first character of the string and  
    # add 1 to the length of the rest of the string  
    else:  
        return 1 + find_length(s[1:])  
  
# example usage  
s = "hello world"  
length = find_length(s)  
print(f"The length of the string '{s}' is {length}.")
```

The length of the string 'hello world' is 11.

In [2]:

```
def find_smallest(lst):  
    if len(lst) == 1:  
        return lst[0]  
    else:  
        smallest = find_smallest(lst[1:])  
        return smallest if smallest < lst[0] else lst[0]  
  
# example usage  
lst = [5, 2, 8, 1, 9, 3]  
smallest = find_smallest(lst)  
print(smallest) # Output: 1
```

1

In []: