Week 4 Quiz

Q1.

What does the following recursive function do?

```
python
def my_recursive_function(lst):
    if lst == []:
        return 0
    else:
        return lst[0] + my_recursive_function(lst[1:])
```

A. Finds the length of the list

B. Prints the list one element a time

C. Builds a new list with all of the numbers from the original `lst`

D. Sums all of the numbers in `lst`

Q2.

Consider the recursive implementation of binary search:

```
python
def binary_search(lst, val, low, high):
    if low > high:
        return None
    else:
        mid = (low + high) // 2

        if lst[mid] == val:
            return mid
        elif val < lst[mid]:
            return binary_search(lst, val, low, mid - 1)
        else:
            return binary_search(lst, val, mid + 1, high)
```

Which of the following is a base case for this function? **Select all that apply.**

Q3.

Consider the list `[44, 90, 1, 15, 10, 8, 12, 77]`. What would the list look like after the completion of the *third* merge? In other words, after the third execution of the code that performs the merging step.

A. `[44, 90, 1, 15, 10, 8, 12, 77]`

B. `[44, 90, 1, 15, 8, 10, 12, 77]`

C. `[1, 15, 44, 90, 10, 8, 12, 77]`

D. `[1, 15, 44, 90, 8, 10, 12, 77]`