**Question 3 [12 marks]:**

Use the divide-and-conquer strategy to design a recursive algorithm for finding the smallest value in a nonempty sequence of n numbers and specify it in a recursive structure.

Python

def find\_smallest(arr, start, end):

# Base case: if there's only one element

if start == end:

return arr[start]

# Find the middle point of the sequence ( Divide )

mid = (start + end) // 2

# Recursively find the smallest value in the left half ( Conquer )

left\_min = find\_smallest(arr, start, mid)

# Recursively find the smallest value in the right half ( Conquer )

right\_min = find\_smallest(arr, mid + 1, end)

# Return the smaller value between left\_min and right\_min ( Combine )

return min(left\_min, right\_min)

# Example usage:

arr = [3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5]

print(find\_smallest(arr, 0, len(arr) - 1))