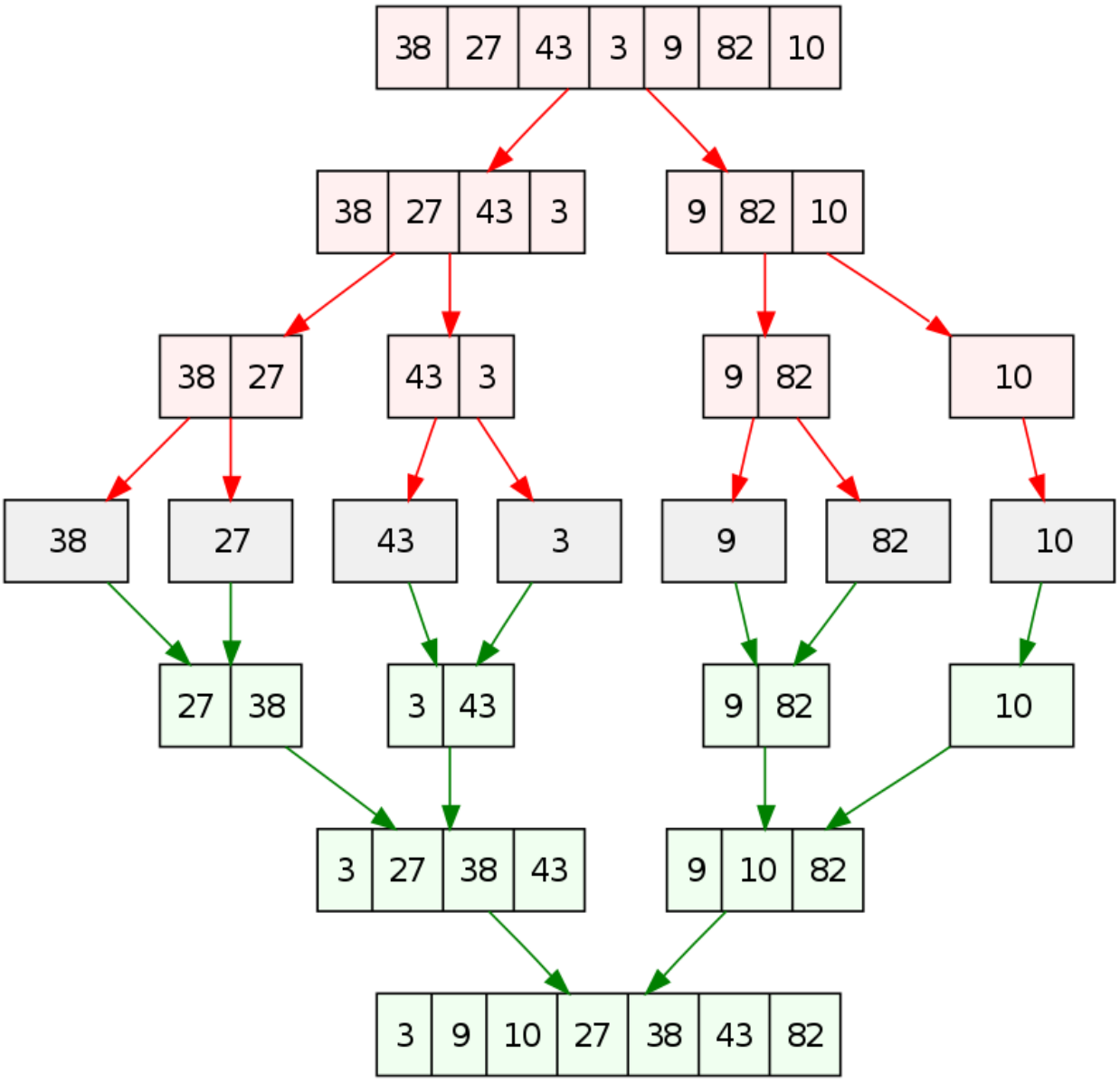
Divide and Conquer

Overview:



1. **Divide:** This involves dividing the problem into smaller sub-problems.
2. **Conquer:** Solve sub-problems by calling recursively until solved.

3. **Combine:** Combine the sub-problems to get the final solution of the whole problem.

💕 Quick Sort | Merge Sort | Closest Pair of Points

```
DAC(a, i, j)
{
    if(small(a, i, j))
      return(Solution(a, i, j))
    else
      m = divide(a, i, j)              // f1(n)
      b = DAC(a, i, mid)                // T(n/2)
      c = DAC(a, mid+1, j)            // T(n/2)
      d = combine(b, c)                 // f2(n)
   return(d)
}
```

Recurrence Relation (Time Complexity) ✔️**Master method|**

```
           O(1) if n is small
T(n) =     f1(n) + 2T(n/2) + f2(n)
```

Video Explanation

https://www.youtube.com/watch?v=2Rr2tW9zvRg

Practice Sets:

53 Maximum Subarray