① Time Complexity of Code Snippet. —— ③ → ↻2 Explain
                                                    m - TC.
                                                    → ①

② Recurrence Relation → Substitution
                       → Recursion Tree
                       → Master Th^m.

③ Sorting → n log n → Merge ⟍ Theory, TC, SC,
                      Quick = Example, Algorithm/Pseudoco
                      heap   de...

        Linear sorting → Shell, Radix, Count, Bucket.
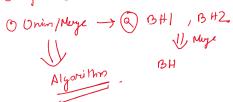   Quadratic n^2 → Insertion.

④ B-Trees → Theory, Properties (Order, Max-no-of child
                                 Max^x keys
                                 min-no-of child
                                 min-no-of keys)

        Insertion Eg, Algo
        Deletion (H/W).

⑤ RBT → Theory, Properties (① Root color Black
                             ② New node Red.
                             ③ R R ⤫
                             ④ NULL node Black)

        Insertion
        Algorithm

⑥ Binomial heap → ① Def^n, Condition.
                  ② Union/Merge → ⓐ BH1, BH2
                         ⇓   ⇓ Merge
                     Algorithm.   BH

as.

① Quick Sort → Best TC, Example
             → Worst TC, Example.
                  ↓   → Array sorted
             Recurrence Relation   pivot = first ele of
                                            array.

Recurrence { pivot ele = first ele
Relation {   of array
          ↺ OPosition = Middle
                         index of
                         array!

Best TC- $T(n) = 2 T(n/2) + n$.
              $O(n \lg n)$

Worst TC- $T(n) = T(n-1) + n = O(n^2)$.

① Comparision betw^n
sorting algos.
— Merge & Quick Sort.