

Ds

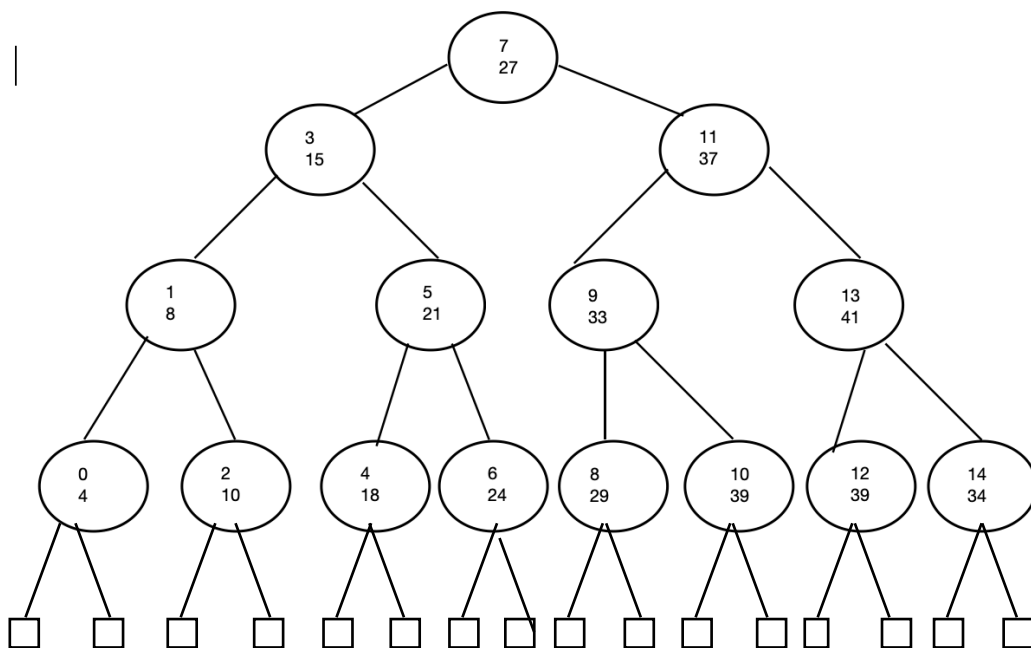
Average case analysis of binary search

Size = 15

Length = 15

A

4	8	10	15	18	21	24	27	29	33	34	37	39	41	43
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14



- For finding the average case time we have to first consider the internal nodes , the no of comparison for internal nodes depends on the level of tracing tree the circular nodes (**I**) are the internal nodes which are successful
- The square nodes are the unsuccessful ones (**E**)

$$E = n \log n$$

$$E = I + 2n$$

$$e = I + 1$$

$$A_s (n) = 1 + I / n$$

$$A_u (n) = E / n + 1 = n \log n / n + 1$$

- The average unsuccessful time is **log n**
- The average successful time is also **log n**