**Binary Search Trees**

- **Static Data**
- **Dynamic**
  - Insertion
  - Deletions

**Interpolation Search**

- Expected time $\Theta(\log \log n)$

**Search**

- $\Theta(h)$

**Insertion**

- Search (unsuccessful)
  - Time $\Theta(h)$

**Deletion**
The expected height of a BST built through a random insertion is \( \Theta(\log n) \).
\[ E_n = \frac{1}{n} \sum_{k=1}^{n} (E_{k-1} + E_{n-k} + n-1) \]

\[ E_0 = 0 \]

\[ E_n = n+1 + \frac{2}{n} \sum_{k=0}^{n-1} E_k \]

\[ E_n \approx 2n \ln n \quad \ln n \approx \ln n \]

WORST CASE \[ K \geq \max \{ \text{succ} \} = \frac{E_n}{n+1} = \frac{E_n}{n} \approx 2H_n \approx 2\ln n + 1 \]