$n = 7 = \text{length}$

\[
\left\lfloor \frac{7}{2} \right\rfloor = 3
\]

\[i = 3 \rightarrow 1\]

\[i = 3\]

\[i = 2\]

\[i = 1\]

 DONE
$H = \log_2 n$

Level $0 \rightarrow 2^0$

Level $1 \rightarrow 2^1$

Level $2 \rightarrow 2^2$

$\cdots$

Level $i \rightarrow 2^i$

The maximum step for syst down at level $i$:

$$T(n) = \sum_{i=0}^{H} 2^i (H-i)^i \left| \begin{array}{c} \frac{H}{2} \\ \frac{1}{2^H} \\ \frac{H}{2^H} \end{array} \right|$$

$$= \sum_{k=0}^{H} \frac{1}{2^{H-k}} (H-k) = \frac{1}{2^H} H + \frac{1}{2^H} (H-1)$$

$$+ \cdots + \frac{1}{2^0} 0.$$

$$= \frac{1}{2^0} 0 + \frac{1}{2^1} 1 + \cdots + \frac{1}{2^H} H$$

$$= \sum_{k=0}^{H} \frac{H}{2^k}.$$
\[
\sum_{k=0}^{\infty} x^k = \frac{1}{1-x}
\] 
\((|x| < 1)\)

Take derivative
\[
\sum_{k=0}^{\infty} kx^{k-1} = \frac{1}{(1-x)^2}
\]

Multiply by \(x\)
\[
\sum_{k=0}^{\infty} kx^k = \frac{x}{(1-x)^2}
\]

For \(x = \frac{1}{2}\):
\[
\sum_{k=0}^{\infty} \frac{k}{2^k} = 2
\]
1. \[ m \log(n \times m) \]
   
   \[ \min(n \log(n \times m), m \log(n \times m)) \]

2. 
   - Convert the arrays
   - Call build-heap \( \leq O(n) \)

\( O(n^2) \)
\[ k = 0: \]

\[ k = 1 \]

\[ k = 2 \]

\[ K(\beta_k): \text{ indech.} \]