

$$T(n) = 2T\left(\frac{n}{2}\right) + \Theta\left(\frac{n}{\log(n)}\right)$$

$$T(n) = 2\left[2T\left(\frac{n}{2^2}\right) + \Theta\left(\frac{n}{2\log(\frac{n}{2})}\right)\right] + \Theta\left(\frac{n}{\log(n)}\right)$$

$$T(n) = 2\left[2\left[2T\left(\frac{n}{2^3}\right) + \Theta\left(\frac{n}{2^2\log(\frac{n}{2^2})}\right)\right] + \Theta\left(\frac{n}{2\log(n/2)}\right)\right] + \Theta\left(\frac{n}{\log(n)}\right)$$

$$T(n) = 2^K T\left(\frac{n}{2^K}\right) + \sum_{i=0}^{K-1} 2^i \Theta\left(\frac{n}{2^i \log(\frac{n}{2^i})}\right)$$

FINO A $K = \log(n)$

$$T(n) = 2^{\log(n)} \Theta(1) + \sum_{i=0}^{\log(n)-1} \Theta\left(\cancel{2^i} \frac{n}{\cancel{2^i} \log(\frac{n}{2^i})}\right)$$

$$T(n) = n \Theta(1) + \sum_{i=0}^{\log(n)-1} \Theta\left(\frac{n}{\log(\frac{n}{2^i})}\right)$$

$$\log\left(\frac{A}{B}\right) = \log(A) - \log(B)$$

$$T(n) = \Theta(n) + \Theta(n) \sum_{i=0}^{\log(n)-1} \frac{1}{\log(n) - \log(2^i)}$$

$$T(n) = \Theta(n) + \Theta(n) \sum_{i=0}^{\log(n)-1} \frac{1}{\log(n) - i} \quad \sum_{i=0}^{m-1} \frac{1}{m-i} = \sum_{j=1}^m \frac{1}{j}$$

$$T(n) = \Theta(n) + \Theta(n) \sum_{j=1}^{\log(n)} \frac{1}{j}$$

$$\sum_{i=1}^n \frac{1}{i} = \Theta(\log n)$$

$$T(n) = \Theta(n) + \Theta(n) \Theta(\log(\log(n))) = \Theta(n \log(\log(n)))$$