ANÁLISIS DE COMPLEJIDAD EJERCICIO #10 – LONGEST COMMON PREFIX

Análisis método cándido

$$T(n) = 3 + 3 + 3 + 3 + \sum_{i=0}^{n}(5+4+3) + \sum_{l=1}^{m}\left(5 + 3 + 2\Big(\sum_{i=0}^{n}\Big(5\sum_{j=0}^{l}(5+4+1+1+3) + 2 + 3\Big)\Big) + 1 + 1 + 3\right) + 1$$

$$T(n) = 12 + \sum_{i=0}^{n} 12 + \sum_{l=1}^{m}\left(15\Big(\sum_{i=0}^{n} 10\big(\sum_{j=0}^{l} 14\big)\Big)\right) + 1$$

$$T(n) = 12 + 12n + \sum_{l=1}^{m}\left(15\Big(\sum_{i=0}^{n} 10\big(\sum_{j=0}^{l} 14\big)\Big)\right) + 1$$

$$T(n) = 12 + 12n + \sum_{l=1}^{m}\left(15\Big(\sum_{i=0}^{n} 10\big(14l\big)\Big)\right) + 1$$

$$T(n) = 12 + 12n + \sum_{l=1}^{m}\left(15\Big(\sum_{i=0}^{n} 140l\Big)\right) + 1$$

$$T(n) = 12 + 12n + \sum_{l=1}^{m}\left(\Big(15\big(140l(n+1)\big)\Big)\right) + 1$$

$$T(n) = 12 + 12n + \sum_{l=1}^{m}\left(\Big(2100l(n+1)\Big)\right) + 1$$

$$T(n) = 12 + 12n + 2100\big(n+1\big)\sum_{l=1}^{m} l + 1$$

$$T(n) = 12 + 12n + 2100(n+1)\frac{m(m+1)}{2} + 1$$

$$T(n) = 13 + 12n + 1050(n+1)m(m+1)$$

$$T(n,m) \in O(n * m^2)$$

Análisis método buscarPrefijo

$$T(n) = 5 + \sum_{i=0}^{m} (5 + 3 + 2 + 3) + 2$$

$$T(n) = 7 + \sum_{i=0}^{m} 13$$

$$T(n) = 7 + 13m$$

$$T(n) \in O(m)$$

Análisis método óptimo

$$T(n) = 1 + 2 + 3 + 2 + T\left(\frac{n}{2}\right) + 2 + T\left(\frac{n}{2}\right) + O(m)$$

$$T(n) = 10 + 2T\left(\frac{n}{2}\right) + O(m)$$

$$a = 2 \quad b = 2 \quad c = 0$$

$$O\left(n^{\log_b a}\right) = O\left(n^{\log_2 2}\right)$$

POR NIVEL DE RECURRENCIA $O(n)$

COMPLEJIDAD REAL $O(n * m)$