Assignment - 3 (Part - 1)

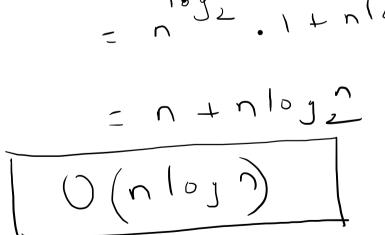
$$T(n) = \begin{cases} 2T(\sqrt{2}) + n \\ 2T(\sqrt{2}) + n \end{cases}$$
 $T(n) = 2T(\sqrt{2}) + n$
 $T(n) = 2T(\sqrt{2}) + n$
 $T(n) = 2T(\frac{n}{2}) + 2n$
 $T(n) = 2T(\frac{n}{2}) + 3n$
 $T(\frac{n}{2}) = 2T(\frac{n}{4}) + 2$
 $T(\frac{n}{4}) = 2T(\frac{$

$$T(n) = \frac{1}{2} T\left(\frac{n}{2}\right) + K n$$

$$T(n) = 2 \left(\frac{1}{2} \left(\frac{1}{2} \right) + K \right)$$

$$= \frac{1}{2} \left(\frac{1}{2} \left(\frac{1}{2} \right) + \frac{1}{2} \left(\frac{1}{2} \right$$

$$T(n) = \frac{1000}{2} - (1) + 1000$$



2)
$$T(n) = \begin{cases} 1 \\ 8T(\frac{\gamma}{2}) + n \end{cases}$$

$$T(n) = n = 8 \begin{cases} 8T(\frac{\gamma}{2}) + (\frac{\gamma}{2}) \end{cases}$$

$$T(n) = 8 T(\frac{\gamma}{2}) + n \end{cases}$$

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$$T(n) = n = 8 \end{cases}$$

$$T\left(\frac{\gamma}{2}\right) = 8T\left(\frac{\gamma}{2}\right) + \left(\frac{\gamma}{2}\right)$$

$$T(n) = 8T\left(\frac{\gamma}{2}\right) + \frac{2}{3}n$$

$$T(n) = 8T\left(\frac{\gamma}{2}\right) + 3n$$

$$T(n) = 8T\left(\frac{\gamma}{2}\right) + 3n$$

$$T(n) = 8T\left(\frac{\gamma}{2}\right) + 3n$$

$$\frac{1}{8} = \frac{1}{8} = \frac{1}{2}$$

$$\frac{1}{8} = \frac{1}$$

$$T(n) = 8^{k} + \left(\frac{n}{2^{k}}\right) + \left(2^{k} - 1\right)^{n}$$

$$\frac{n}{2^{k}} = 1 = 1 \times 10^{n}$$

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$$\frac{1}{2^{k}} = 1 = 1 \times 10^{k} \times 10^{k}$$