

Assignment NO. 1
1 Find the time complexity for the following scenarios.

a → For($i=1$; $i \leq n$; $i++$)
 for($j=1$; $j \leq n$; $j++$)
 printf("hi"),

Ans - Time complexity is $O(n^2)$
It is Quadratic time complexity

b → For($i=1$; $i \leq n$; $i*=3$)
 for($j=1$; $j \leq n$; $j++$)
 printf("Hello")

Ans - for ($i=1$; $i \leq n$; $i*=3$) $\rightarrow \log_3 n$

$$\log_3 n + n \log_3 n + 1 \times n \times \log_3 n$$

$$\log_3 n (1 + n + n)$$

$$\log_3 n (1 + 2n)$$

$$\log_3 n (2n + 1)$$