⟹ Master method.

$T(n) = 3T(n/4) + n\log n$

Acc. to master th^{m},

if

$T(n) = aT(n/b) + f(n)$

$a \geq 1$

$b \geq 1$

$f(n) = \Theta(n^k \log^p n)$

here, $f(n) = \Theta(n \log n)$

$k = 1,$

$p = 1$

$a = 3, \; b = 4$

We know,

$\log_b^a < k$, if $p \geq 0$ $\Theta(n^k \log^p n)$

if $p < 0$ $\Theta(n^k)$

$\log_{\frac{4}{3}} 1 < 1$, $p > 0$

$\therefore \quad T(n) = O(n^k \log^p n)$

$= O(n \log n)$

$\therefore \quad \boxed{T(n) = O(n \log n)}$