```
* Master's Theorem Assignment Problem:-
    T(n) = 2T(n/2) + n
             f(n) = \Theta(n^{K} \log^{p} n)
    1 a=2 K=1 (2) 10960 = 10922 =1
        b = 2 p = 0
           3 (109ba=K) (1=1)
       O(n^{k}\log^{p+1}n) \longrightarrow O(n\log n)
                                 (1173) 510
                0>-1
         \Rightarrow \Theta(n \log n)
                          f(n)
2) T(n) = 2T(n/2) + n \log n
               f(n) = 0 (n x 109 Pn)
   1) a = 2 | K=1 (2) 1096a=10922=1
               p=1 (100
          3 109ba ≠K
                  1>-1
              0(nk109P+1n)
            \Rightarrow \theta(n \log^2 n)
  T(n) = 2T(n/2) + n^2
             f(n) = O (nKlogpn)
    1 a=2 K=2 2 109ba=10922=1
          3 109ba < K
                 \Theta(n^k \log^p n) \Rightarrow \Theta(n^2 \log n)
```

4)
$$T(n) = 8T(n/2) + n^2$$

 $f(n) = 0 (n^{109} n)$
① $a = 8$ $k = 2$ ② $109ba = 10928 = 3$
 $b = 2$ $p = 0$
③ $109ba > K$
3 > 2
② $(n^{109}b^a)$