2023300186

Exp-1 : REPORT:

We have solved this experiment using 3 algorithms.

1). Euclidean Algorithm for GCD:

$GCD(a,b) = GCD(b, a \bmod b)$.
$TC = O(\log(\min(a,b)))$
$SC = O(1)$

2.) Extended Euclidean algorithm to find MI:

$a \cdot x \equiv 1 \pmod m$
$TC = O(\log m)$
$SC = O(1)$

3.) Extended Euclidean algorithm to find GCD & (s,t) pair.

$a \cdot s + b \cdot t = GCD(a,b)$.
$TC = O(\log(\min(a,b)))$.
$SC = O(1)$.

In conclusion, I learnt, mathematical foundation of Euclidean & extended euclidean algorithm.
Also, how a small change can make huge difference in MI.

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20233300186

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