ADA LAB TEST - 1

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4-C

i) Solve towers of Hanoi.

```
#include <stdio.h>
void towers(int, char, char, char);
int main()
{
 int num;
printf("Enter the number of disks:");
scanf("%d", &num);
printf("the sequence of moves involved in the towers of hanoi are:\n");
towers(num, 'A', 'C', 'B');
return 0;
}
void towers(int num, char a, char b, char c)
{
 if(num==1)
  {
 printf("\n Move disk 1 from peg %c to peg %c", a, b);
return;
}
towers(num-1, a, b, c);
printf("\n Move disk %d from peg %c to peg %c", num, a, b);
towers(num-1, c, b, a);
}
```


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GCD:

```
#include<stdio.h>
int gcd(int m, int n)
{
 if (n==0)
  return m;
 if (m<n)
 return gcd(n,m);
 return gcd(n, m%n);
}
int main()
{
 int m, n, res;
 printf("Enter m and n\n");
 scanf("%d%d", &m,&n);
 res = gcd(m,n);
 printf("GCD of %d and %d is %d", m,n, res);
}
```


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Modification

Count the number of recursive call in solving Towers of hanoi problem

```
def towers (num_disks, start_peg, end_peg, count=0):
    count += 1
    print count
    return towers (num_discs, start_peg, end_peg, count)
```


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