Recursion day - 1

Tuesday, February 25, 2025 3:56 PM

☆ Recursion → baar baar

```
int solve()
{
    solve();   → recursion
}
```

☆ 1) All possibilities → ✓

2) Recursion → (x^n) worst solutions.

└→ o(—) stack space.

stack overflow

memory

```
int main()
{
    func1();
}

void func1()
{
    func1();
}
```

recursion

infinite loop

```
int i=0;
while(i<n)
{
}
```

∞ times

☆ base case (to stop the recursion acc. to will)

```
for (int i=1; i<=10; i++)
{ cout<<i;
}
```

1—10 print

recursion

```
void recur(int n)
{
    cout<<n;
    recur(__);
}
```

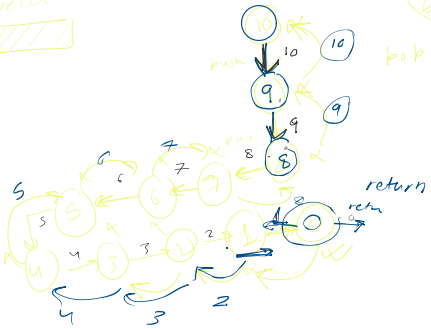
o) recursive call

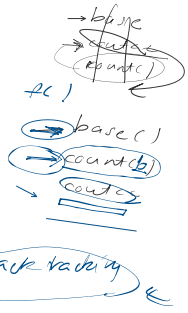
o) base case

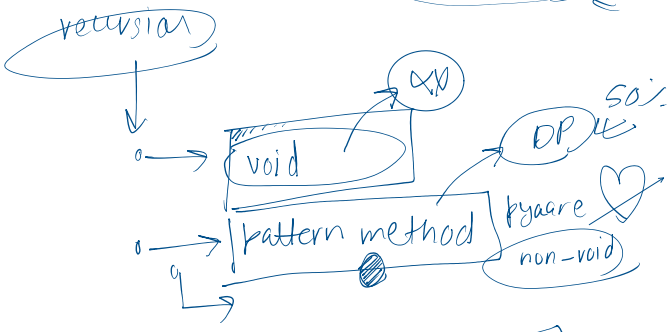
```
f(10)
{
    if(n<1) return;
    cout<<n;
    f(9);
}
```

(10), 9, 8, 7, 6, 5, 4, 3, 2, 1

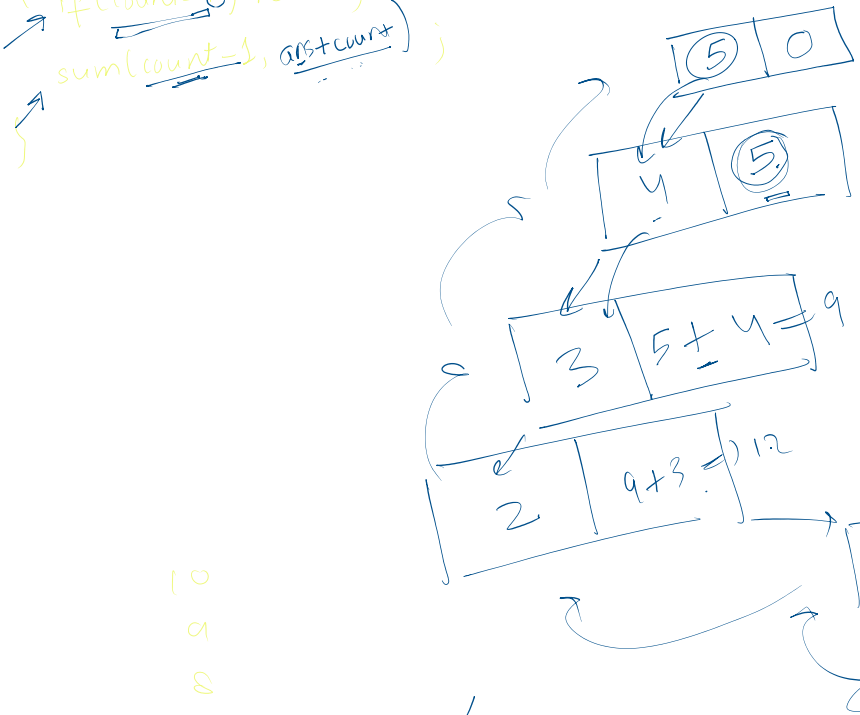
```
void count(int n)
{ if(n<1) return;
  count(n-1);
}
```

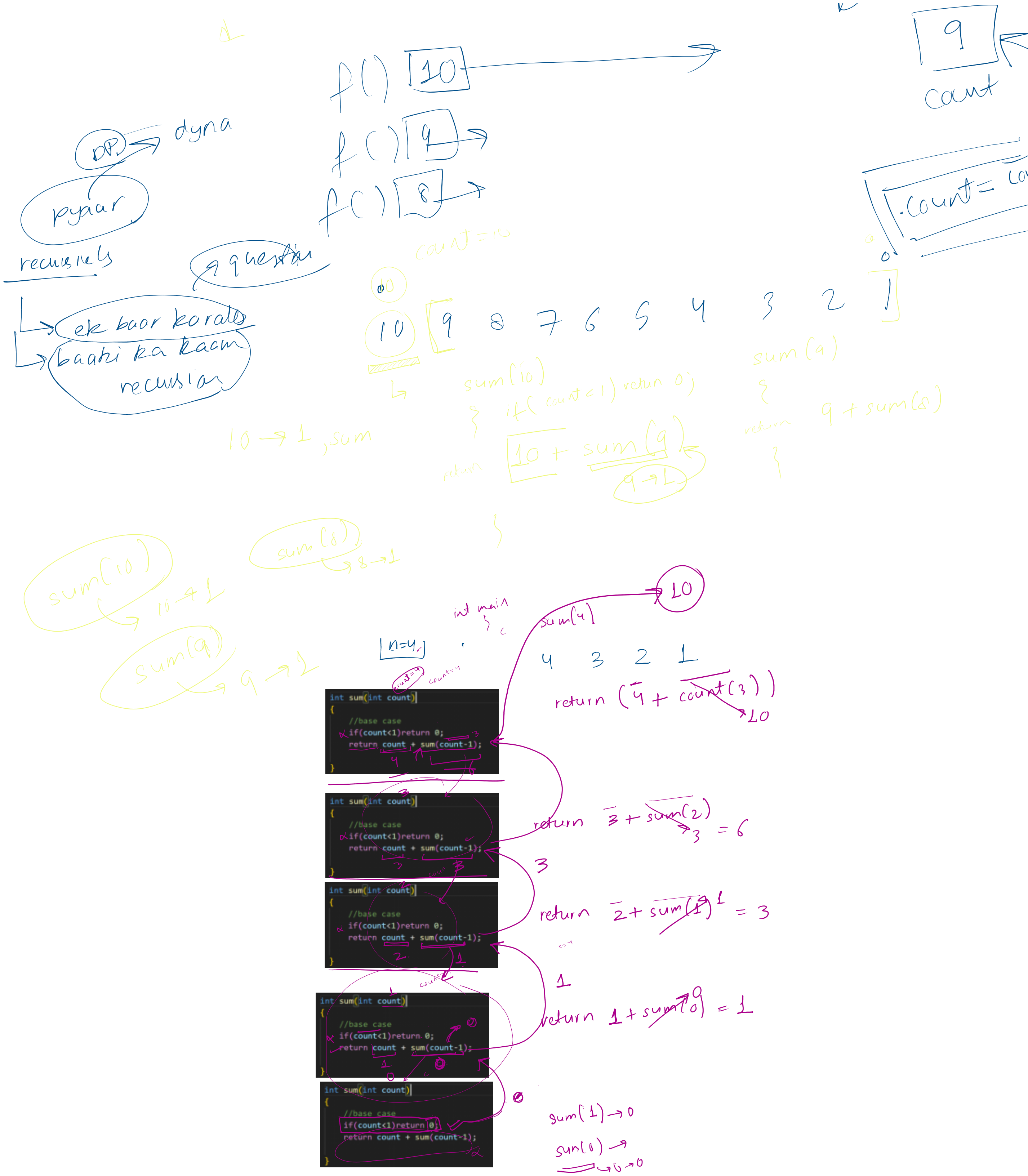







```
void sum(int count, int ans)
{ if(count<0) return;
  sum(count-1, ans+count);
}
```





f() 10
f() 9
f() 8
9
count
count=
DP → dyna
pyaar
recursively
question
ek baar karado
baaki ka kaam recursion
10 9 8 7 6 5 4 3 2 1
sum(10)
if(count<1) return 0;
return 10 + sum(9)
9→1
sum(9)
return 9 + sum(8)
10→1, sum
sum(10)
10→1
sum(9)
9→1
sum(8)
8→1
int main
n=4
sum(4)
10
4 3 2 1
return (4 + count(3))
10
return 3 + sum(2) = 6
3
return 2 + sum(1) = 3
1
return 1 + sum(0) = 1
0
sum(1)→0
sum(0)→
int sum(int count)
{
//base case
if(count<1)return 0;
return count + sum(count-1);
}