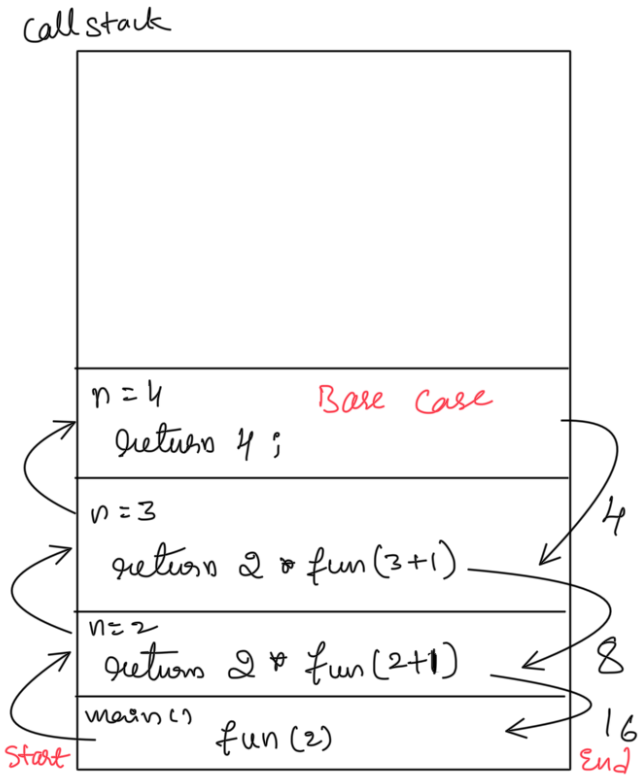
RECURSION

DAY 19
29/07/2025

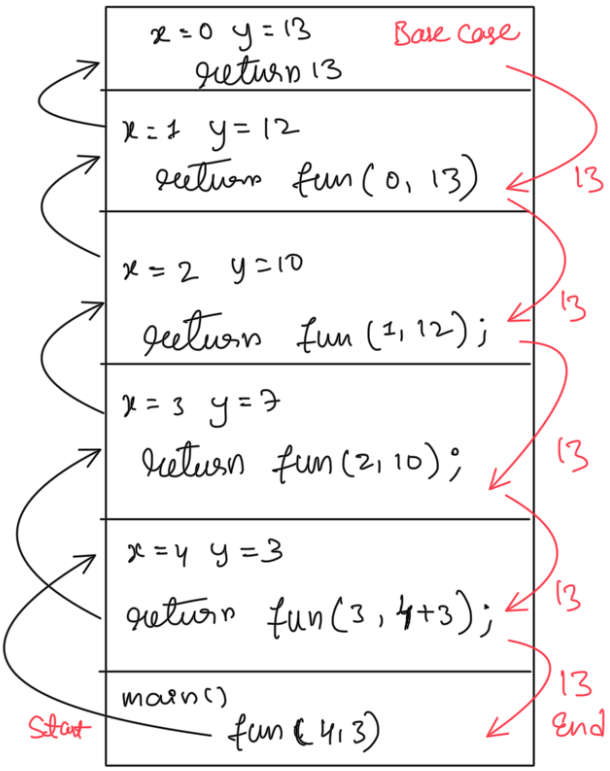
Question Number -1

```
#include <stdio.h>
int fun(int n)
{
    if (n==4)    // Base Case
        return n;
    else return 2 * fun(n+1);
}
int main(){
    printf("%d", fun(2));
    return 0;
}
```



Question Number 2

```
int fun(int x, int y)
{
    if (x==0)
        return y;
    return fun(x-1, x+y);
}
int main(){
    printf("%d", fun(4,3));
    return 0;
}
```

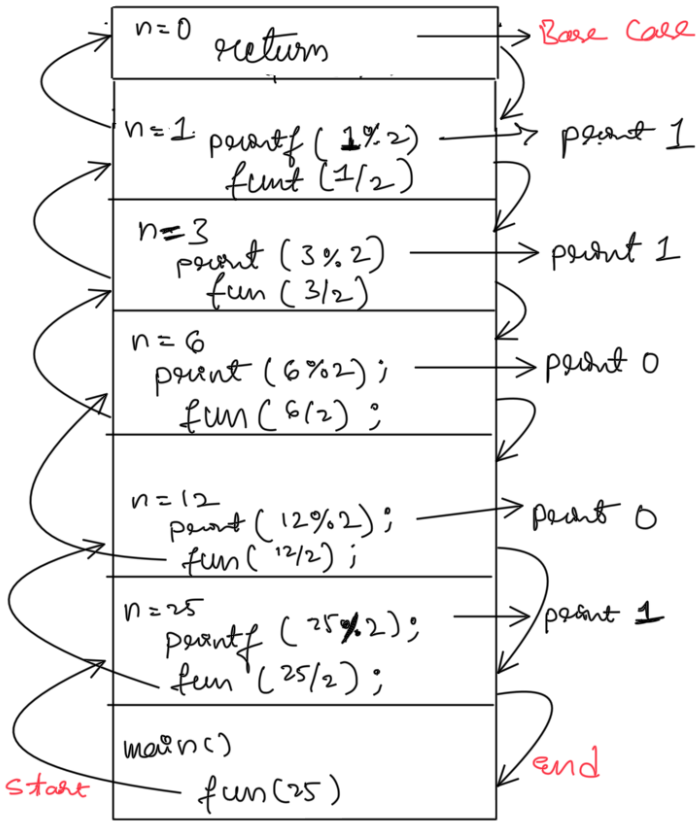


$((x + x-1 + \cdots - 2 + 1) + y)$

$f(4,3) = (4+3+2+1)+3 = (10+3) = 13$

Question no 3

```
void fun (int n)
    if (n==0)
      return;
  printf("%d", n%2);
  fun(n/2);
}
void main() {
   fun(25);
}
```



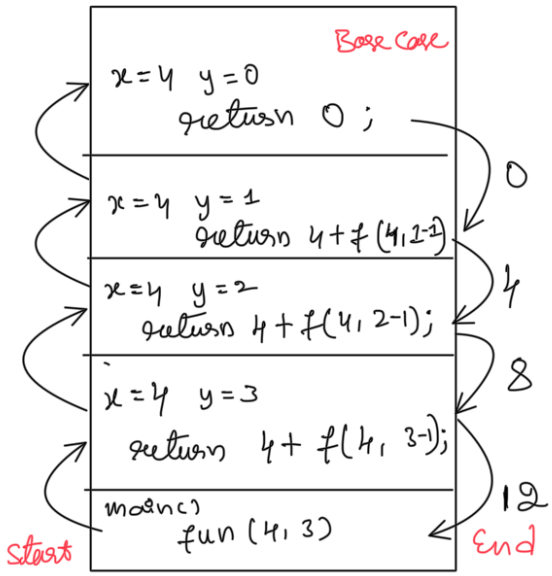
Print

1 0 0 1 1

Binary value of 25 in reverse order.

Question No 4

```
int fun (int x, int y)
{
   if (y==0) return 0;
   return (x + fun (x, y-1));
}
int main ( ){
   printf("%d", fun(4, 3));
   return 0
}
```



x * y times (adds x y times)

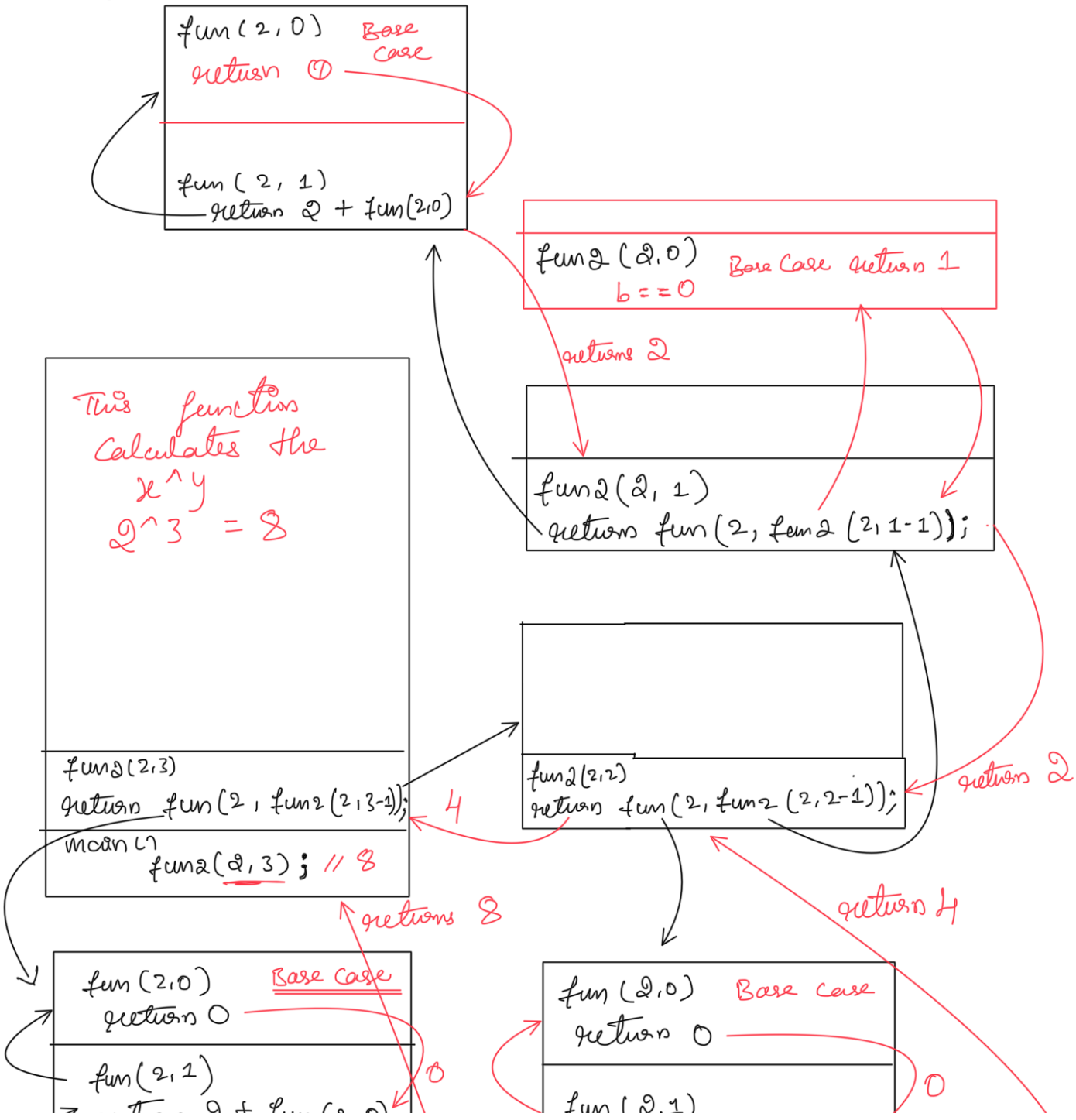
4 * 3 (4+4+4)

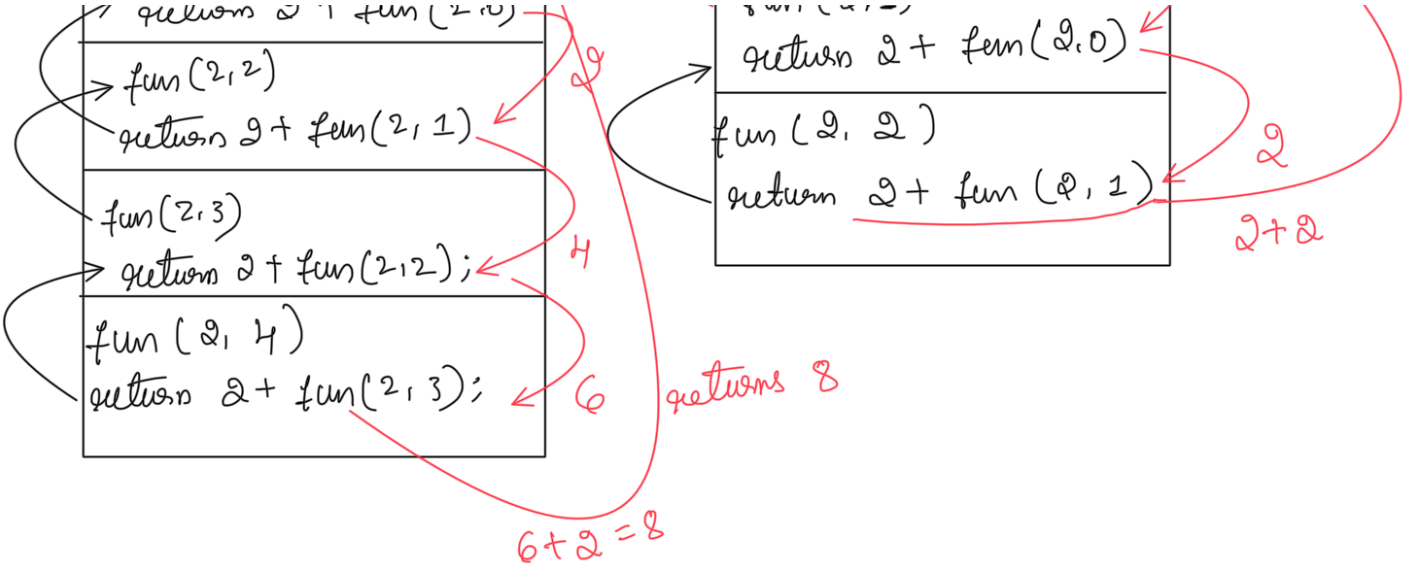
Question 5

```
int fun(int x, int y)
{
    if (y==0) return 0;
    return (x + fun(x, y-1));
}
int fun2(int a, int b)
{
    if (b==0) return 1;
    return fun(a, fun2(a, b-1));
}
```

Take x = 2 y = 3

```
void main()
{
    int sol = fun2(2, 3);
    printf("%d", sol);
}
```





Question number - 6

```
#include <stdio.h>
void print(int n)
{
    if (n > 4000)
        return;
    printf("%d", n);
    print(2 * n);
    printf("%d", n);
}

int main() {
print(1000);
return 0;
}
```