Functions

If we want to do some specific task again and again, we write it in a functio, and then we use that function for the better programming approach.

```
returntype function_name(parameters){
    code
}
```

Function involves

② → Function Definition

① → Function Delaration (done before the Function Definition)

③ → Function call.

Parameters (type1, type2, type3)

→ Function saves us from the redundancy

→ Improves the readability.

In Function call, we pass the arguments which was previously parameters in the function declaration.

Examples

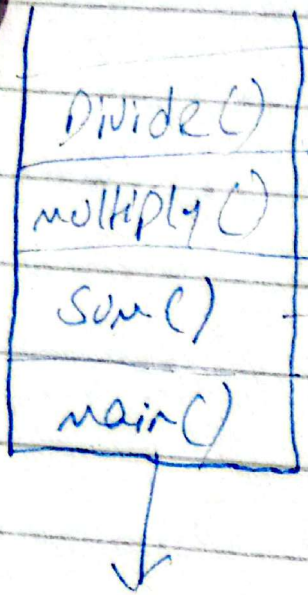
Fictorial of Numbers.

Function memory

① Stack memory (static)

② Heap (Dynamic)

Functions are in the stack memory.



All will vanish after completing their functionalities.

→ when the return statement comes the control will go to the main() again and sum() will be removed from the stack

when all the executions are completed in the main() are return 0 comes the main() will also gets removed from the stack.

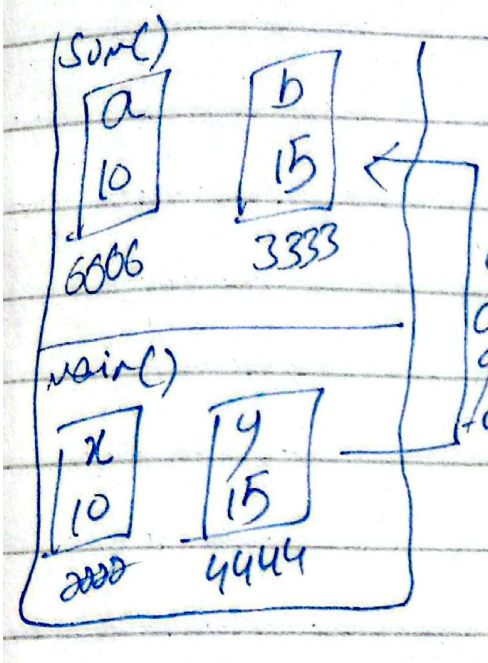
```
int sum(int a, int b)
{
sum = a+b;
return sum;}
int main()
{
sum(14,15);
```

break point of the function.

→ No statements will be executed after the return statement.

Pass By value

Copy of arguments are passed to function



How will it work technicaly

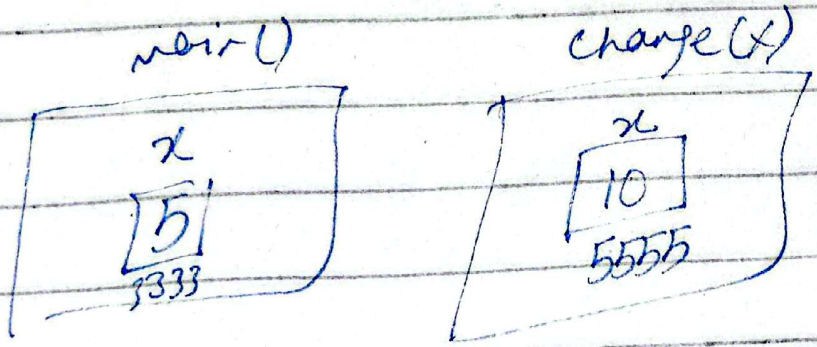
```
int sum(int a, int b){
    sum = a+b;
    return sum;
}

int main(){
    int x=10, y=15;
    sum(x,y);
```

copies are generated.

although if we keep the main() values as a and b aswell it will not affect each other because the memory addresses are different. names are just apparent.

For example



Sum of Digits of Number?

```
lastdig
while(num > 0){
lastdigit = num % 10
num = num / 10
digsum += lastdig
}
```

Binomical coefficient

$$^nC_r = \frac{n!}{r!(n-r)!}$$

$$^8C_2 = \frac{8!}{2!(8-2)!} = 28$$

① → Prime Numbers
② → Prime Numbers series
③ → Fibonocci series