* calculate sum of two numbers :-

```
void main()
{
    int a, b, sum = 0;
    printf (" Enter two numbers: \n ");
    scanf (" %d ", &a);
    scanf (" %d ", &b);
    sum = a + b;
    printf (" Sum is : \n ");
}
```
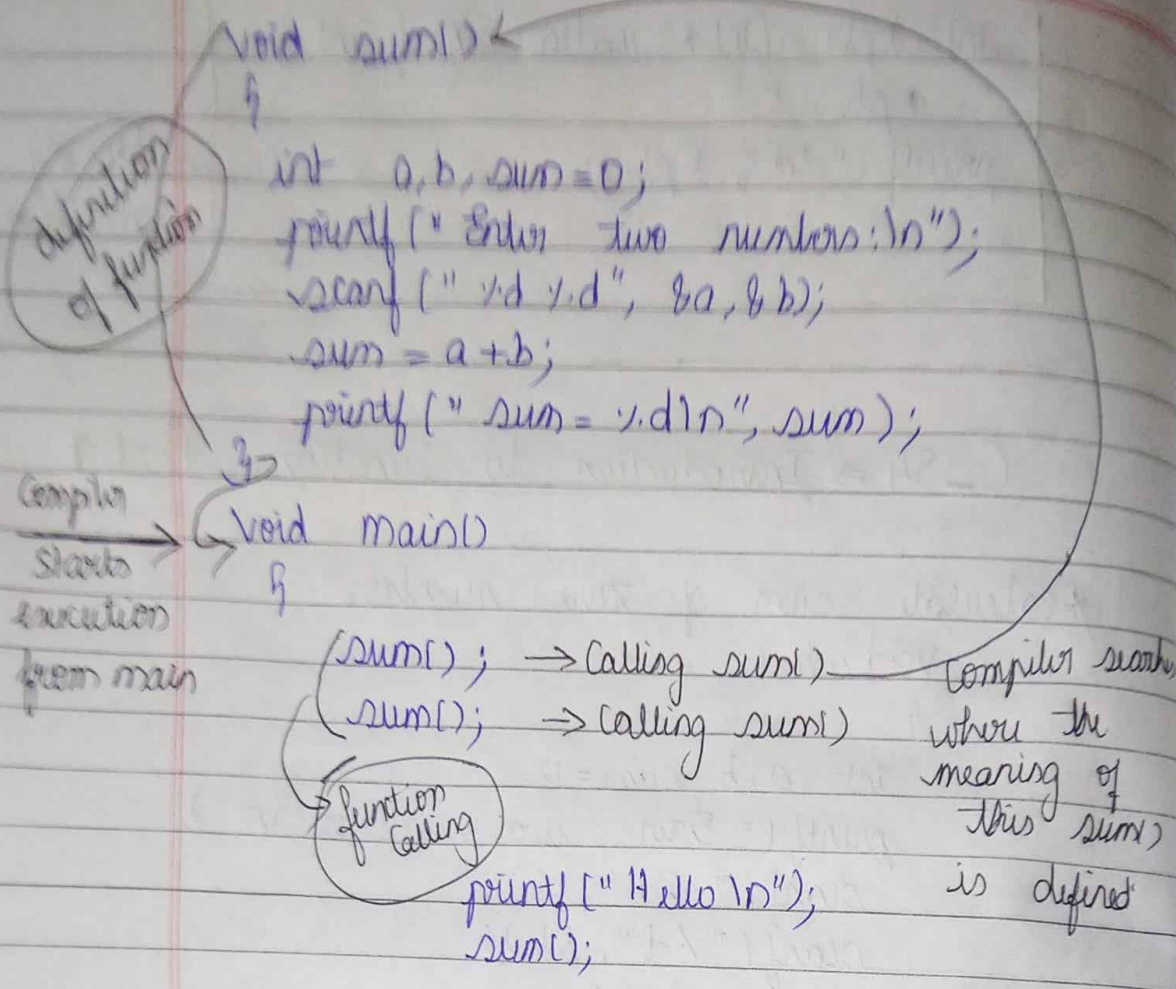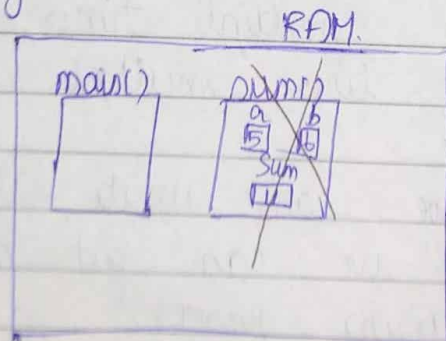
* This program calculates sum one time, but when we need to calculate sum value multiple times, we can't write these lines multiple times.

* Instead, we can write these lines only one time and we can get multiple times the sum using functions.

* we can define a function of our convinent name called user defined function and we can put these lines into these functions.

Void sum()

definition of function

```
Void sum()
{
    int a, b, sum = 0;
    printf (" Enter two numbers :\n");
    scanf (" %d %d", &a, &b);
    sum = a + b;
    printf (" sum = %d\n", sum);
}
```

Compiler Starts execution from main →

```
Void main()
{
    sum();  → Calling sum()
    sum();  → Calling sum()

    function Calling

    printf (" Hello \n");
    sum();
}
```

Compiler search where the meaning of this sum() is defined

* Whenever we run a program; our program will be loaded into main memory (ie) RAM

RAM

```
main()        sum()
              a    b

              sum
```

* Compiler starts executing from main function.

* Now compiler searches sum() and it

is then loaded into main memory and after the sum() is finished; this block sum() is vanished from the memory including variable a, b, sum bcoz these are local variables.

* suppose we want to calculate sum() again; then simply write main function again sum(), Now again for sum() function memory is allocated and when execution completed; sum() vanishes.

Functions:

* Functions mainly supports reusability; we can write a task one time and by calling a function; we can run it multiple times.

* Functions or also called as modules or sub programs.

* Its easy to test or debug the program.

* It supports better memory allocation system.

* printf(), scanf() are predefined functions or library function which are defined in header files

* Functions are some piece of code which takes an input, then process it and gives us output.

Program

```
void sum()
{
    int a, b, sum = 0;
    printf(" Enter two numbers:");
    scanf(" %d %d", &a, &b);
    sum = a+b;
    printf(" sum = %d", sum);
}

void main()
{
    sum();
    printf("hellos");
    sum();
    sum();
}
```

O/p:
Enter two numbers:
5 9
Sum = 14.
Hello.
Enter two numbers:
4 5
sum = 9.
Enter two numbers:
3 2
sum = 5

Note:-

* We can call a function in any other function but we cannot define a function within any other function;

Eg:

```
void sum()          Eg:  void sum()
{                        {
  - - - - -                - - - -
  - - - - -                - - - -
  - - - - -             X   void sub()
}                  (wrong)  {
void sub()                    - - -
{                             - - -
  - - - -                   }
  sum();   (Correct)      }
}
```

Question:-

* Main() is user defined (or) predefined function?.

→ Main() is userdefined as well as predefined function; because in main() body of the function is userdefined but the prototype of main function is predefined.

PROBLEM 1:

```c
#include <stdio.h>
#include <stdlib.h>
/** 1-FUNCTIONS-PART 1 **/
void sum()
{
  int a,b,sum=0;
  printf("Enter two numbers:\n");
  scanf("%d %d",&a,&b);
  sum=a+b;
  printf("Sum is %d\n",sum);
}
int main()
{
    sum();
    printf("Hello\n");
    sum();
    sum();
    getch();
}
```

```
"D:\1. C NOTEBOOK\C LANGUAGE\C PROGRAMS\PART 5_Jennys Lectures\PART

Enter two numbers:
2
3
Sum is 5
Hello
Enter two numbers:
3
2
Sum is 5
Enter two numbers:
2
3
Sum is 5
```