C - 87 ⇒ Functions in C ⇒ Part 4

Call by Value & Call by Reference

```
void main()
{
  int x=5, y=7;
  sum(x,y);
}
```

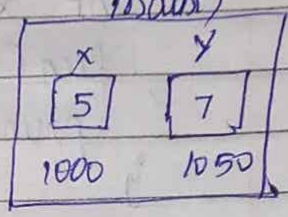
⇒ function call.

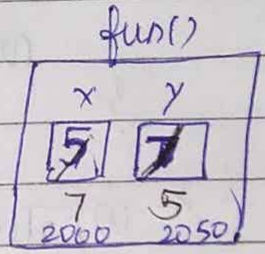
Note: Functions 7 → Main Points

When we use the function call in main() function; either define the function before main() function (or) declare the function before main() function; when you define function after main() function.

Call by Value:-

```
Void fun(int, int);
void main()
{
  int x=5, y=7;
  fun(x, y);
  printf("x=%d y=%d", x, y);
}
void fun(int x, int y)
{
  x=7;
  y=5;
  printf("x=%d, y=%d", x, y);
}
```





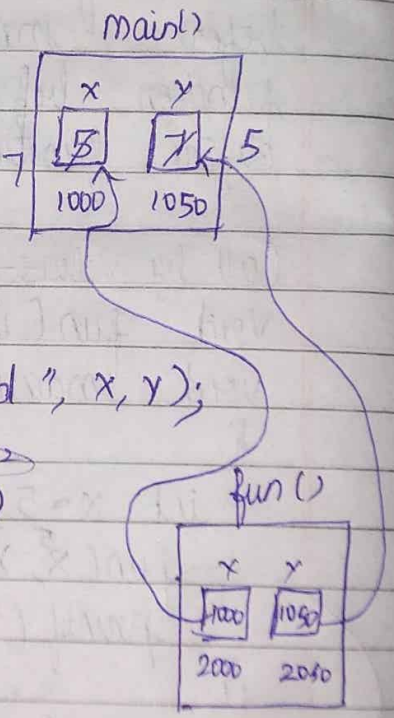
* In call by value; we just only pass the value to called function

* Drawback of call by value is; whenever we call a function and process it the main function should change; but in main function there will be no change.

* So to overcome this we use call by reference.

Call by reference:

```
void fun(int*, int*);
void main()
{
  int x=5, y=7;
  fun(&x, &y);
  printf("x=%d, y=%d", x, y);
}
void fun(int *x, int *y)
{
   *x = 7;
   *y = 5;
  printf("x=%d y=%d", *x, *y);
}
```

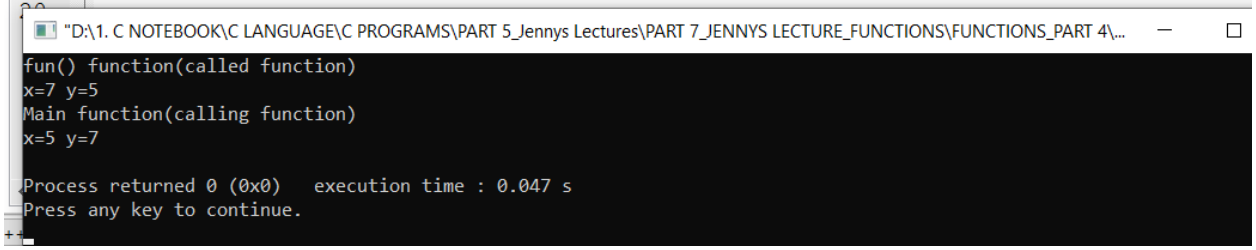


* Whatever change we make in function definition; it will affect it is the main() function which is done using call by reference.

PROBLEM 1:

```c
#include <stdio.h>
#include <stdlib.h>
/** CALL BY VALUE **/
void fun(int,int);

int main()
{
    int x=5,y=7;
    fun(x,y);
    printf("Main function(calling function)\n");
    printf("x=%d y=%d\n",x,y);
}
void fun(int x,int y)
{
 x=7;
 y=5;
 printf("fun() function(called function)\n");
 printf("x=%d y=%d\n",x,y);
}
```



PROBLEM 2:

```c
#include <stdio.h>
#include <stdlib.h>
/** CALL BY REFERENCE **/
void fun(int*,int*);

int main()
{
    int x=5,y=7;
    fun(&x,&y);
    printf("Main function(calling function)\n");
    printf("x=%d y=%d\n",x,y);
}
void fun(int *x,int *y)
{
 *x=7;
 *y=5;
 printf("fun() function(called function)\n");
 printf("x=%d y=%d\n",*x,*y);
}
```