

### Functions

Used to break problem down to small, bite sized pieces

Have an optional type of return value, a name and optional arguments

Functions return at most, ONE value

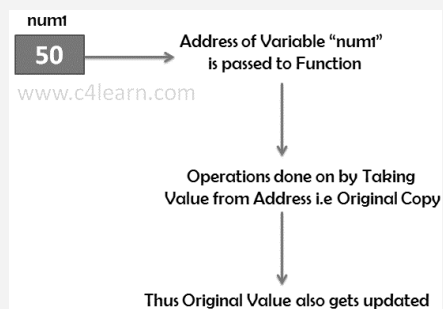
Functions must be prototyped or declared before usage

### Call by Address

```
#include<stdio.h>
void interchange(int *num1, int *num2)
{
    int temp;
    temp = *num1;
    *num1 = *num2;
    *num2 = temp;
}
int main() {
    int num1=50, num2=70;
    interchange(&num1, &num2);
    printf("\n Number 1 : %d", num1);
    printf("\n Number 2 : %d", num2);
    return(0);
}
```

OUTPUT  
Number 1 : 70  
Number 2 : 50

### Call Value



### Extra Types

int	-2,147,483,648 to +2,147,483,647
unsigned int	0 to 4,294,967,295
int64	-9,223,372,036,854,775,808 to +9,223,372,036,854,775,807

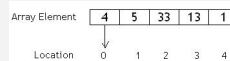
### Switch

```
switch (<condition> )
{
    case <value> :
        <statements>
        [ break; ]
    case <value> :
        <statements>
        [ break; ]
    :
    [ default:
        <statements>
        [ break; ]
    ]
}
```

### CBR vs CBV

Point	Call by Value	Call by Reference
Copy	Duplicate Copy of Original Parameter is Passed	Actual Copy of Original Parameter is Passed
Modification	No effect on Original Parameter after modifying parameter in function	Original Parameter gets affected if value of parameter changed inside function

### Array Sample



a[0] = 4;  
a[1] = 5;  
a[2] = 33;  
a[3] = 13;  
a[4] = 1;

### Call-By-Value Steps

Copy of original parameter is created & passed to the called function

Updates inside method will NOT affect the original value of the variable in the calling function

### Call-By-Value Steps (cont)

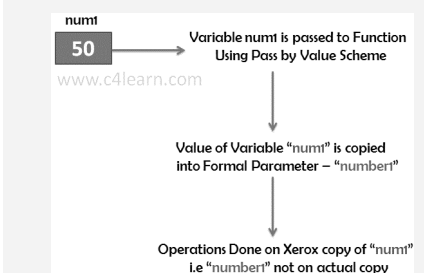
scope is limited, therefore it cannot alter values inside main function

### Call by Value

```
#include<stdio.h>
void interchange(int number1, int number2)
{
    int temp;
    temp = number1;
    number1 = number2;
    number2 = temp;
}
int main() {
    int num1=50, num2=70;
    interchange(num1, num2);
    printf("\n Number 1 : %d", num1);
    printf("\n Number 2 : %d", num2);
    return(0);
}
```

OUTPUT  
Number 1 : 50  
Number 2 : 70

### CallRef



Call by ref = call by address