Type of User-defined Functions in C

There can be 4 different types of user-defined functions, they are:

1. Function with no arguments and no return value
2. Function with no arguments and a return value
3. Function with arguments and no return value
4. Function with arguments and a return value

Function with no arguments and no return value

Such functions can either be used to display information or they are completely dependent on user inputs.

Below is an example of a function, which takes 2 numbers as input from user, and display which is the greater number.

```
#include<stdio.h>

#include<conio.h>


void greatNum();       // function declaration


void main()

{

    greatNum();        // function call

    getch();

}


void greatNum()        // function definition

{

    int i, j;

    printf("Enter 2 numbers that you want to compare...");

    scanf("%d%d", &i, &j);

    if(i > j) {
        printf("The greater number is: %d", i);
    }
    else {
        printf("The greater number is: %d", j);
    }
}
```

Function with no arguments and a return value

We have modified the above example to make the function `greatNum()` return the number which is greater amongst the 2 input numbers.

```
#include<stdio.h>
#include<conio.h>

int greatNum();       // function declaration

void main()
{
    int result;
    result = greatNum();        // function call
    printf("The greater number is: %d", result);

}

int greatNum()        // function definition
{
    int i, j, greaterNum;
    printf("Enter 2 numbers that you want to compare...");
    scanf("%d%d", &i, &j);
    if(i > j) {
        greaterNum = i;
    }
    else {
        greaterNum = j;
    }
    // returning the result
    return greaterNum;
}
```

Function with arguments and no return value

We are using the same function as example again and again, to demonstrate that to solve a problem there can be many different ways.

This time, we have modified the above example to make the function `greatNum()` take two `int` values as arguments, but it will not be returning anything

```
#include<stdio.h>

void greatNum(int a, int b);       // function declaration

int main()
{
    int i, j;
    printf("Enter 2 numbers that you want to compare...");
    scanf("%d%d", &i, &j);
    greatNum(i, j);        // function call
    return 0;
}

void greatNum(int x, int y)        // function definition
{
    if(x > y) {
        printf("The greater number is: %d", x);
    }
    else {
        printf("The greater number is: %d", y);
    }
}
```

Function with arguments and a return value

This is the best type, as this makes the function completely independent of inputs and outputs, and only the logic is defined inside the function body.

```c
#include<stdio.h>

int greatNum(int a, int b);       // function declaration

int main()
{
    int i, j, result;
    printf("Enter 2 numbers that you want to compare...");
    scanf("%d%d", &i, &j);
    result = greatNum(i, j); // function call
    printf("The greater number is: %d", result);
    return 0;
}

int greatNum(int x, int y)        // function definition
{
    if(x > y) {
        return x;
    }
    else {
        return y;
    }
}
```