Recursion

CHAPTER 28

SURESH TECHS

C PROGRAMMING COURSE

Recursion

- When a function calls **itself** then this technique is known as **Recursion** and the function is known as **recursive function**
- While using recursion, you will have to define an **exit condition** on that function, if not then it will go into an **infinite loop**.

```c
#include<stdio.h>
void printMe(){
    int i=0;
    printf("Welcome %d",i);
    printMe();
}

int main(){
    printMe();
    return 0;
}
```

Types of recursion

- Direction Recursion

```c
#include<stdio.h>
void printMe(){
    int i=0;
    printf("Welcome %d",i);
    printMe();
}

int main(){
    printMe();
    return 0;
}
```

- Indirect Recursion

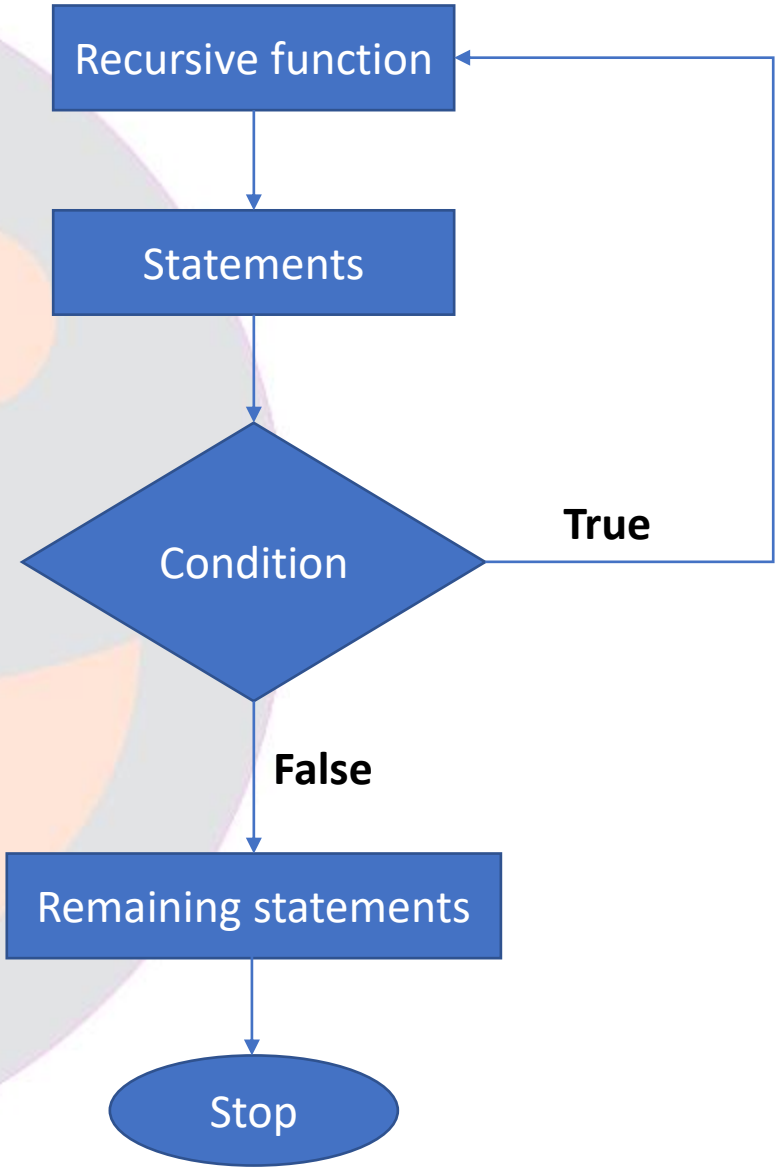
```c
#include<stdio.h>
void sum(){
    printf("Sum Me\n");
    printMe();
}
void printMe(){
    int i=0;
    printf("Welcome %d",i);
    sum();
}

int main(){
    printMe();
    return 0;
}
```

Exit condition

```c
#include<stdio.h>
void printMe(){
    static int i=0;
    printf("Welcome %d\n",i);
    if(i<10){
        i++;
        printMe();
    }
}

int main(){
    printMe();
    return 0;
}
```



Note

- You have to be **very careful** when you are using recursion in your program.

- You just **cannot use recursion in all your problems** because it will make your program more complex and difficult.

What next?

- Decision making and looping