Function

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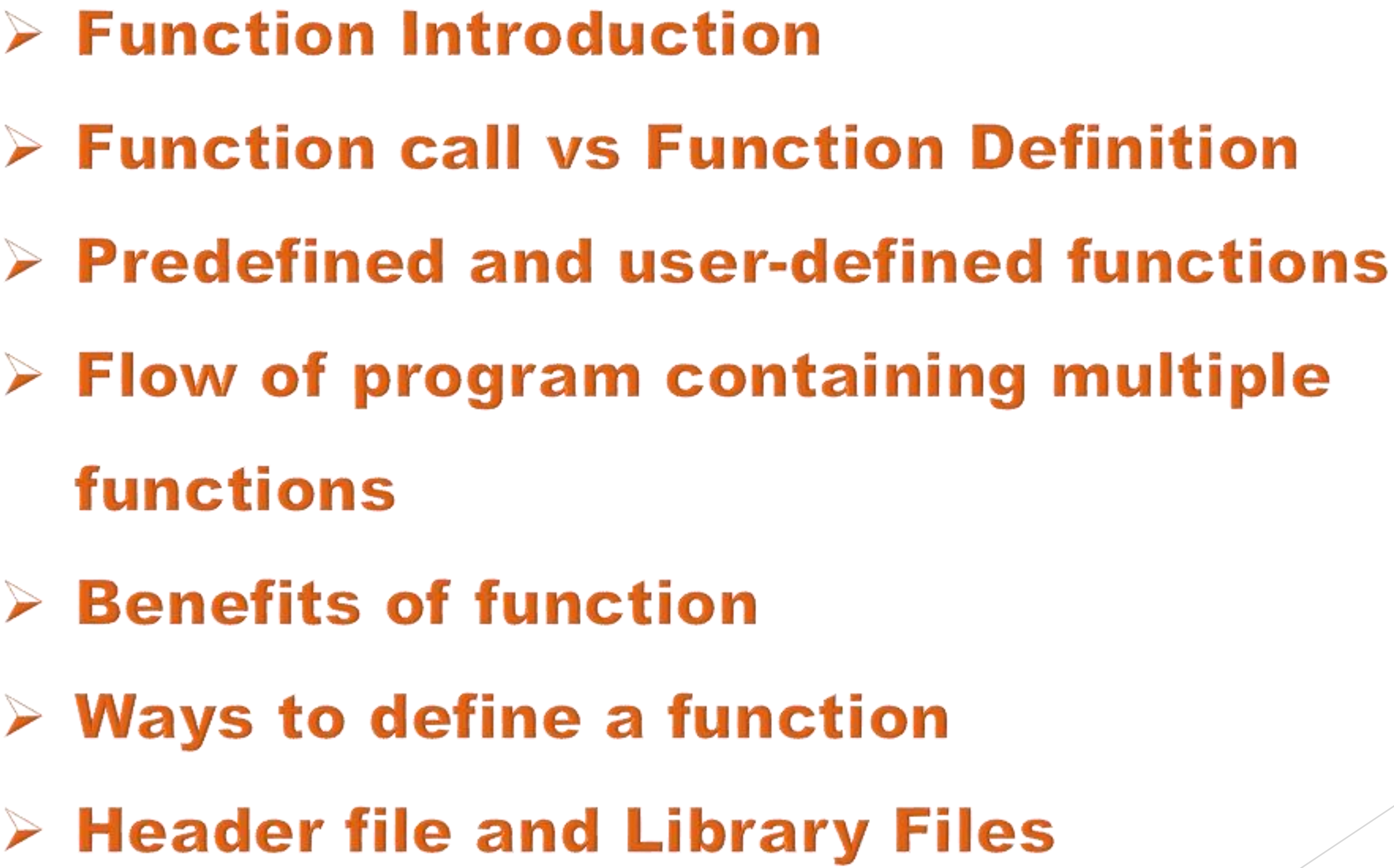
Agenda



- Function Introduction
- Function call vs Function Definition
- Predefined and user-defined functions
- Flow of program containing multiple functions
- Benefits of function
- Ways to define a function
- Header file and Library Files

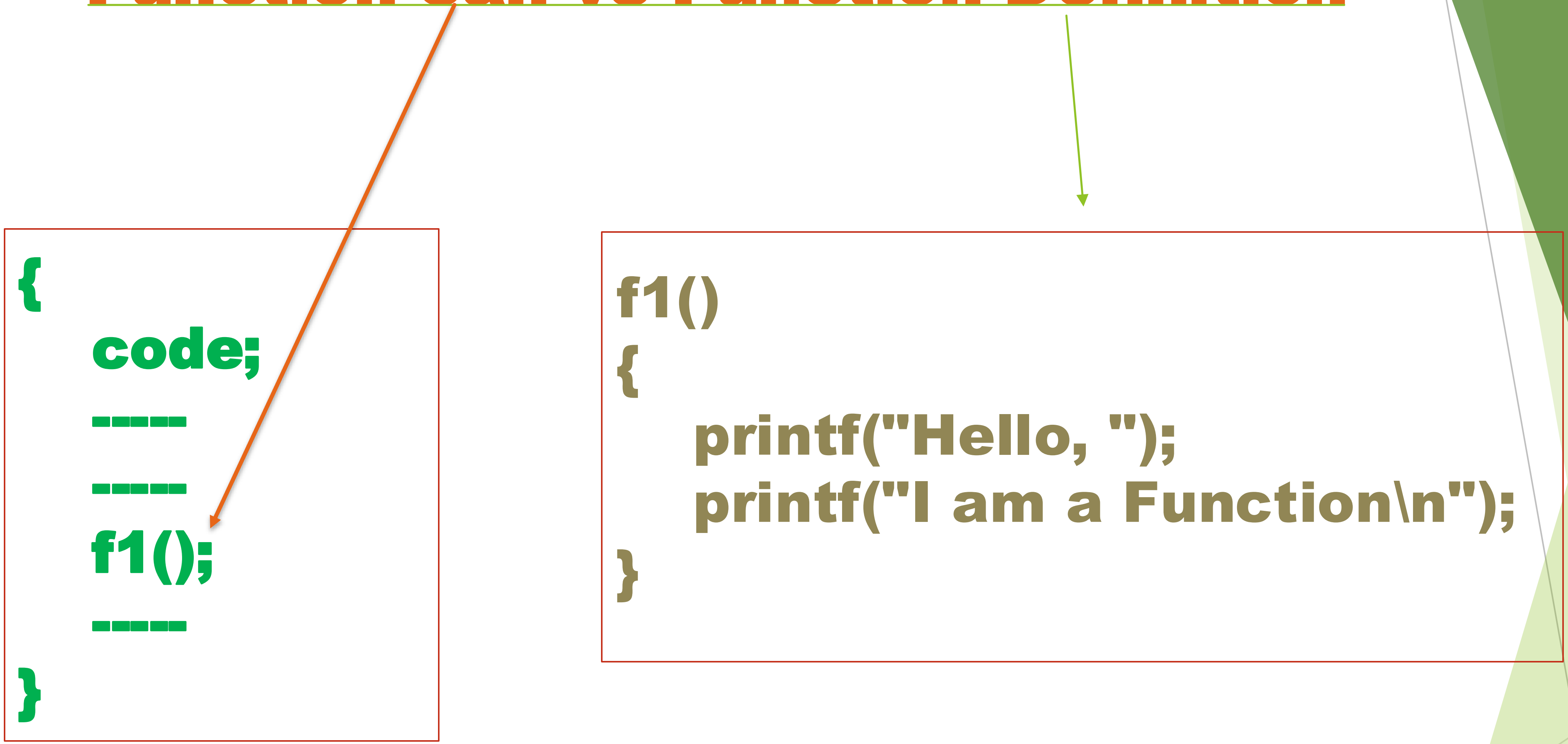
Function Introduction

- Function is a basic building block of a c program.
- Function is a block of code, which has some name for identification.
- A c program can have any number of functions.
- Function names must be unique in a program.

```
Function Name()
{
    // some code;
}
```

→ Function Definition

Function call vs Function Definition



```
{
    code;
    -----
    -----
    f1();
    -----
}
```

```
f1()
{
    printf("Hello, ");
    printf("I am a Function\n");
}
```

- **Function is a way to implement modularization**

- **Modularization is splitting up of a bigger task into several smaller sub-tasks to reduce the complexity of a problem.**

- **You can compile a C++ file without having main() function but cannot run.**

Function are of two types :-

- Predefined functions
- User - defined functions

Predefined functions

- exit()

user-defined functions

- int main()

```
{
    --------
    --------
    --------
}
```

Flow of a program

```
main()
{
    a();
    b();
    a();
}
a()
{
    cout<<"Hello";
}
b()
{
    cout<<"Tasin";
    a();
}
```

Programs, memory

```
HelloTasinHelloHello
```

Benefits of function

- Easy to Read
- Reduce complexity
- Easy to modify
- Easy to debug
- Code reusability
- Avoids rewriting
- Better memory utilization

Ways to define a function

- Takes Nothing, Returns Nothing
- Take Something, Returns Nothing
- Takes Nothing, Return Something
- Take Something, Return Something

TNRN

```
int main()
{
    add();
}
```

Function call

```
void add()
{
    int a, b, c;
    cout<<"Enter two Numbers : ";
    cin>>a>>b;
    c = a+b;
    cout<<"Sum is ”<<c);
}
```

Function definition

TSRN

```
int main()
{
    add(10,20); → Actual Argument
}

void add(int a, int b) → Formal Arguments
{
    int c;
    c = a+b;
    cout<<"Sum is "<<c;
}
```

TNRS

TSRS

Header file and Library Files