

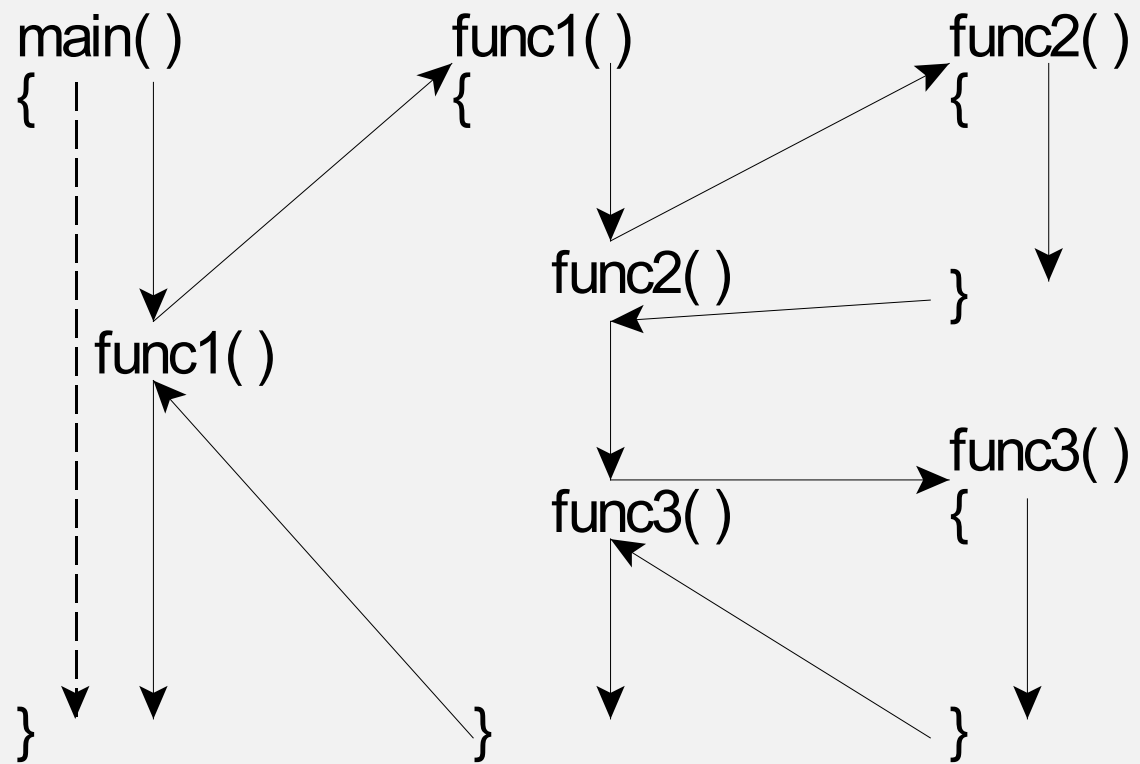


# INTRODUCTION TO FUNCTIONS

The Big Picture

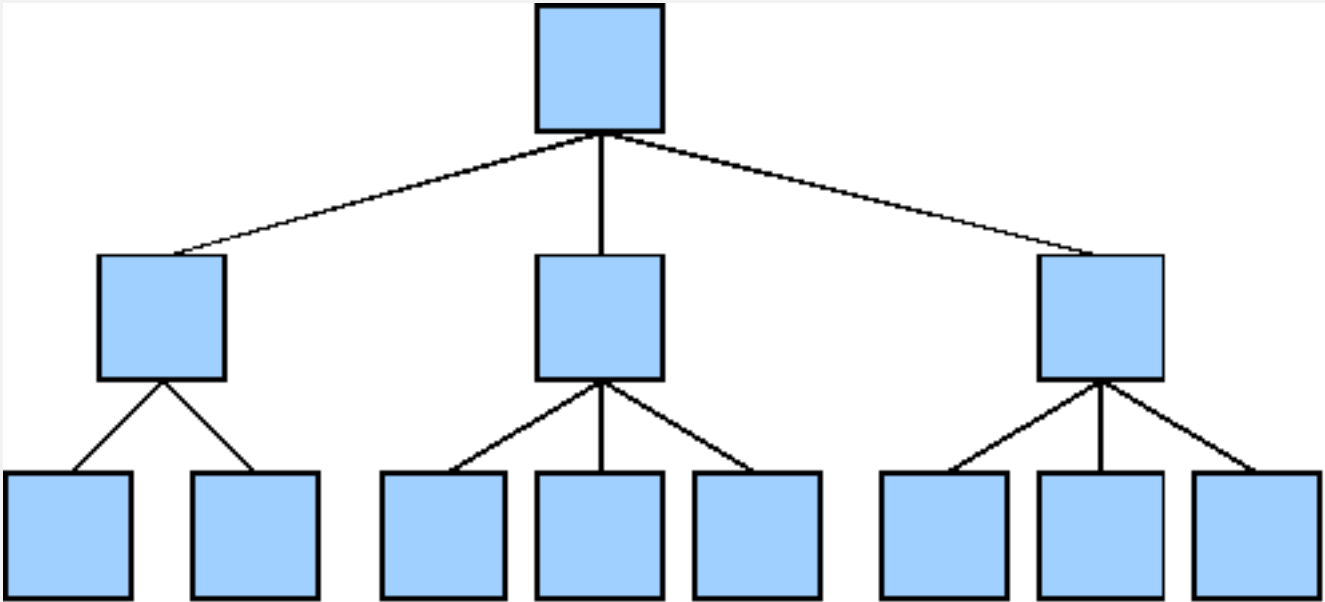


# BASIC FUNCTION BEHAVIOR





# FUNCTIONAL DECOMPOSITION





## BOTTOM UP IMPLEMENTATION

```
void function(int x, int y, int z)
{
    .
    .
    .
}
```

```
int max(int x, int y)
{
    return (x > y) ? x : y;
}
```

```
int main()
{
    function(10, 20, 30);
    int a = max(100, 200);
    cout << a << endl;

    return 0;
}
```



# TOP DOWN IMPLEMENTATION

- Functions lower in the tree are stubbed in
- Stub function have just enough code to allow a program to compile

```
void print(int x, double y)
{
}
```

```
double pow(double x, double y)
{
    return 1.0;
}
```



# FUNCTION BENEFITS

- Functions make programs better and programming easier
  - Make programs smaller
  - Make large programs easier to manage
  - Make team programming possible
  - Make it easier to conceptualize complex problems – help to manage complexity