

Language Basics – Functions



Kate Gregory

@gregcons www.gregcons.com/kateblog



```
int DoubleIt(int x)
{
    x = x * 2;
    return x;
}
```

```
int DoubleIt(int& x)
{
    x = x * 2;
    return x;
}
```

- ◀ Takes x by value (normal)
- ◀ The x used inside is a copy of what was passed
- ◀ Returns by value
- ◀ Takes x by reference
- ◀ This changes the real x
- ◀ May not be what you want



Member Functions

Declare in class declaration
(.h)

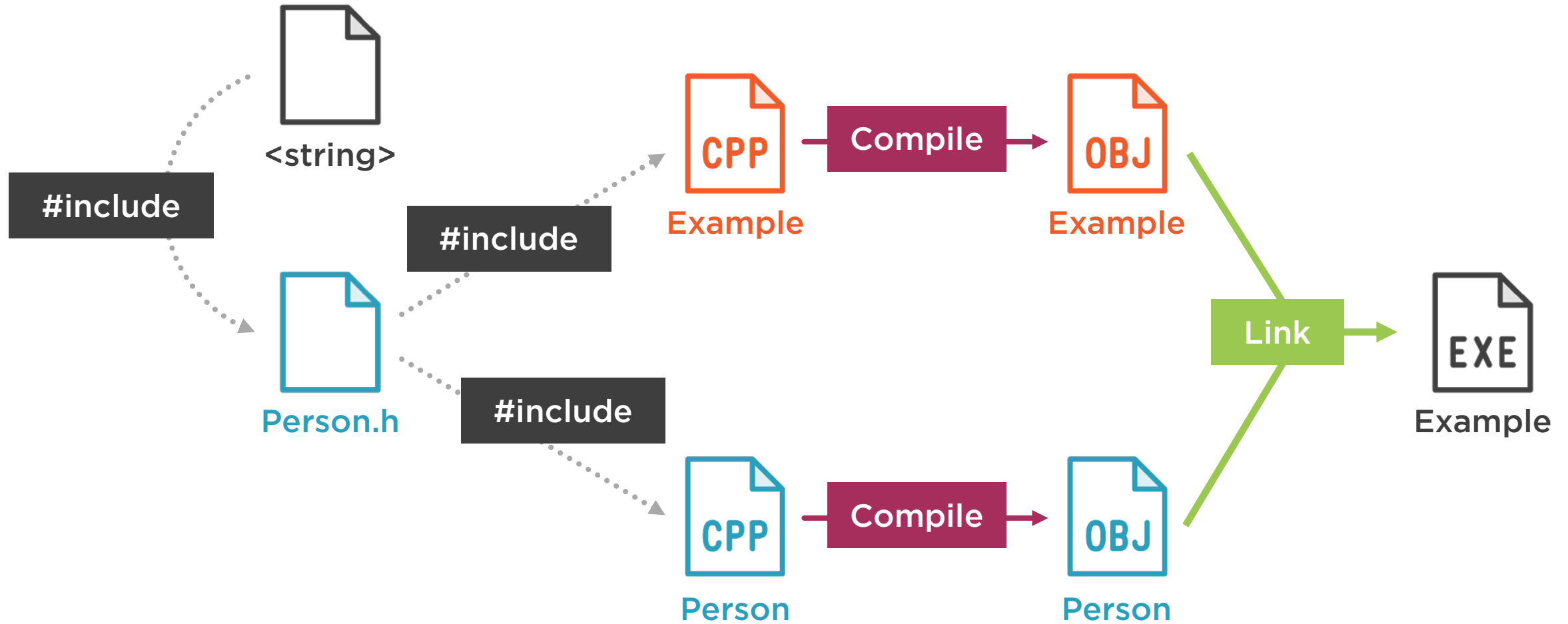
Can implement in .cpp file
Use full name
`Person::GetName()`

Can implement “inline” where
declared

Mark as const unless you can't



Building



Understanding Error Messages

compiler

Have you declared that function?

usually in a .h

making a promise

linker

Have you implemented that function?

usually in a .cpp

keeping the promise



Different Mistakes, Different Errors

Typed the name wrong when calling

Passed the wrong number or types
of parameters when calling

Mistake declaring

Mistake implementing

Forgot to implement

Forgot to include header when calling

Forgot to include header when implementing

Forgot to add implementation file to project



Summary



Declare functions before calling them

Member functions: in the class declaration

Free functions: usually in a header

Implement them somewhere the linker will use them

Take arguments by value or reference

Understand the build process and error messages won't be such a mystery

