Lesson 14: Multiple File Program

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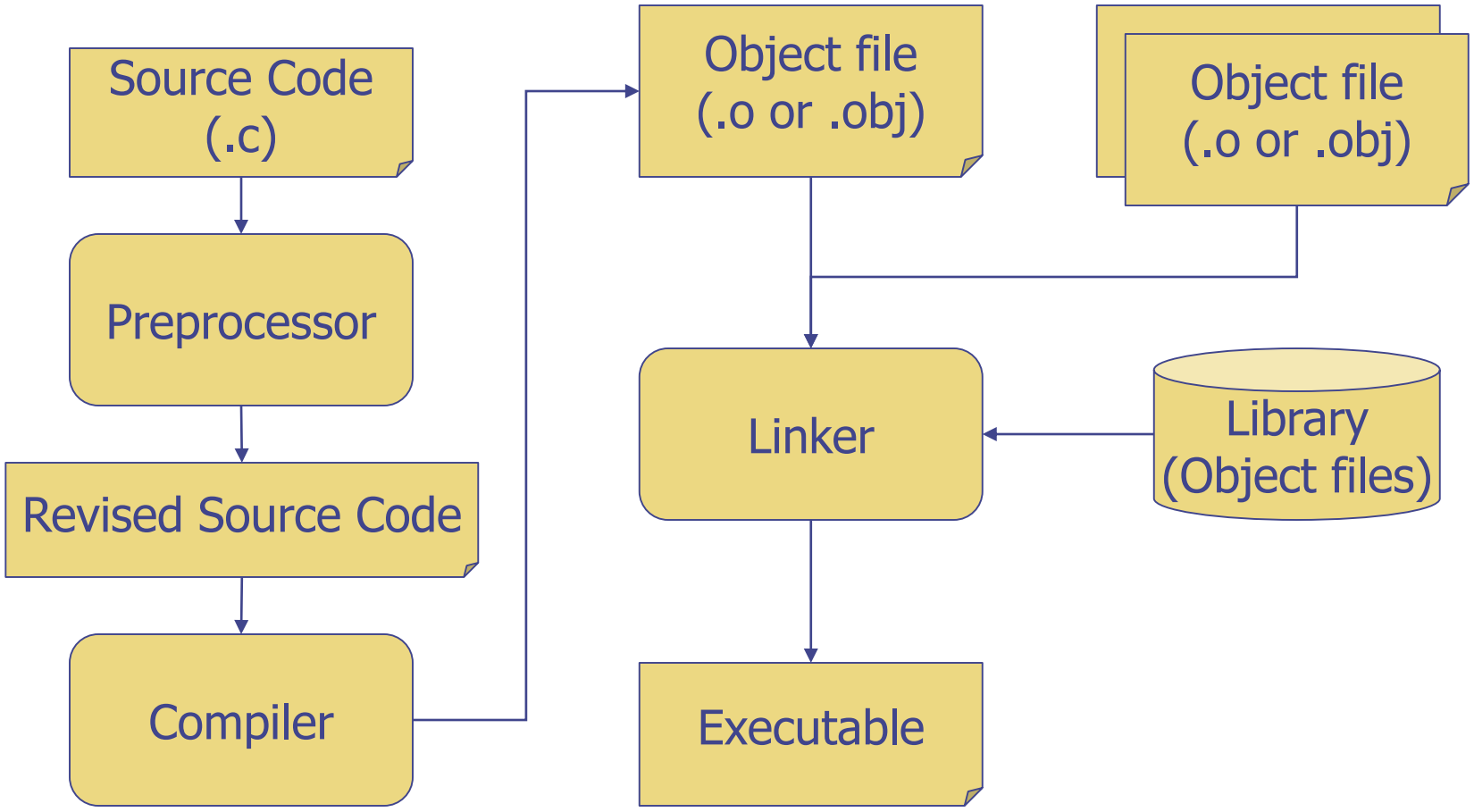
Source Code
(.c)
Preprocessor
Revised Source Code
Compiler
Object file
(.o or .obj)
Object file
(.o or .obj)
Linker
Library
(Object files)
Executable

- add.c

```
int add_no=0;
int add(int x, int y)
{
  add_no++;
  return x+y;
}
```

- mul.c

```
int mul_no=0;
int mul(int x, int y)
{
  mul_no++;
  return x+y;
}
```

mul.c

```
int mul_no=0;
int mul(int x, int y)
{
  mul_no++;
  return x+y;
}
```

m.h

```
#ifndef ___M_H___
#define ___M_H___

extern int add_no;
extern int mul_no;

int add(int, int);

int mul(int, int);

#endif
```

main.c

```
#include <stdio.h>
#include "m.h"
{
  int a=1, b=1;
  a=add(a,b);
  b=mul(a,b);
  printf("%d %d\n", add_no, mul_no);
}
```

- The prototype of printf is in the file stdio.h

```
$ grep printf /usr/include/stdio.h
...
int     fprintf(FILE * __restrict, const char * __restrict, ...);
int     printf(const char * __restrict, ...);
...
```

- The object file of printf (i.e., printf.o) is in libc.a

```
$ ar -t /usr/lib/libc.a | grep printf
...
fprintf.o
printf.o
...
```

- Build the program

```
$ gcc main.c add.c mul.c
```