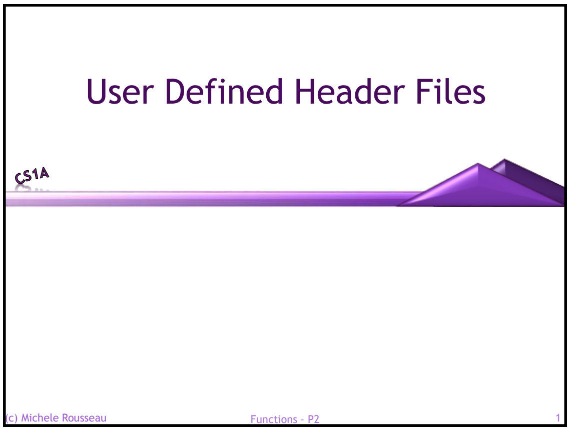
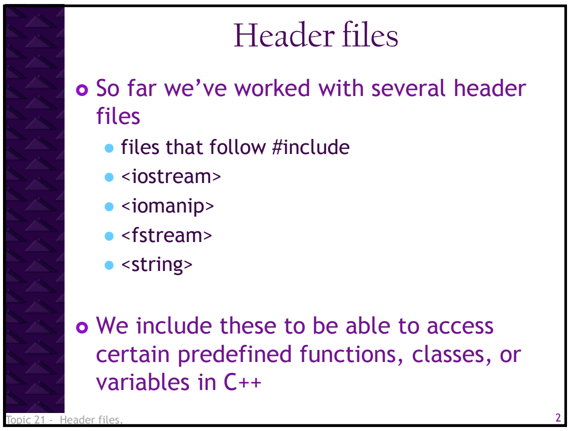
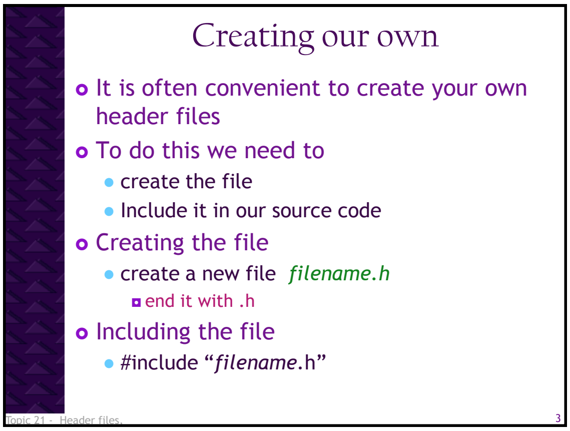


User Defined Header Files



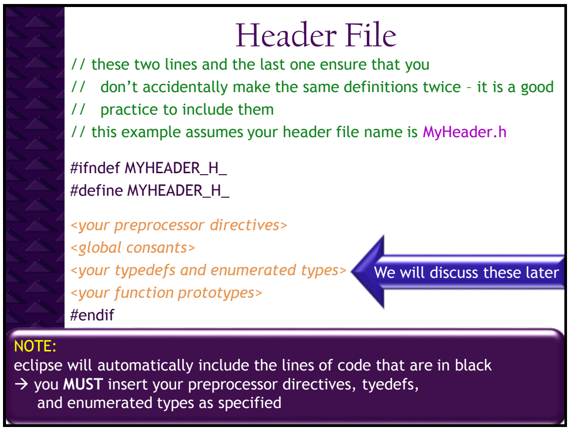
Header files

- So far we've worked with several header files
  - files that follow #include
  - <iostream>
  - <iomanip>
  - <fstream>
  - <string>
- We include these to be able to access certain predefined functions, classes, or variables in C++



Creating our own

- It is often convenient to create your own header files
- To do this we need to
  - create the file
  - Include it in our source code
- Creating the file
  - create a new file *filename.h*
    - end it with .h
- Including the file
  - #include "*filename*.h"



Header File

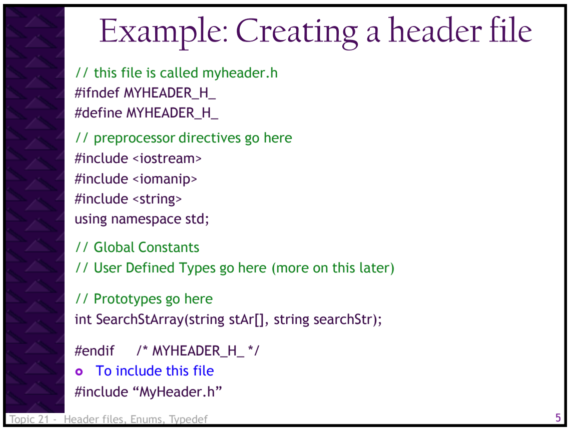
```
// these two lines and the last one ensure that you
//   don't accidentally make the same definitions twice – it is a good
//   practice to include them
// this example assumes your header file name is MyHeader.h

#ifndef MYHEADER_H_
#define MYHEADER_H_

<your preprocessor directives>
<global consants>
<your typedefs and enumerated types>
<your function prototypes>
#endif
```

We will discuss these later

NOTE:
eclipse will automatically include the lines of code that are in black
→ you **MUST** insert your preprocessor directives, tyedefs,
and enumerated types as specified

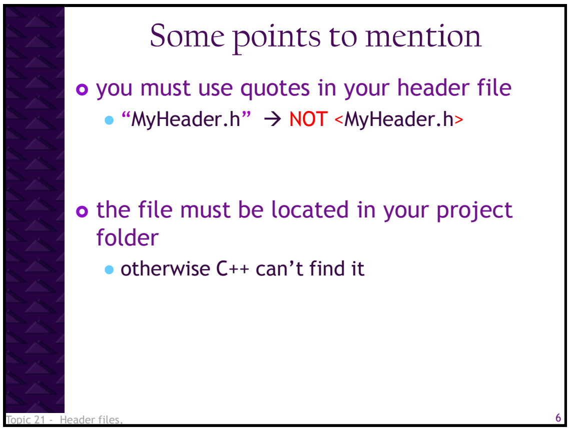


Example: Creating a header file

```
// this file is called myheader.h
#ifndef MYHEADER_H_
#define MYHEADER_H_
// preprocessor directives go here
#include <iostream>
#include <iomanip>
#include <string>
using namespace std;
// Global Constants
// User Defined Types go here (more on this later)
// Prototypes go here
int SearchStArray(string stAr[], string searchStr);
#endif    /* MYHEADER_H_ */
```

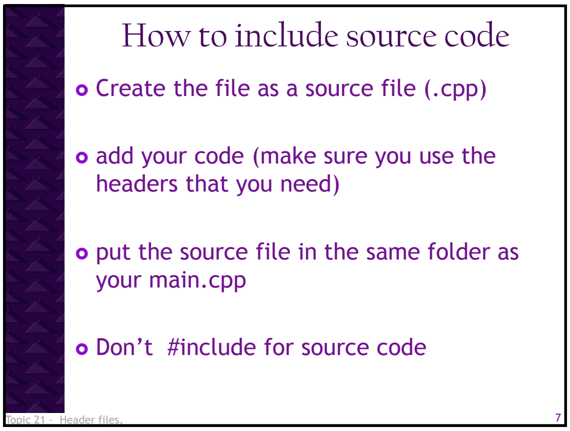
- To include this file

```
#include "MyHeader.h"
```



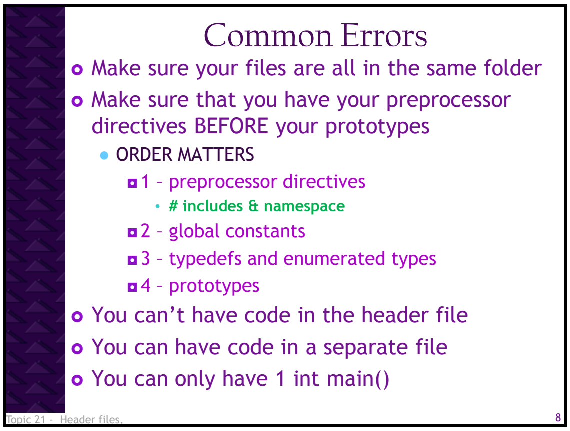
Some points to mention

- you must use quotes in your header file
  - "MyHeader.h" → NOT <MyHeader.h>
- the file must be located in your project folder
  - otherwise C++ can't find it



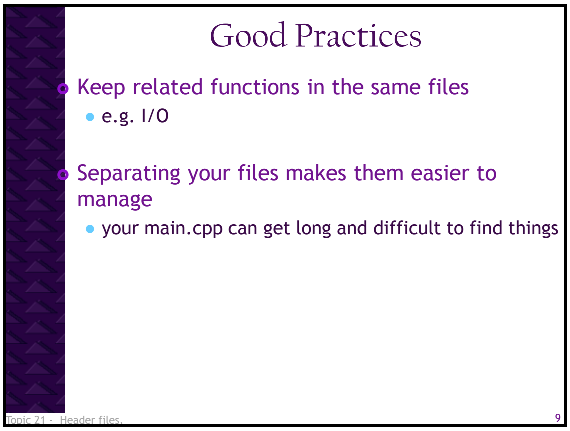
How to include source code

- Create the file as a source file (.cpp)
- add your code (make sure you use the headers that you need)
- put the source file in the same folder as your main.cpp
- Don't #include for source code



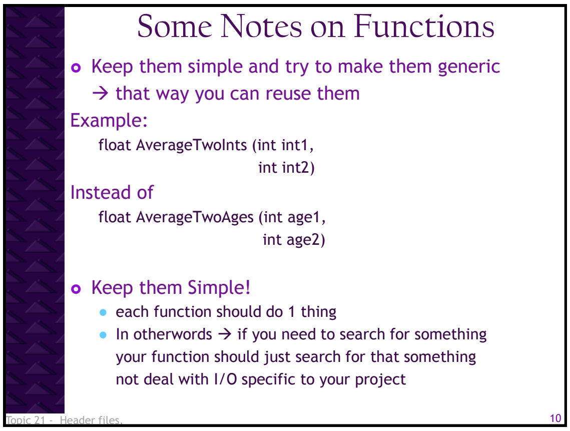
Common Errors

- Make sure your files are all in the same folder
- Make sure that you have your preprocessor directives BEFORE your prototypes
  - ORDER MATTERS
    - 1 - preprocessor directives
      - # includes & namespace
    - 2 - global constants
    - 3 - typedefs and enumerated types
    - 4 - prototypes
- You can't have code in the header file
- You can have code in a separate file
- You can only have 1 int main()



Good Practices

- Keep related functions in the same files
  - e.g. I/O
- Separating your files makes them easier to manage
  - your main.cpp can get long and difficult to find things



Some Notes on Functions

- Keep them simple and try to make them generic
  → that way you can reuse them

Example:

```
float AverageTwoInts (int int1,
                      int int2)
```

Instead of

```
float AverageTwoAges (int age1,
                      int age2)
```

- Keep them Simple!
  - each function should do 1 thing
  - In otherwords → if you need to search for something your function should just search for that something not deal with I/O specific to your project