CSC 215

Math and Computer Science

A Legacy of Excellence

fstream

- Can be opened to do input from a file.
- Can be opened to do output to a file.
- Can be opened to do input and output from a file.
- Only use them when you have to.

Fstream

- Declare a file stream object

    ```
    fstream  file;
    ```

- *file* is a general purpose identifier, it can be any identifier name
- You can name it anything you wish.
- You can create multiple identifiers for multiple files.

    ```
    fstream  file1, file2;
    ```

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Opening a file

- You must specify everything about the file
- All parts of a mode must be given.
  - ios::in
  - ios::out
  - ios::trunc
  - ios::ate
  - ios::app
- The compile will not assume ios::out if you gave it just the ios::app flag

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Opening a file continued

```cpp
fstream file1;
fstream file2;
fstream file3

file1.open( "somefile.txt", ios::in );
file2.open( "somefile.txt", ios::out |
                            ios::trunc );
file3.open( "somefile.txt", ios::in | ios::out |
                            ios::app );
```

Member Functions

- Has the operators << and >>
- Has the getline and get functions
- Has the eof function
- Has the clear function
- Has both the seekg and seekp functions
- Has both the tellg and tellp functions
- Basically it has all the functions of the ifstream and ofstream

Checking

- Must check that the file opened before you use it.

```cpp
if( !file1 )
{   cout << "Unable to open the file" << endl;
    return 0;
}
if( !file1.is_open() )
{   cout << "Unable to open the file" << endl;
    return 0;
}
```

Closing the file

- Just like any other file, close it when you are done

```
file1.close();
file2.close();
file3.close();
```

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My words of wisdom

- Avoid using fstreams when possible

- Only use when you must do input and output to the file throughout the program.

- Make sure you provide every mode when opening the file.

Passing fstreams

- You can only pass fstreams by reference.
- Must specifically put & in prototype and definition.
- Anything the function does with the file changes the stream.
- fstream ADTs do not even allow pass by value

void openFiles(fstream &fin);