

Fragile Designs

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CSE687 – Object Oriented Design

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How to Make a Fragile Design

- Do no input validation
 - `C:\su\cse775hw\CallsTest *.cpp`
 - `C:\su\cse775hw\CallsTest*.cpp`
- Use network specific drive shares:
 - `H:\myAccount\ yada, yada, yada, ...`
- Code specific paths into your program:
 - `#include "h:\myAccount\otherImprobableNames yada, yada, yada, ..."`
 - Should either use a folder directly under the invocation site (create if needed) or, use `c:/temp`.
- Don't test `compile.bat` and `run.bat` in the environment:
 - Don't unzip in empty directory so you won't discover missing files
 - Don't test `compile.bat` so you won't discover missing switch arguments
 - Don't test `run.bat` so you won't detect path and name problems
 - `Debug\someNameThatDoesNotExist.exe`
 - By the way, `compile.bat` dumped exe in project directory

Other Ways to Create Fragile Designs

- Write function with 411 lines
- Write function with Cyclomatic Complexity of 76
- Avoid test stubs
 - Write all your code then, at the very end, try to test
- Test only against one small test suite
- Don't use the debugger to walk through your code
- Neither throw nor catch exceptions

Robust Designs

- Robust designs:
 - Use validity checking on all user input
 - Check for all stream's successful construction
 - Use relative paths to directories you need to use
 - See next slide
 - Never cite drive names
 - Use some amount of exception handling
 - Avoid global data
 - Use pointers and arrays with great discipline
 - Don't access unless you can prove that you own the memory
 - Don't copy contents unless you can prove that destination is at least as large as source
 - Initialize pointers to nullptr if you don't have a valid address when declared
 - Reset pointers to nullptr after deletion
 - Test code analyzers against their own source code

File and Directory Handling

- Use relative paths to directories you need to use
 - Test for existence and if they don't, create them. `FileSystem` will help.
 - Since `run.bat` and IDE probably use different directories for execution, you will have to supply the relative path on command line and name the appropriate relative path in your `run.bat` file.
- One important issue with files and directories is that Windows is case insensitive:
 - Try copying `run.bat` to a directory.
 - Then copy `Run.Bat` to the same directory.
 - You will only find one `run.bat` file.
- So, you should reduce all file names and directory names to lower case or upper case before doing any matching.
- When you change the directory with, for example, the Win32 API function `SetCurrentDirectory` you should first save the current directory with `GetCurrentDirectory` and restore it when your program terminates.
 - Remember the good neighbor policy.

End of Presentation