Project 03

- Starting with this project, sample solutions are provided.
  - Provide details on the input and output order and format for the project.
  - Provide a way to verify the answers to your code

- Easy to run the solutions
  - Type in the complete path of the sample solution to run it
  - Solutions should be run in a terminal window that has a current working directory of: **~/CPE112_TERMYR/Project_##**

  (where ~ represents your home directory, and ## is the current project number i.e. 03)

Sample Project Solutions

- For project 3 the name of the sample solution executable provided is:

  Project_03_solution

- To run this sample solution executable, the terminal window command is:

/home/work/cpe112/Executables/Project_03/Project_03_solution

(Note: tab complete may not work on all parts of this path name due to permission restrictions on the directories and files)

Solution Comparison Script

- Also starting with project 3, a solution comparison script is provided:
  - Runs your program for a fixed set of input values
  - Runs the provided sample solution (see previous slide) for the same input values
  - Compares the output of your program to the sample solution side-by-side
- To run this comparison script for project 3, the terminal window command is:

/home/work/cpe112data/Project_03/CompareSolution.bash YourProject_03Code.cpp

(Note: tab completion should work on all parts of the path name)

Input/Output Redirection - 1

- The Standard Input Device (***stdin***) is normally the keyboard
- The Standard Output Device (***stdout***) is normally the monitor
  - Example:

```
// The code below attempts to input an
// integer from stdin and write it to stdout
int  someInt;
cin >> someInt;
cout << someInt;
```

- With UNIX/Linux, one can
  - redirect ***stdin*** inputs to come from a specified file or
  - redirect ***stdout*** outputs to be written to specified file

Input/Output Redirection - 2

Assume program1 inputs from *stdin* and outputs to *stdout*

Execution of the command below causes program1 to execute normally

```
-bash-3.2$  ./program1
```

Execution of the commands below will cause program1 to input from in1.txt (input redirection)and then execute again with input from infile2.txt without having to modify program1

```
-bash-3.2$  ./program1 < in1.txt
-bash-3.2$  ./program1 < in2.txt
```

Execution of the command below will cause program1 to output to out1.txt (output redirection) without having to modify program1

```
-bash-3.2$  ./program1 > out1.txt
```

Execution of the command below redirects input and output

```
-bash-3.2$  ./program1 < in1.txt > out1.txt
```

Input/Output Redirection - 3

File input/output redirection is not the same as reading from files or writing to files using user defined input and output streams.

Input redirection causes input expected from the standard input stream (the keyboard) to instead be read from the specified input file.

Output redirection causes output destined for the standard output stream (the terminal) to instead be sent to the specified output file.

Input/output redirection affects stream flow for the standard input/output streams only. It does not affect user declared input and output file streams.