Exercise #2 (No computers needed)  
Due Friday, 10/09/2015, at 11:59pm

What is programming?

- Explain these 3 terms:
  - short circuit, type cast, conditional execution
- Explain why a relational operator is binary.
- What is the output and why?
  
```c
int x=0;
if(x=2) {
  cout << “first if” << endl;
  if(x==0) {
    cout << “second if” << endl;
  }
} else {
  cout << “in the else” << endl;
}
```

Design and Testing (Assignment #2)

George Polya developed a well-known model for problem solving in mathematics that is based on these 4 principles.

- Understanding the problem. (Recognizing what is asked.)
- Devising a plan. (Responding to what is asked.)
- Carrying out the plan. (Developing the result of the response.)
- Looking back. (Checking. What does the result tell me? Did I do it right?)

Using Assignment #2, as a group, answer the following questions:

**Understanding the Problem** – Do you understand everything in the problem? Do you understand what is meant by “it is your job as a programmer to make sure this bad input does not make your program error or stop running”? Do you think you still read the base 10 number as an int? Do you understand how to use a C++ string? List the invalid input you plan to handle.

**Design** – What are the steps needed to find these invalid cases? Can you think of an alternative way to catch the invalid input? What will you do when the input is valid? How about invalid? Write the flow-chart and/or pseudo-code for these steps. **Hint:** Look at C++ string at function: http://www.cplusplus.com/reference/string/string/?kw=string

Can knowing what the character is at a specific location in the string help you with this? **Example:** s.at(0) will give you the character at the first location.
Testing – Create a test plan with the test cases (bad, good, and edge cases). What do you hope to be the expected results?

For take-home exercises completed in peer-led groups, each student must participate and write answers to each of the questions on his/her own paper to show for credit. Your 1-2-3 grade will be based on the completion/understanding shown on your own piece of paper shown to your TA for a grade before leaving the group session!!!

For take-home exercises completed on your own, turn in your work electronically using the TEACH website!!!