CPE 490 Homework # 1

Read the article located in the Lecture 1 folder on BlackBoard and answer the following questions:

1. List the 10 secrets of trouble shooting?
   1. Know your tools
   2. Find memory problems early
   3. Optimize through understanding
   4. Don’t put needles in your haystack
   5. Reproduce and isolate the problem
   6. Know where you’ve been
   7. Make sure your tests are complete
   8. Pursue quality to save time
   9. See, understand, and make it work
   10. Hardness the beginner’s mind
2. What is a profiler and how is it used for trouble shooting.
   1. Profiler is a tool used to measure where the CPU is spending its cycles. This tool can be put in use whenever a single process is taking a longer time to execute than expected.
3. List the three types of memory problems and give a short explanation of what each problem is.
   1. Memory Leaks
      1. This is when a system allocates a memory space upon a call of a function, but fails to free it when it is done. Continual uses of memory space in such manor will eventually results in the shutting down of the system
4. What is meant by “Heisenberg effect” of using a tool?
   1. The Heisenberg effect is the idea that any measurement of the system will change the system itself
5. What is the critical first step of trouble shooting an intermittent glitch?
   1. Reliably reproduce the problem and isolate it.
6. Why is it important to baseline (save a copy of the code once certain functions are working) you code?
   1. That way you can have a known “working” version of your program. This will also allow you to compare any changes that you will make in the future with the known “working” one.
7. What is dead code and what test can reveal its existence?
   1. Code is in your program, but is never used. The coverage
8. Why is it important to catch a bug in your code before it is integrated into a team’s code?
   1. It is important because it will be significantly harder to catch the bug once it is integrated into the main program.
9. If you are calculating a root mean square (RMS) value on a sign wave and you halt the processor in the middle of sampling, what happens to the RMS value that you are calculating? Where would be a better place to stop the code if you wanted to evaluate the calculated RMS value?
   1. You would get an incomplete sampling, which will results in an incomplete calculation, if you halt the processor mid-way. It is much better if the program is halted at the end of the RMS calculation.
10. What is a beginners mind.
    1. A beginner’s mind is a mind that is blank, or in Zen state. Enter this state will allows the programmer to look at the problem from a different perspective.