

Programming is about Patience

Fixing Programs Isn't Easy

Now that you have been programming for a while you will have noticed that writing a program often isn't the hard bit, it's when you try to run it, and it gives you lots and lots of errors, and sometimes the error messages it gives you are too general to figure out exactly what the problem is. This is the hard part of programming, having the patience and persistence to review each line of your program to see if you can identify the problem. And often you have to stare at code for several minutes before you will, in a flash, figure out what's wrong. This is not easy, and it requires a lot of determination, because often when you have figured out (and fixed) one error, another one follows. So you have to type in your code very carefully, and review each line as you write it. But when you are finished writing a program, and go to run it, you need to accept that it will not run the first time, and when you fix the initial error, there may be another, and another, and another.

Breathing

Fixing programs can be stressful, and the longer you are working on a single program, the more frustrated you can get. This can lead to short-term thinking, where you move lines of code around at random in hopes that the program will fix itself. Try to avoid doing this, and try to avoid getting stressed by breathing. There are a variety of breathing techniques that can be used to calm down, including the following:

- **Left Nostril Breathing:** As the name suggests, just close your right nostril off, and breath in and out through your left nostril slowly, with your eyes closed. This creates a calming effect in your nervous systems within minutes.
- **7-2-11 Breathing:** Breath in through your nose for 7 seconds, hold the breath for 2 seconds, and exhale through your mouth for 11 seconds. This takes a bit of practice, but after a few days of 4-8 sessions a day, you will master it.

Take a Break

One important trick to know is when to take a break; so if I am staring at an error and I can't figure it out, my rule of thumb is after 7 minutes I walk away from the computer and get a glass of water and stop thinking about it for 2-3 minutes. More often than not as soon as I return to the computer I know exactly the issue is, because I gave my unconscious mind time to work on it, and can fix it in no time.

Cardboard Programmer

Sometimes the easiest way to fix an error is to ask someone for help, but you will find that as soon as you say to someone *"Excuse me, can you help me with this problem..."* and before you have even outlined the problem, you know what the solution is, because you got a chance to think about it in a different way. In fact, you don't really need another person, just get a cardboard cutout and ask them for help.