Structured Programming vs. Unstructured Programming.

Note: This information is *not* found in the textbook**.**

The techniques we use to program today have greatly improved since the days of "unstructured programming". In the *old* days, we would have a segment of code, and then "**goto**" another segment of code, and then perhaps "**goto**" back to the original segment in order to repeat the code. This form of executing and repeating code via **goto** statements is considered **unstructured programming**. The code itself is referred to as "spaghetti code" because the flow of the programming statements is quite sloppy (like a big plate of spaghetti!).

Structured programming, on the other hand, is very organized and... well... structured (more like lasagna, since we're talking about Italian food). Structured code ultimately leads to programs that are more easily readable and modifiable, as well as code that is more efficient regarding processing speed and memory utilization. We organize our code using all of the following techniques to ensure that we are following structured programming standards:

- Sequence Structure - code flows in sequence from beginning to end.
- Repetition Structure - **for**, **while**, and **do** loops.
- Selection Structure - if, else, else if, and switch statements.

Sequence Structure

Sequence Structure refers to code that is executed in sequence. That is, the CPU starts at the beginning of the program (function main) and executes each instruction, one at a time, in sequence. There is no such thing as jumping back and forth throughout the program (which is what happens when we use **goto** statements). Execution completes at the end of function main (at the end brace). So far, all of the code we have reviewed in this course has followed this "sequence structure" standard.

Repetition Structure

Repetition Structure refers to code which repeats itself efficiently. Types of structures which fall into this category include all of the looping structures such as: **for** loops, **while** loops and **do** loops. We cover program looping this week.

Selection Structure

Selection Structure refers to code which makes choices, or selections, based on certain conditions. Types of structures which fall into this category include: **if**, **else**, **else if**, and **switch** structures. We cover these structures in weeks 5 and 6.

The next topic discusses the second of the above three structured programming techniques, namely: the ***Repetition Structure***.