Top Down Design

Definition: A software development technique that imposes a hierarchical structure on the design of the program. It starts out by defining the solution at the highest level of functionality and breaking it down further and further into small routines that can be easily documented and coded (The Free Dictionary: top-down programming).

Also known as:
- divide and conquer
- stepwise refinement
- structured programming

Complex problems can be solved using top-down design, where
- We break the problem into a sequence of smaller tasks
- Then break the sub-tasks into tasks
- Soon, each of the tasks will be easy to do

Advantages to top down design:
- Breaking the problem into parts helps us to <u>clarify</u> what needs to be done.
- At each step of refinement, the new parts become <u>less complicated</u> and, therefore, easier to figure out.
- Parts of the solution may turn out to be <u>reusable</u>.
- Breaking the problem into parts allows <u>more than one person</u> to work on the solution.

Top Down Design usually results in a hierarchy chart that describes the tasks that must be accomplished. Each "leaf" task is a module (usually implemented using a function).