**Notes while studying arbitrary software tools**

**(IF YOU ARE GIVEN 1HOUR TO CUT DOWN A TREE, YOU SHOULD SPEND 45MINUTES SHARPENING YOUR AXE, USE 15MINUTES TO CUT DOWN THE TREE)**

* BASICS **concepts** of => Computer Science and Programming, Software engineering and development.
* Try to understand the concept of the software tool, program, code, etc
* **Problem** Solving (understand the problem statements) and **Algorithm** (identify the inputs, Design the steps to solving the problem) and programming **Implementation** Skills (how search and to use the object and it members in programming to **represent** the input/data/value)
* INPUT => PROCESS => OUTPUT
* PLAY VIDEO GAMES, THEY HELP TO SOLVE PUSSLES and for FOCUS AND helps PAY ATTENTION to details.
* Questions (what, when, why, will, would, should, how)?
* What kind of **INPUT** will **PROCESS** and produce or return the expected result or desired **OUTPUT**/outcome? e.g., write a program that return todays date.
* Google or search for tutorials how to use types, e.g DateTime program in C# OR java, look and learn other people’s program code, learn their program building logic, learn their code.
* Type the code with your hand and focus to understand one specific word or text.
* Objects are created or represented either with values, or reference types and many various types
* Object of value type, reference types, Json type, xml type etc.
* Theory is the foundation of practical
* Build High level logical learning
* **Functions** must be reusable, if a line of code is repeated more than once, create a function for it, if a step has sub-steps, create a function with all the sub-steps separately and call the function in the appropriate line of code in the base function.
* A function address/ performs a specific problem or task.
* The most two important things in a **Functions** are the return Type and it input parameters.
* Parser means compute or evaluate an expression, then the value returned will be converted (casting) to another Type.
* *7 days learning an arbitrary(random) tool e.g. 90 days of coding C#, Java*
* *File is the fundamental storage abstraction for storing data*
* High level advanced *logical Learning* skill
* *Check the conceptual underlying logical base/root implementations*
* Problem -> Algorithm -> Implementation in a chosen programming language (When trying to understand a Problem, pay care attention on each word and get to understand and define each word with it meaning)
* When learning a particular programming language, study the built-in standard libraries very well because all other child API’s are built on-top of the base programming language. e.g C#
* A value has type, and it must match the assignment instance on the left. The value must be compatible with a specific type. e.g. int x = 0.
* Types represent values e.g float floatVar = 3.2f.
* Values are created statically/explicitly or dynamically/implicitly
* Streams: value (human readable code) and data/bits (machine readable code 0’s, 1’s)
* Libraries, namespaces, packages => object modules (classes, arrays, delegates, abstract, interfaces).
* Study how COMPILER and INTERPRETER execute code. e.g debugging
* Test your program logic with a set of different test data, write defensive program.
* Every variable has a type, which makes the variable an instance of that type, a variable stores a value and can reference the type members (interfaces or operations).
* Processes, Threads, Concurrency
* **Logical reasoning** can also use by ASSOCIATION and RELATIONSHIP technique, think about what is associated or related with the problem object or solution object. e.g in staging pipeline, the host server, the virtual machine, the ymal
* configuration file, the publishing time, all this can be associated with a problem in staging environment.
* **Read a book at least 3 times, Practice the exercises are you study, they help you to understand better.**
* **WHEN YOU LEARN SOMETHING, TRY TO LOGICALLY THINK OF WHAT COMPUTER COMPUTATIONAL PROBLEM CAN YOU APPLY THIS SOLUTION TO.**
* **Learn to write programs that does a specific and only one task and Build, Build and Build Programs.**
* **Learn to organize related objects in specific classes and other types and file systems.**
* **File Structuring and organization**
* **Find and approach to solve a problem. How to approach a problem. Learn how to approach a problem.**

**Software Tools & Technologies**

1. Nunit <https://nunit.org/>
2. Junit
3. TestNG

Object of type system

Primitive **Value Data Types:** Struct, int byte, double, float, decimal, enum

**Reference Data Type:** Class, Delegate, Abstracts, Interface, Arrays

An object of reference or value data type

* **Static object type** members belong or binds to the type and can be invoked directly by the type. E.g string.Compare(), int.Parse(), e.t.c
* **Instance object type** belongs to the object and can be referenced by an instance reference variable. E.g String name = “cool”; name.Contains(), name.Clone();
* So when the Object is newly created, the Reference memory address is assigned to the instance reference variable which links or point to the object or copy the objects members to the instance reference variable.E.g Building build = new Building();