

True or False(T/F): **Reds are TRUES**

- 1) High Level Languages' (HLLs) programs are much better and more efficient to use than Low Level Languages (micro/macro coding)--LLL, for any application.  
(**NO, not for "any" application, some will require speed and do not care about other factors, hence LLL will be in order**)
- 2) The core **hardware** language micro-programmable machines is the fastest to execute among all approaches to program a machine.  
(**hardwired computers are faster**)
- 3) In **micro**-coded machines, every  $\mu$ -instruction (in the ROM) will have bits that control gates at the **macro**-level architecture.
- 4) Every macro machine instruction, when interpreted will invoke a corresponding  $\mu$ -routine from the ROM.
- 5) A computer hardware that can run seven HLLs and LLLs is considered to be seven **virtual** systems (computers) over the same hosting hardware.
- 6) The HLLs types' *integer, real, stacks, queues, and float* are all system built-in *true* abstract data types (ADTs).  
(**ONLY basic types int&real are system built-in true ADT**)
- 7) We study HLLs mainly to help in a better design of computer systems.
- 8) HLLs has to provide means to *secure* the use (manipulation) of **data** in the code.  
**Sure! Otherwise there is no meaningful/correct program outputs.**
- 9) The operating system interfaces between the HLLs and the core hardware, abstracting (i.e., masking) the complex hardware details to the user.  
(**See the System Layers Figures in the first Lecture**)
- 10) In the programming language design field, it is always the case that when you gain in one (or more) of the following direction(s): *abstraction, power, readability, modularity, speed of execution, and language security* you would lose in one (or more) direction(s).

(No Free Lunch!)

