Type Checking

Purpose:

* **To define what the program should do**
  + *For e.g* read an array of integers
* **To guarantee that the program is meaningful**
  + that it does not add a string to an integer
  + that variables are declared before they are used
* **To document the programmer's intentions**
  + better than comments, which are not checked by the compiler
* **To optimize the use of hardware** 
  + reserve the minimal amount of memory, but not more
  + use the most appropriate machine instructions

**BELONGINGS OF TYPE CHECKING**

Depending on language, the type checker can prevent:

* application of a function to wrong number of arguments,
* application of integer functions to floats,
* use of undeclared variables in expressions,
* functions that do not return values,
* division by zero
* array indices out of bounds,
* non-terminating recursion,
* Sorting algorithms that don't sort...