

ELEMENTARY DATA TYPES

Variables and Constants:-

Variables:- A variable is a quadruple which is composed of a name, a set of attributes, a reference and a value.

A simple variable is an elementary data object with a name and binding of data object to value may change during its life time.

These data objects are basically defined and named by programmer explicitly.

Attribute of a variable

Let's take eg. of a variable in ALGOL Language

$y := 9;$

We can say that it has four attributes

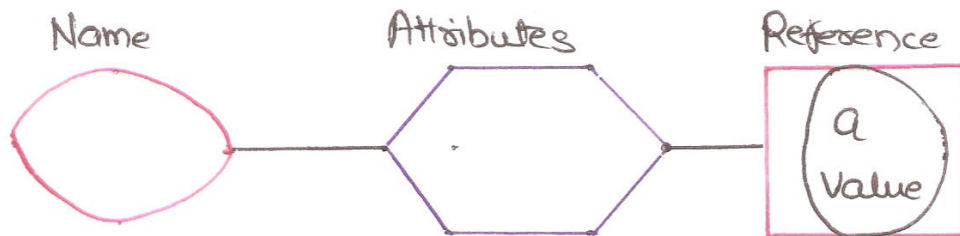
- (i) The name of the box : y
- (ii) The name or description of its current contents, i.e. 9 we can also say Square of 3.
- (iii) The box or storage location(s) which hold(s) the value.
- (iv) The contents of the box or 9.

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The name of the box and its storage location are fixed, but the contents and its name may vary overtime.



The four Components of a Variables

Lets Take Another Example in C Language :-

`int N;` → It declares a simple data object N of type integer.
`N = 27;` → Data value 27 is assigned to variable N.

- 1) Declares the variable Name N of type integer
- 2) Life time of N is execution end
- 3) Data object bound to N during end of execution time
- 4) Value 27 is assigned and may be changed during life of N.
- 5) Hidden from the programmer are other bindings made by virtual computers like Creating activation Record, Storage for this activation Record in run-time stack etc.

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