Names and Identifiers

- Identifiers for variables, constants, procedures, statement labels,

- Case sensitive or not

- Character set, upper only, all, numbers, non alphanumeric

- Special separators underscore, dash, space (oh no)

- Name conventions, upper case to separate words

- Reserved and Key words
Variables

- Abstraction of a memory cell
- Symbolic access to physical location
- Naming conventions
- Special names of system and external variables
- Attributes – name, address, type, value, lifetime, scope
Binding

- Binding is the attribute is bound to an entity

- Binding time, early or late, static or dynamic

- Binding times can be at
  - language design time
  - language implementation time
  - program development time
  - compile time
  - link time
  - load time
  - execution time
  - crash time
Binding of variables to attributes

- name
- address
- type
- value
- lifetime
- scope
Variable/Identifier Scope

• Region of a program in which an identifier is valid

• Static or dynamic

• Function of language design and program structure
Variable Lifetime

- Time of a variable's validity
- Process life
- Program life
- Procedure life
- Block life
- Dynamic life, i.e., new to delete
Variable Scope and Lifetime

- Local variables, accessible from block or inner blocks, lifetime is the procedures life, two component address static scope number and offset

- Local static variable, accessible from block or inner blocks, lifetime is the program life, related to external

- Global variable, accessible to all main and all procedures

- External variable, accessible to all procedures that declare it, lifetime of program or process, initialized at first access.

- Dynamic variable, allocated at execution time, may be accessed with a pointer and name (pl1), allows dynamic sized arrays