Introduction to UDT

Tuesday, 2 February 2021 8:16 AM

Data Representation:

* User-Defined Data Types.

Key terms:

. UDT
- Non-Composite data types ✓
  - Enumerated data type. ✓
  - Pointers data types! ✓
- Composite data types
  - Sets
  - Classes/object
  - UDT/Record data type

Enumerated Data Types:

Syntax: TYPE <identifier> = (value1, value2, value3, ...)

Imp: TYPE Tmonths = (Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec)

(1 Jan, 2 Feb, 3 Mar, 4 Apr, 5 May, 6 Jun, 7 Jul, 8 Aug, 9 Sep, 10 Oct, 11 Nov, 12 Dec)

✓ DECLARE thisMonth : TmonthS

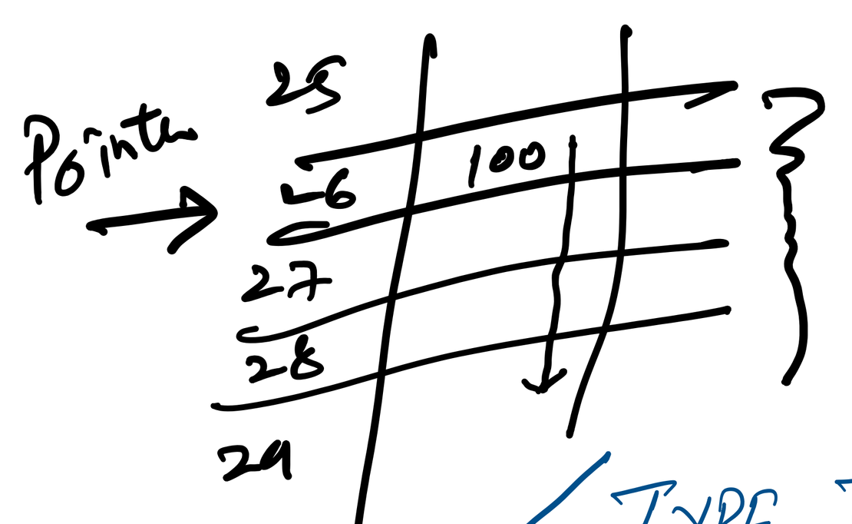
thisMonth ← Jun

DECLARE nextMonth : TmonthS

nextMonth ← thisMonth +1

Pointers: (Data Type)

Key terms: - Pointer
- De-referencing.



✓ DECLARE A : INT

A ← 100

Syntax: TYPE <pointer> = ^ <Typename>

✓ TYPE T-INT = ^INT

✓ DECLARE aPointer : T-INT

✓ aPointer ← ^A

TYPE TmonthsPointer = ^ TmonthS

DECLARE monthPointer : TmonthsPointer

monthPointer ← ^ thisMonth

De-referencing:

DECLARE preMonth : Tmonths

preMonth ← monthPointer^ −1

^A Location

A^ content.

Example:

TYPE xPointer : ^INTEGER

a ← 3

Declare P : xPointer

✓ P ← ^a

b ← P^ + 6

a	P^	P
3	3	26
	Dereferencing	Pointer to Location
✓	✓	✓

TYPE <set-identifier> = SET OF <BaseType>

DEFINE <identifier> (value1, value2, value3, ...) : <set-identifier>

TYPE Set-letters = SET OF CHARACTER

DEFINE vowel ('a', 'e', 'i', 'o', 'u') : Set-letters.

RECORD

TYPE TSRec

DECLARE SNO : INT

DECLARE SName : STRING

DECLARE SClass : STRING

DECLARE SFee : CURR

DECLARE IsFeePaid : BOOLEAN

DECLARE SDOB : DATE

END TYPE

RECORD

END RECORD

DECLARE Ahmed : TSRec

Ahmed.SNO ← 1

OUTPUT Ahmed.Date.