

DEPARTMENT OF COMMERCE (CA)
VISUAL BASIC (Semester-III)
II M.COM (CA) Sub Code-18MCC32C

UNIT - III

Variables & Procedures: Scope & Lifetime of variables, native data types, aggregate data types - Arrays-VB for application and VB libraries: Control flow, Working with numbers, Strings, Date and Time.

Variables

A variable is a location in memory where a value can be stored during the execution of a Visual Basic application. Visual Basic variables are assigned names by the programmer when they are declared so that they can easily be referenced in other places in the application code.

Procedures

A procedure is a block of Visual Basic statements enclosed by a declaration statement (Function, Sub, Operator, Get, Set) and a matching End declaration. All executable statements in Visual Basic must be within some procedure.

Scope of Variables

Scope refers to the visibility of variables. In other words, which parts of your program can see or use it. Normally, every variable has a global scope. Once defined, every part of your program can access a variable.

Lifetime of Variables

It is the period for which they retain their value. Variables declared as Public exist for the lifetime of the application. Local variables, declared within procedures with the Dim or Private statement, live as long as the procedure.

Native Data Types

- Signed integer types: signed char, short, int, long
- Unsigned integer types: unsigned char, unsigned short, unsigned int, unsigned long
- Floating point types: float, double, long double
- Special type: bool (has values true and false)
- Sizes for the various types are implementation dependent, with some constraints
- Size of char is typically one byte
- Sizes must be non-decreasing as you read from left to right in these lists
- See example program using sizeof(type-name)in narrative.

Aggregate Data Types

Aggregate data types are any type of data that can be referenced as a single entity, but that also consist of more than one piece of data. That data, which is related, is kept together in a way that addresses that relationship.

Array

An **array** is a set of values, which are termed elements, that are logically related to each other. Similarly, an **array** may consist of a student's grades for a class; each element of the **array** is a single grade. It is possible for individual variables to store each of our data items.

Types of Arrays

- One dimensional array.
- Multi-dimensional array.

Visual Basic for Applications

Visual Basic for Applications is a computer programming language developed and owned by Microsoft. With **VBA** you can create macros to automate repetitive word- and data-processing functions, and generate custom forms, graphs, and reports. **VBA** functions within MS Office **applications**; it is not a stand-alone product.

VB Libraries

VB supports many mathematical or numeric functions that make calculation very simple, as you just have to feed in the variables, and get the output after the function processes it. VB offers a rich set of built-in functions for manipulating strings, numbers, date and time.

Working with Numbers

Numeric data types are numbers stored in database columns. These data types are typically grouped by: Exact numeric types, values where the precision and scale need to be preserved. The exact numeric types are `INTEGER` , `BIGINT` , `DECIMAL` , `NUMERIC` , `NUMBER` , and `MONEY` .

Strings

A string literal is the notation for representing a string value within the text of a computer program. In Visual Basic string literals are enclosed by double quotes. A string in Visual Basic is a sequence of Unicode characters. String is a data type used in programming, such as an integer and floating point unit, but is used to represent text rather than numbers.

Types of Strings

1. Fixed length string
2. Variable length string

Working with date and time

1. Creating and initializing a date
2. Accessing the date and time in a date variable
3. Formatting dates and time
4. Adjusting a date or time
5. Finding the interval between two dates and times
6. Accessing the system date and time
7. Checking if a value is a valid date

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