PROGRAMMING LANGUAGE 2 (SPM 3112)

VISUAL BASIC PROGRAMMING: PART 1

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Topics

- VB variables
- VB constants
- VB operators

VB Variables: Introduction

- **Variables → name given to a particular memory location.**
  - variables must be declared and defined.

- **Declaration → used to name an object**
- **Definition → used to create object.**

- **At one time variables → declared & defined at the same time.**
- **Each created variable has type & size.**

VB Variables: Declaration

- **Syntax:** ***Dim*** **VarName** ***As*** **Data Type**
- **Examples:**

```
Dim a As Integer
Dim x, y As Double
Dim age As String
```

- ***Dim*** → **tells VB you want to declare a variable.**
- ***VarName*** → **is the name of the variable.**
- ***As*** → **tells VB that you're defining the data type for the variable.**
- ***Data Type*** → **is the data type of the variable.**

Variable Name: Rules

- **Name → must start with**
  - a letter, not a number, can not more than 255 characters
  - length, height3, wing_span, max_voltage
- **No reserve words**
  - integer, single, while, for, new, … etc.
- **Cannot contains null characters @spaces between characters**
- **Cannot contains any symbol except underscore(_)**

Test yourself

Valid Variable Names?

- **Nama Pelajar**
- **01Pelajar**
- **IfPelajarPonteng**
- **PeLaJar**
- **Pelajar(Single)**
- **WhileStudy**
- **NAMA**

VB Variables: Assigments

- **Syntax:** ***identifier = value***
- **Examples:**

```
Dim a As Integer
Dim x, y As Double
Dim age As String
```

Variables Declaration

```
a = 1
Age = 18
x = 1.5
y = 2.5
```

Variables Assignment

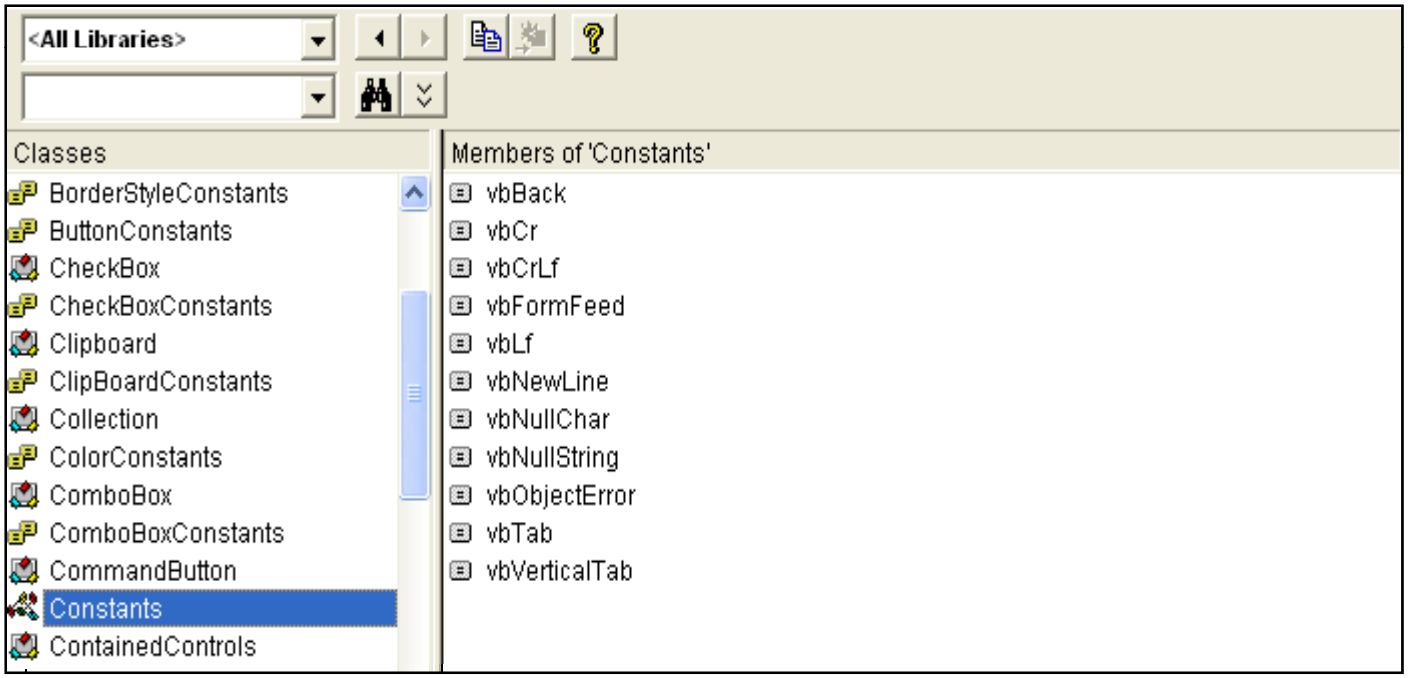
VB Constants: Introduction

- **Pre-determined and fixed value**
- **May have special meaning**
  - **E.g. PI (π) = 3.14159**
- **Declared using the const qualifier**

Scope	Qualifier	Identifier	Symbol	Value
Public	Const	PI	=	3.14
Private	Const	myColor	=	vbRed
Public	Const	NamaPelajar	=	"Ahmad"

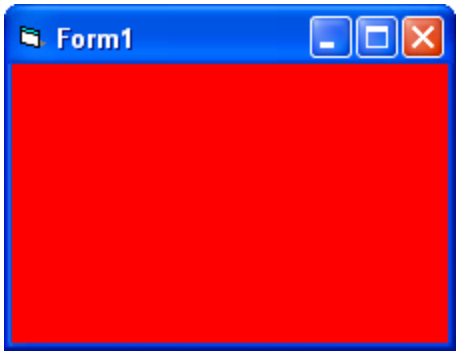
VB Constants: Introduction

- **Value for VB constants can be checked using object browser**

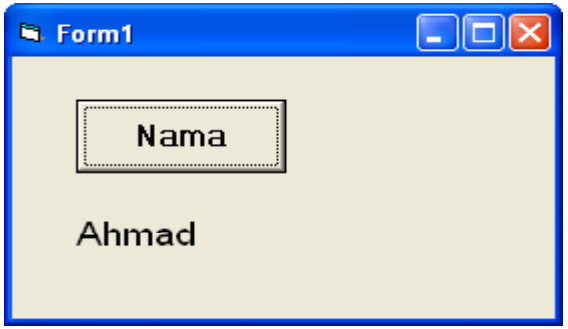


Examples

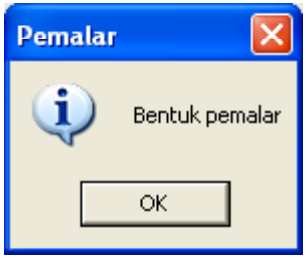
```
Private Sub Form_Load()
   Form1.BackColor = vbRed
End Sub
```




```
Private Sub Command1_Click()
   Const namapelajar = "Ahmad"
   Label1.Caption = namapelajar
End Sub
```

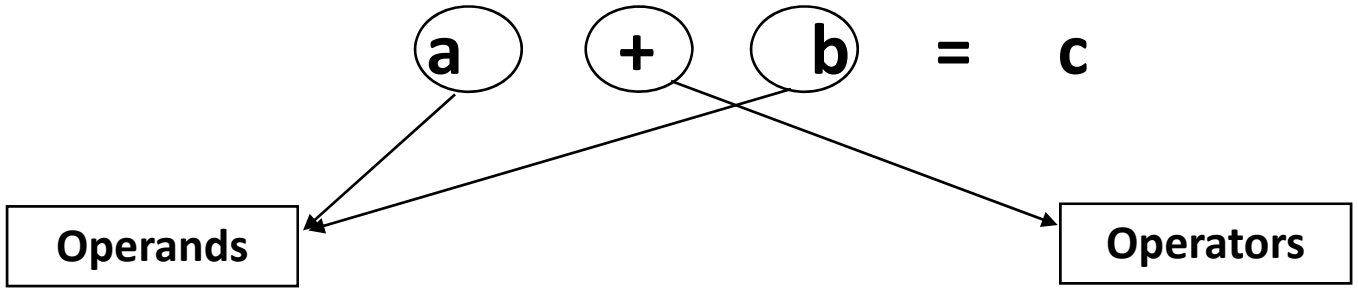



```
Private Sub Command1_Click()
msg = MsgBox("Bentuk pemalar", vbOKOnly +
   vbInformation, "Pemalar")
End Sub
```



VB Operators: Introduction

- **An expression is a sequence of operands and operators that reduce to a single value.**
- **Example:**



VB Operators: Aritmetic

Higher precedence

^	Exponentiation 3^2 = 32 = 9
-	(unary) Negation -(- 4) = 4
* /	Multiplication and Division (3 * 5 / 2 = 7.5)
\	Integer Division (no remainder) 3 * 5 \ 2 = 7
Mod	Modulo Arithmetic (remainder) 9 Mod 7 = 2
+ -	Addition and Subtraction 9 + 3 - 2 = 10
&	String Concatenation “hello” & “ ” & “world” = “hello world”

Lower precedence

VB Operators: Aritmetic

- **Unary operator has only one argument**

  Example:

  -(nom1) --counter

  +(var1) ++counter

- **Binary operator has two arguments**

  Example:

  nom1 + nom2 var1 * var2

VB Operators: Comparison

>	greater than
<	less than
=	is equal to
>=	is greater than or equal to
<=	is less than or equal to
<>	is not equal to
Like	String Pattern Matching
Is	Object Equality

VB Operators: Comparison

Examples: > and <

```
If (iMarks<40) Then
        Label3.Caption = "Fail"
Else
        Label3.Caption = "Pass“

For i = 1 to 10 Step 3
    If i > 5 Then
        Exit For
    End If
Next i
```

VB Operators: Comparison

Examples: Like

```
Private Sub Command1_Click()
nama1 = “norah"
nama2 = Text1.Text

If nama1 Like nama2 Then
    MsgBox (“My Name☺")
Else
    MsgBox (“Not Me!!")
End If

End Sub
```

VB Operators: Comparison

Examples: Is

```
Private Sub Command1_Click()
Number = Val(Text1.Text)

Select Case Number
Case 0
   MsgBox ("Cannot divide with number")
Case 1 To 10, 100, 1000
   MsgBox ("Can divide with number in head")
Case Is < 0, 13, 50 To 99
   MsgBox ("I need a calculator")
Case Else
   MsgBox ("Out of range")
End Select
End Sub
```

VB Operators: Logical

Higher precedence

Not Negation

- Not (KL_CapitalCity_Malaysia) = FALSE

And True if both values are TRUE

- Human_is_Fish And Mermaid_is_Mammal = FALSE
- Human_is_Mammal And Mermaid_is_Mammal = TRUE

Or True if either value is TRUE

- Mermaid_is_Fish Or Mermaid_is_Mammal = TRUE
- Whale_is_Mammal Or Tiger_is_Reptile = FALSE

Lower precedence

VB Operators: Logical

Truth Table

A	B		And	Or	Not
0	0		0	0	1
0	1		0	1	1
1	0		0	1	0
1	1		1	1	0