week4

February 21, 2018

1 Operators

- Used to construct represent operations on variables and data
- Examples include mathematical and logical
- Typically on the right side of the assignment operator **=**

2 Examples of Expressions With Operators

```
x = 5 + y
lblOut.Text = 2 * 3.15 * radius ^ 2
isWorking = isOpen or isReading
textMessage = "hello " & name & " your birthday is on " & birthDay
```

2.0.1 Notice that an operator can combine multiple values together, and usually on the right of an assignment operator

3 Expressions

- Can include multiple variables, expressions, data, and sub/functions
- Each one is called a term, e.g.:`x+5+y`
- VB will attempt to convert the type of every term to match the first one
- Will throw an error if it cannot convert it
- Some programming languages prefer to give an error without conversion
- VB is designed for windows development where lots of conversion to/from strings is done, so convertion is done automatically

4 Operators In VB Ordered by Precedence

Operator	Description
^	Exponentiation
+,-	Unary identity and negation
,/	Multiplication and floating-point division
\	Integer division
Mod	Modulus arithmetic
+,-	Addition and subtraction, string concatenation

Operator	Description
&	String concatenation
>,<,<>,<=,>=,=	Comparisons **(result is True or False)**
=	Assignment **(No result, but changes the variable on the left side)**

5 Operator Precedence

```
x + y
x + y - z
x + y * z
(x+y) * z you can modify precedence using ( )
x / y * z evaluated from left to right
x / (y * z)
```

6 Exercise

Create a program that performs the following tasks - Convert the temprature (supplied by the user) from F to C and from C to F - Conversion formula is: F = 9/5*C + 32 - Name the project: tempconvert

7 Challenge

- Use a single textBox and single output

8 Another Exercise

Create a program that perform the following tasks - Calculate the Body Mass Index - $BMI = \frac{kg}{m^2}$, where KG is weight in KG, and m is the length in meters - Based on BMI, tell the user whether he/she is: - Underweight: $BMI < 18.5$ - Healthy: $18.5 \leq BMI \leq 25$ - Overweight: $BMI > 25$