Introduction to VB.net

Lecture 4

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VB.NET

Agenda

- Talk about Lab2
- The truth behind Arrays
  - Exercices
- Subs & Functions
  - Exercices

The truth behind Arrays

The truth behind Arrays

Arrays are of fixed size. Sometimes, they create some limitations when used in applications. The major limitation is when adding more items to an array than the original size of the array, arrays cannot resize themselves automatically.

Thus, Redim Preserve

The truth behind Arrays

- Arrays are generally used for storing similar types of values or objects, including other arrays
- We have the following types of arrays:
  - Simple Arrays 1D, 2D, 3D
  - Nested Array Literals
  - Jagged Arrays
  - ArrayList

The truth behind Arrays

Initializing arrays

```
Dim cargo_weights(10) As Double
Dim atmosphere_pressures(2, 2, 4, 10) As Short
Dim inquiriesByYearMonthDay(20)()() As Byte
```

```
Cargo_weights = New Double(10) {}
atmosphere_pressures = New Short(2, 2, 4, 10) {}
inquiriesByYearMonthDay = New Byte(20)()() {}
```

The truth behind Arrays

Resizing arrays

```
' Discard everything inside and resize
ReDim cargoWeights(20)
' Keep everything inside and resize
ReDim Preserve cargoWeights(20)
' Retain only the first five element values and resize.
ReDim Preserve cargoWeights(4)
```

The truth behind Arrays

Populating arrays

```
Dim numbers() = New Integer() {1, 2, 4, 8}
```

OR

```
Dim numbers AS Integer
numbers = New Integer() {1, 2, 4, 8,5}
```

The truth behind Arrays

Nested Array Literals

- You can create a multidimensional array by using nested array literals. Nested array literals must have a dimension and number of dimensions, or rank, that's consistent with the resulting array.

```
Dim grid = {{1, 2}, {3, 4}}
```

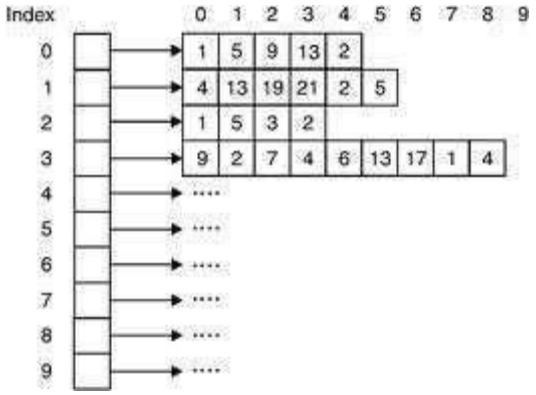
You can avoid an error when you supply nested array literals of different dimensions by enclosing the inner array literals in parentheses.

```
Dim values = {({1, 2}), ({3, 4, 5})}
```

The truth behind Arrays

Jagged arrays

- An array that holds other arrays as elements.
- A jagged array and each element in a jagged array can have one or more dimensions. Sometimes the data structure in your application is two-dimensional but not rectangular.



- http://www.dotnetperls.com/array-vbnet

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The truth behind Arrays

Arrays List

- ArrayList is similar to an array but grows automatically as the number of items are added to the arrayList. We can add, insert and delete items into an ArrayList very easily. And ArrayList stores any type of data inherited from System.Object. In a single Arraylist we can store any data type - integer, string and any type of object inherited from System.Object.

The truth behind Arrays

ArrayList

- The advantage of an ArrayList is that it does not have a set size. Rather, it expands or contracts to fit whatever items you wish to store in it.
  There is some overhead for this expandability.
  In addition, the ArrayList is not strongly typed, it just holds objects. This means anything you pull out must be cast before use, and there are no compile-time guarantees that objects of the correct type are being put into the ArrayList.

The truth behind Arrays

ArraysList

Add : Add an Item in an ArrayList

Insert : Insert an Item in a specified position in an ArrayList

Remove : Remove an Item from ArrayList

RemoveAt: remove an item from a specified position

Sort : Sort Items in an ArrayList

AddRange: Merge ArrayLists 2gether

RemoveRange: Remove a set of indexes

Clear: Clear an ArrayList

Count: Count the ArrayList

EXO 4

Client

Create a little program giving the user the following options:

1. Add
2. Delete
3. Count
4. Count the longest name in the list
5. Display List

Start the program with 5 names using **ArrayList.**