Outline

- Lecture 1: Structures (Part I)
  - What is a User-defined type/Structure?
  - Creating a user-defined type/structure
  - Declaring a structure variable
  - Assigning values to fields within a structure
  - Declaring an array of structure
- Lecture 2: TEST 2 (10%)

User-defined types

- What is a user-defined type?
- In built VB.NET types
  - Eg: Integers, Strings, Double
  - However we can create our own types using the structure statement.
  - Data types created using the structure statement are referred to as user-defined types or structures.

Example of a User-defined type

- Eg:
  Structure udtVideoDetails
    Public strTitle As String
    Public intYear As Integer
  End Structure
- Programmers use structures to group related items into one unit.

Defining a Structure

- Define the structure (Syntax)
  Structure StructureName
    Public field1 as VB.NET type
    Public field2 as VB.NET type
  End Structure
- Each element in the structure called a field
- Field definitions must be of:
  - standard VB.NET data types, or a
  - previously declared Structure type
- Enter the structure statement in the form's declaration section (typically below the [Windows Form Designer generated code]
Declaring a Structure Variable

- Declare a record variable of the structure type using the following syntax
  - Accessibility structureVariableName As structureName

- Examples
  - Dim currVideo As udtVideoDetails
    > Declares a procedural level udtVideoDetails variable name currVideo
  - Private mcurrVideo As udtVideoDetails
    > declares a module level udtVideoDetails variable name mcurrVideo

Assigning values to fields/members

- Refer to field values using the dot operator …
- Eg
  Dim currVideo as udtVideoDetails
  currVideo.strTitle = "The incredibles"
  currVideo.intYear = 2005

Array of structures

- To declare an array of structures
  - Declare structure
    Structure udtVideoDetails
    Public strTitle As String
    Public intYear As Integer
  - Declare array
    > Dim videoArray(5) As udtVideoDetails
  - Draw a picture of what this looks like.

Assigning values to a member variable in an array element

- To assign values to the video title and year of release to the 6th record
  - videoArray(5).strName = "The Crucible"
  - videoArray(5).intYear = 1997

Populating the array

For I = 1 to 10
  videoArray(i).strName = InputBox (…)
  videoArray(i).intYear = Val(InputBox (…))
Next i

In class exercises

- Example: Draw and declare a structure to represent:
  - a customer order containing:
    > the customer’s name and state, and
    > a numeric product code ordered by the customer.
  - A product information record containing
    > The name of the product
    > Short 3-letter catalogue code for the product
    > Wholesale price of product
    > Selling price of the product
Reading

- Zak Chapter 10, p372-382
- Unit Guide, Study Guide 10
- Exercises
  - Zak Q1-5, p405; Q1-8, p406