

# VB: Collections

All aboard



# Overview

- Lists
- Dictionaries
- LINQ Queries

# Lists

- Like arrays except you don't need to know size at declaration
- Have methods to add and remove items
- Use when you plan to iterate items in collection
- Commonly used collections of this type:
  - Generic: List(Of T)
  - "Legacy": ArrayList

```
Dim squares As New List(Of Square)
For i = 1 To 10
    Dim square As New Square(10)
    square.Name = "Square" & i
    squares.Add(square)
Next

For Each square In squares
    Console.WriteLine(square.Name)
Next
```

# Dictionaries

- Each item associated with a unique key
- Use key to retrieve an item
  - Can use ContainsKey to check if key exists
- Commonly used collections of this type:
  - Generic: Dictionary(Of TKey, TValue)
  - “Legacy”: Hashtable

```
Dim squares As New Dictionary( _  
    Of Integer, Square)  
For i = 1 To 10  
    Dim id As Integer = i * i  
    Dim item As New Square(10)  
    item.ID = id  
    item.Name = "Square" & i  
  
    If Not squares.ContainsKey(id) Then  
        squares.Add(id, item)  
    End If  
Next  
  
Dim key = _rand.Next(1, 10)  
If squares.ContainsKey(key) Then  
    Dim square = squares(key)  
    Console.WriteLine( _  
        "The item with key {0} is {1}", _  
        key, square.Name)  
End If
```

# LINQ Query Expressions

- **Puts the “language integrated” into LINQ**
- **Begins with a From clause, ends with a Select or Group**
  - Can use From, Where, Order By, Join, etc
- **Looks like a SQL query**
  - From logically comes first (also helps Intellisense)

```
Dim query = From emp In employees
             Where emp.Salaried AndAlso emp.Age > 35
             Order By emp.Name
             Select emp
```

# Lambda Expressions

- Takes a functional view of the world
- Concise syntax for defining an anonymous function
  - Doesn't require the *Delegate* keyword
  - Doesn't require the *Return* keyword
  - Compiler uses type inference whenever possible

```
Function(e) e.Salaried AndAlso e.Age > 35
```

# Summary

- Lists
- Dictionaries
- LINQ Queries