

# Collections and Generics

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## Good News



"Lecture 02 - DSA " is being talked about on Facebook more than anything else on SlideShare right now.  
So we've put it on the [homepage](#) of SlideShare (in the "Hot on Facebook" section).

Well done!

-The SlideShare Team

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Good News

<http://www.helghareeb.me/courses/dsa-2012>



## Collections



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- A collection is a structured data type that stores data and provides operations for adding data to the collection.
- Operations include:
  - ▶ removing data from the collection
  - ▶ updating data in the collection
  - ▶ and operations for setting and returning the values of different attributes of the collection.



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- A linear collection is a list of elements where one element follows the previous element.
- Elements in a linear collection are normally ordered by position (first, second, third, etc.).
- Nonlinear collections hold elements that do not have positional order within the collection.
- An organizational chart is an example of a non- linear collection.



## Collection Properties and Methods



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- Collection Property is the collections Count, which holds the number of items in the collection.
- Collection operations, called methods, include:
  - ▶ Add (for adding a new element to a collection)
  - ▶ Insert (for adding a new element to a collection at a specified index)
  - ▶ Remove (for removing a specified element from a collection)
  - ▶ Clear (for removing all the elements from a collection)
  - ▶ Contains (for determining if a specified element is a member of a collection)



## Linear Collections



## Linear Collections

- Direct Access Collections



## Linear Collections

- Direct Access Collections
- Sequential Access Collections



## Linear Collections

- Direct Access Collections
- Sequential Access Collections
- Generalized Indexed Collections



Struct

**DEMO**



## Non Linear Collections



## Non Linear Collections

- Hierarchical Collections





## Non Linear Collections

- Hierarchical Collections
- Group Collections



## My Collection Class

**DEMO**



# Generic Programming

## DEMO



## Oversimplified Timing Tests

**DEMO**



## Charting in .Net

**DEMO**

