# [0999] Chapter 9: Summary

- Generics allow programmers to specify the type that a method or collection will accept.  This adds "type safety" because the compiler can check for incorrect assignments.
- Data Structures are different ways of storing related data items in memory.
- Common Data Structures include Arrays, Stacks, Queues, Lists, Linked Lists, Maps (Dictionaries), and Hashtables.
- Arrays are very fast for access operations and very memory efficient.  They are very slow for insert operations.
  - While technically not part of the C# Collection Classes, arrays can be used with most collection operations.
- Linked Lists are very fast for insert operations but very slow for access operations and take-up significantly more memory than a corresponding array.
- Hashtables are very fast for insert operations (usually) and very fast for access operations however they take-up significantly more memory than a corresponding array.
- Stacks are "Last-In-First-Out" (LIFO) and Queues are "First-In-First-Out" (FIFO).
- C#'s Generic Collections are flexible data structures that work with most types of C# objects.
- List is the most commonly used C# Collection.
- All C# collections implement the ICollection and IEnumerable interfaces which means they can all be used with "foreach".