# 1/42 Introduction to Data Structures

* Examples of real-life data structures: City map, Dictionary, Cash book
* **Data Structure**: Is a way to store and organize data in a computer for efficient use
* We study Data Structures as:
  + Mathematical/Logical models
    - An abstract “high level” view of them, concerning its operations or an **abstract data type** ADT
    - For example, let’s define a “List”
      * Store a given number of elements
      * Read elements by position
      * Modify element at position
      * An array is the **concrete implementation** of this
    - Linked List (discussed further along)
* Abstract Data Type ADT: define data and operations but no implementation
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* Example Data Structures: Arrays. Linked List, Stack Queue, Tree, Graph… etc
  + We will study their
    - Logical view, operations, cost of operations, implementation