

2. DATA ABSTRACTION

Learning Objectives

After the completion of this chapter, the student will be able to Understand

- ❏ What is Abstract Data structures.
- ❏ Abstract data type.
- ❏ Difference between concrete and abstract implementation.
- ❏ Pairs.
- ❏ Data Abstraction in Structure.

Important Notes and Points

- ❖ Abstract Data type (ADT) is a type (or class) for objects whose behavior is defined by a set of value and a set of operations.
- ❖ The process of providing only the essentials and hiding the details is known as abstraction.
- ❖ Constructors are functions that build the abstract data type.
- ❖ Selectors are functions that retrieve information from the data type.
- ❖ In concrete data representation, a definition for each function is known.
- ❖ Wishful Thinking is the formation of beliefs and making decisions according to what might be pleasing to imagine instead of by appealing to reality.
- ❖ Data abstraction is supported by defining an abstract data type (ADT), which is a collection of constructors and selectors. Constructors create an object, bundling together different pieces of information, while selectors extract individual pieces of information from the object.

- ❖ The two parts of a program are, the part that operates on abstract data and the part that defines a concrete representation.
- ❖ List is constructed by placing expressions within square brackets separated by commas.
- ❖ Any way of bundling two values together into one can be considered as a pair. Lists are a common method to do so. Therefore List can be called as Pairs.
- ❖ A class as bundled data and the functions that work on that data.
- ❖ The first Name, the last Name, the id, and the email. One could use a list to represent a person:

