**Chapter 1: INTRODUCTION**

**Topic – 1: Subject Overview**

* Deterministic finite automata
* Non-deterministic finite automata
* Regular expressions
* Context-free grammar
* Context-free language
* Push down automata
* Turing machines etc.

**Topic – 2: Basic Concepts**

**Definition**

* In this subject, we study about **abstract machines**.
* We call this abstract machine as ***automata*** (plural).
* **Finite automaton:** An automaton with **limited** number of states.

**Purpose**

* Automata was developed to study behaviour of **dynamic discrete systems**.

**Things To Note**

* The **input** taken by automaton is called ***string***, denoted by **w**.
* **Length of string** is denoted by **|w|**.

**Terminologies**

* **Symbol:** Can be called as an **entity**. It can be a **letter**, **string** etc.
* **Alphabet:** Set of symbols.
* **Language:** Set of strings formed from symbols in **Σ**.

**Σ = {a, b}**

**L = {Set of strings with length 2} = {aa, ab, ba, bb}**