UNIT 6. Push-Down Automata

A Push-Down Automaton is a machine that consists of a non-deterministic finite-state automaton with lambda transitions and a stack of unlimited size. The automaton can change state depending on the current symbol in the input string, and the topmost symbol on the stack. This abstract machine recognizes Type-2 Languages, which are also known as Context-free Languages. It is possible to design Push-Down Automata recognizing words by final states or when the stack is empty. Given a Push-Down Automaton that accepts a language by final states, it is possible to build an equivalent Push-Down Automaton that accepts the same language by empty stack, and vice versa.

The main objectives of Unit 6 are:

- To introduce the concept of Push-Down Automaton.
- To classify Push-Down Automata according the acceptance in final states or when the stack is empty.
- To learn the representation and basic concepts related to these Automata.
- To define the language accepted by a Push-Down Automaton.
- To know the equivalence between Push-Down Automata and Context-Free Languages.