**TUTORIAL 4**

**FINITE AUTOMATA**

1. Construct a state transition diagram of a DFA that accepts all strings over {*a*, *b*, *c*} that begin with *a*, contain exactly two *b*'s, and end with *c*.
2. Construct a state transition diagram of a DFA that accepts the given set of strings over {0, 1}:

 a) contain the substring 00 or 11.

 b) begin AND end with 00.

 c) begin OR end with 00*.*

1. Construct a state transition diagram of a FSM that accepts the given set of strings over {*a*, *b*}:
2. contain exactly two *b*’s.
3. at least one b.
4. odd number of *a*’s
5. Suppose that a language, *L*, is a *C* programing language style comment such that *L* = { *w* | *w* is a C-style comment} with input alphabet, Σ={ a, b, c, …, z, \* , / }. Examples of accepted and rejected strings are shown in Table 1:

Table 1

|  |  |
| --- | --- |
| Accepted Strings | Rejected Strings |
| /\*abcz\*/  | /\*\* |
| /\*\*/ | /\*\*/bca/\*aaz\*/  |
| /\*\*\*/ | aab/\*\*/  |
| /\*abc\*xyz\*/  | /\*/ |
| /\*a/b\*/ | /ab\*/ |

Design a DFA that accepts language, *L*.

a( c)\*b(a + c)\*b(a + c)\*c