**Theory of Automata**

**Assignment 2**

**Due Date: 15th November on Portal Section (F2 Before 10:00AM)**

**Due Date: 16th November on Portal (F4 Before 4:00PM)**

Quiz will be in these classes related to this assignment.

Problem#1: Consider Σ = {a, b}, design DFA of the following languages:

1. .
2. .
3. .
4. .

Problem#2: Consider Σ = {0, 1, 2} design DFA of the following languages.



Problem#3: In each part below, draw an FA accepting the indicated language over {*a, b*}.

1. The language of all strings containing exactly two *a*’s.
2. The language of all strings containing at least two *a*’s.
3. The language of all strings that do not end with *ab*.
4. The language of all strings that begin or end with *aa* or *bb*.
5. The language of all strings not containing the substring *aa*.
6. The language of all strings in which the number of *a*’s is even.
7. The language of all strings in which both the number of *a*’s and the number of *b*’s are even.
8. The language of all strings containing no more than one occurrence of the string *aa*. (The string *aaa* contains two occurrences of *aa*.)
9. The language of all strings in which every *a* (if there are any) is followed immediately by *bb*.
10. The language of all strings containing both *bb* and *aba* as substrings.
11. The language of all strings containing both *aba* and *bab* as substrings.