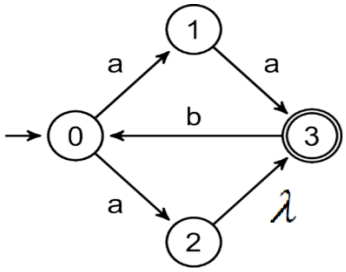
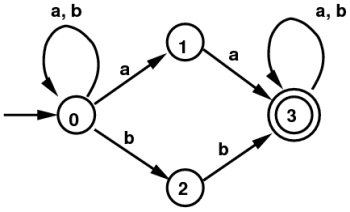
Assignment 2.2

I) Give a formal definition with any notations for the following: NFA, Language accepted by NFA

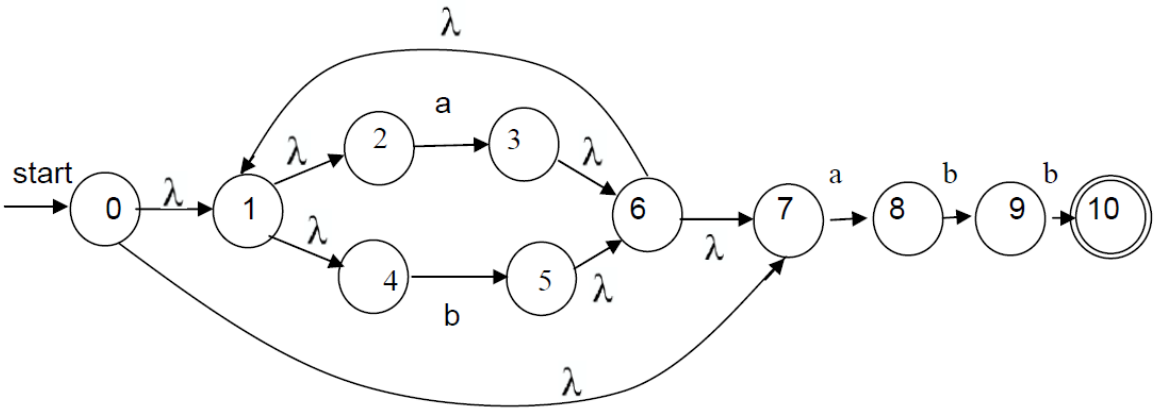
II) What are the three key differences between NFA and DFA.

III) Convert the NFA to a DFA





IV) Consider the NFA below



In the construction process while converting to a DFA, do not forget to account for the lambda transitions.
For example, the first step is to identify the initial state, say A
A = {0} is not correct as the lambda transitions enable the starting to be 1. You can make a transition from 0 to 1 on lambda without scanning any symbol. Similarly, you can transition to 2,3,7.

So the starting state of the DFA = {0, 1, 2, 4, 7}

The next step is to define transitions from A, say A to B on symbol a.
Check that B ={1,2,3,4,6,7,8}

(i) Give a complete equivalent description of the DFA.
(ii) Convert the above to a minimal DFA.

V) Convert the following DFA to a minimal equivalent DFA