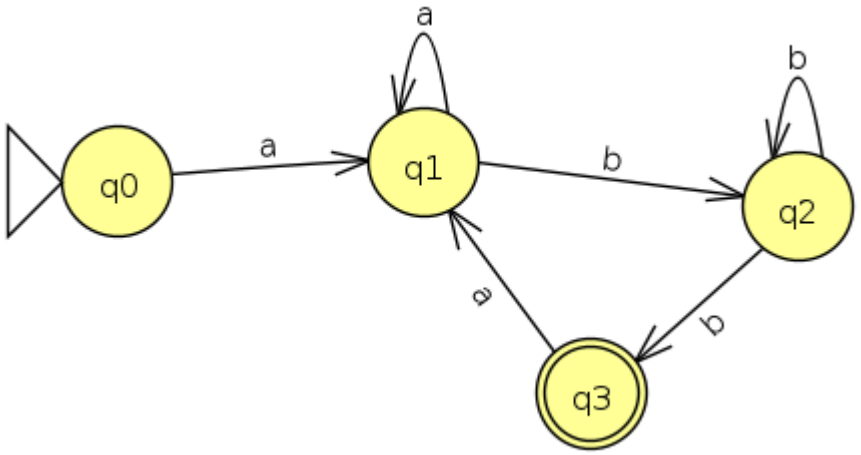
Variant 7:

AF = (Q, Σ, δ, q0, F)
Q = {q0, q1, q2, q3, q4}
Σ = {a, b} F = {q3}
δ(q0, a) = q1
δ(q1, b) = q2
δ(q2, b) = q3
δ(q3, a) = q1
δ(q2, b) = q2
δ(q1, a) = q1

Tasks:

1. Present the automaton in the form of a graph. Is this automaton deterministic or not? Why?



This is a NFA because from node q2 there are 2 transitions with b
δ(q2, b) = q3
δ(q2, b) = q2

2. Convert the Finite Automaton to the Regular Grammar.

G (V_N, V_T, S, P)
V_N = {S, X, Y, Z}
V_T = {a, b}
P= { S — aX
X — aX | bY
Y — bY | bZ
Z — aX | ε }

3. Transform nondeterministic finite automaton (NFA) into a deterministic automaton (DFA). Present the DFA in the form of a graph.