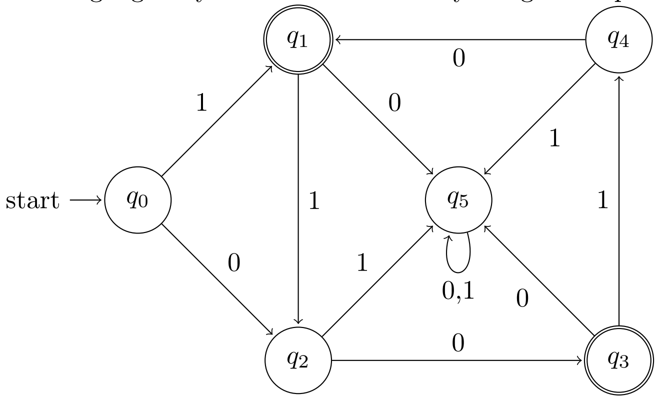
Problems Solved:

6	7	8	9	10

Name:

Matrikel-Nr.:

Problem 6. What language is accepted by the DFSM depicted below? Describe that language in your own words and by a regular expression.

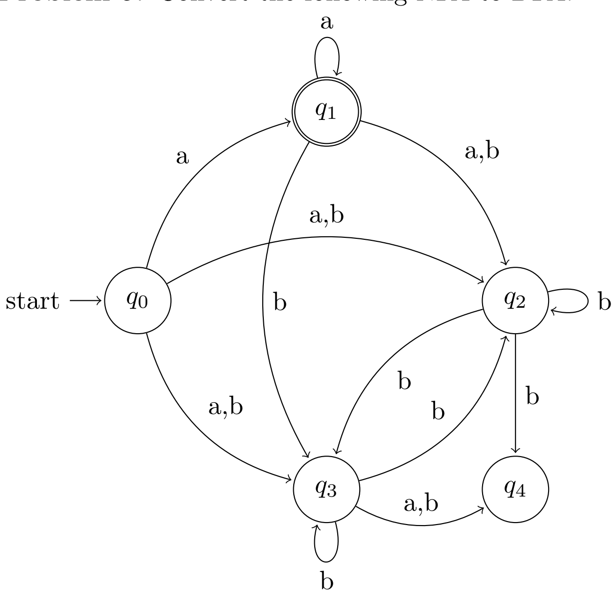


Problem 7. Construct a deterministic finite state machine for each of the following two languages:

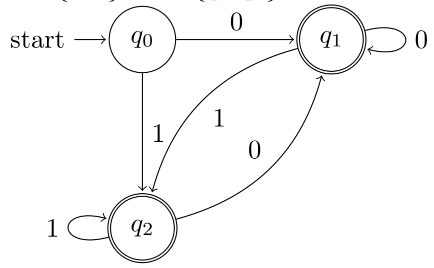
1. the language L_1 of all strings over $\{0, 1\}$ that contain 00 as a substring.
2. the language L_2 of all strings over $\{0, 1\}$ that end up with the string 00.

Problem 8. Construct explicitly a deterministic finite state machine $D = (Q, \Sigma, \delta, S, F)$ such that $L(D) = \emptyset$ and such that changing the set F of final states of D leads to a DFSM $D' = (Q, \Sigma, \delta, S, F')$ with $L(D') = \{\varepsilon\}$.

Problem 9. Convert the following NFA to DFA.



Problem 10. Let the DFSM $M = (Q, \Sigma, \delta, q_0, F)$ be given by $Q = \{q_0, q_1, q_2\}$, $\Sigma = \{0, 1\}$, $F = \{q_1, q_2\}$ and the following transition function $\delta : Q \times \Sigma \to Q$:



Construct a minimal DFSM D such that $L(M) = L(D)$ using Algorithm Minimize. (cf. Section 2.3 *Minimization of Finite State Machines*)