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Foundations of Computer Science
Homework #2 - Chapter 1: DFA, NFA
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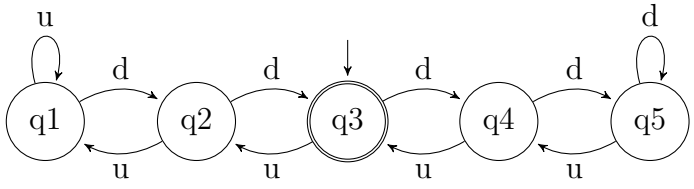
1.3
The formal description of a DFA M is
{q1, q2, q3, q4, q5 }, {u, d}, δ, q3 , {q3},
where δ is given by the following table:

	u	d
q1	q1	q2
q2	q1	q3
q3	q2	q4
q4	q3	q5
q5	q4	q5

Give the state diagram of this machine.

Initial state is q3, so that is where the machine will start.
We can use the table to create the nodes, and connect them as needed.
The accepted state is q3 so we will mark that with a double circle to show that as the accepted state of the machine.



1.4: a, c, e, f, g

a. {w| w has at least three as and at least two bs}

1.5: c, d, e, f, g, h

1.6: a, b, c, d, e, f, g, h, I, j, k, l, m, n

1.7: b, c, d, e, g, h

1.8: a, b

1.9: a, b

1.10: a, b, c

1.12

1.13

1.16

1.17: a, b

1.18

1.20: a, b, c, d, e, f, g, h

1.21

1.22