The important thing about DFA is to know that it identifies the acceptance of strings.

> *A DFA processes a string by starting in the start state and reading the input symbols one at a time. For each input symbol, the DFA transitions to the next state according to the transition function, and it accepts the string if it ends in an accepting state.*

An algorithm that describes how a DFA processes a string:

1. Start in the start state.
2. Read the next input symbol.
3. Transition to the next state according to the transition function.
4. If the current state is an accepting state, then accept the string.
5. If the current state is not an accepting state, and there are no more input symbols to read, then reject the string.
6. Repeat steps 2-5 until the end of the string is reached.

For example,

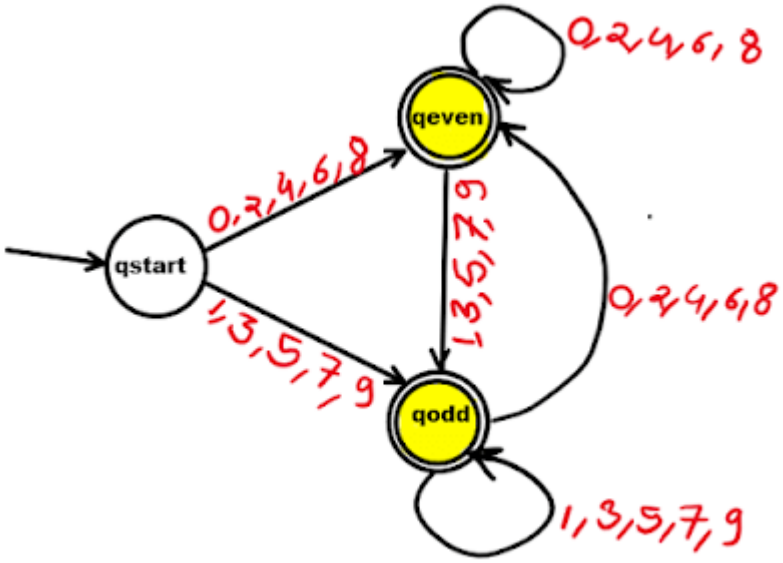
Consider the DFA that identifies whether the given decimal is even or odd.

Here we consider 3 states, one start state qstart, one even state qeven and one odd state

qodd.

If the machine stops at qeven the given number is even.

If it stops at qodd the given number is odd.



DFA that identifies ODD and EVEN numbers

State	Input Symbol	
	0, 2, 4, 6, 8	1, 3, 5, 7, 9
qstart	qeven	qodd
qeven	qeven	qodd
qodd	qeven	qodd

References:

- Introduction to the Theory of Computation" by Michael Sipser.

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51. Construct Moore machine for Mealy machine

52. RGPV TOC PYQs
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54. Design a NFA that accepts the language over the alphabet, Σ= {0, 1,2} where the decimal equivalent of the language is divisible by 3.