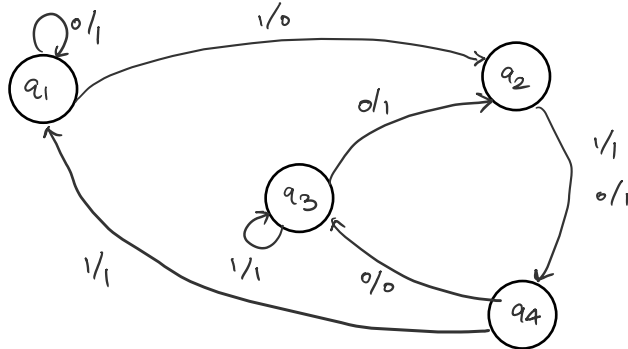


1. Construct a Mealy Machine which can output **E** (even) or **O** (odd), according to the number of 1's in the input stream.

2. Convert the given **Mealy** Machine into its equivalent **Moore** Machine.



3(a). Construct a **minimal DFA** for the regular expression  $(0^*10 + 1^*0)(01)^*$ .

3(b). Construct a **minimal DFA** for the regular expression  $(010)^*1 + (1^*0)^*$ .

4. Convert the given **DFA** into its corresponding **regular expression** (either using Arden's Theorem or State Elimination Method).

	0	1
q1	q2	q3
q2	q1	q3
q3	q2	q1

5. **Minimize** the following DFA.

	a	b
q0	q0	q3
q1	q2	q5
q2	q3	q4
q3	q0	q5
q4	q0	q6
q5	q1	q4
q6	q1	q3

6(a) Prove that  $02^n$  is not a regular language using **pumping lemma**.

6(b) Prove that  $0n^2$  is **not a regular language** using pumping lemma.