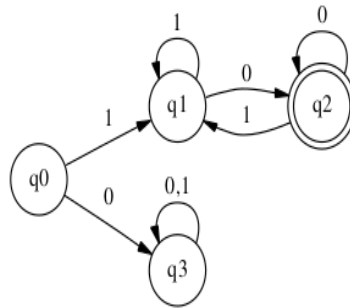


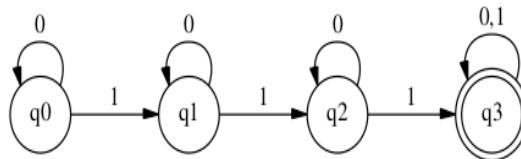
Formal Languages and automata: DFA Sample problems

Give state diagrams of DFAs recognizing the following languages. In all cases the alphabet is $\{0,1\}$.

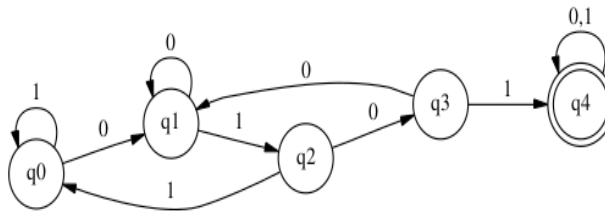
1. $\{w \mid w \text{ begins with a 1 and ends with a 0}\}$.



2. $\{w \mid w \text{ contains at least three 1s}\}$.



3. $\{w \mid w \text{ contains the substring 0101, i.e., } w = x0101y \text{ for some } x \text{ and } y\}$.



4. $\{w \mid w \text{ has length at least 3 and its third symbol is a 0}\}$.

