Prob. 1	Prob. 2

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Problem 1.

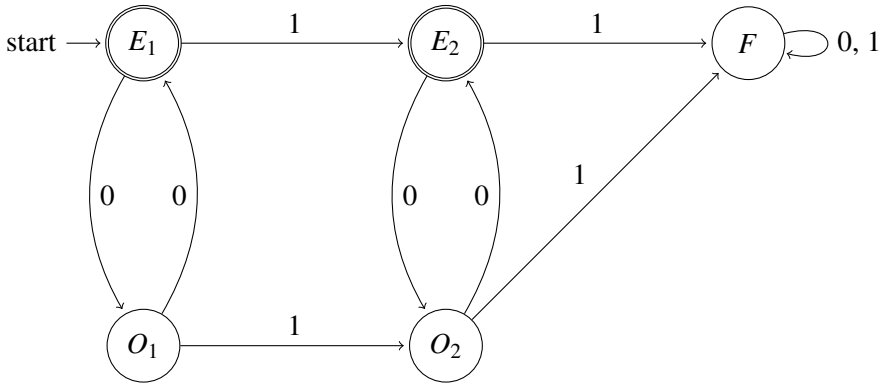

Figure 1: Problem Set1 Machine

Problem 2.

By using Observation 6 from the lecture notes we can deduce:

$$\forall x \in \Sigma^* s.t.\ \hat{\delta}(q_0,x) \in F : \hat{\delta}(q_0,x) \notin \overline{F}, thus\ x \in L(M) \rightarrow x \notin L(\overline{M}).$$
$$\forall y \in \Sigma^* s.t.\ \hat{\delta}(q_0,y) \notin F : \hat{\delta}(q_0,y) \in \overline{F}, thus\ y \notin L(M) \rightarrow y \in L(\overline{M}).$$

Therefore, $L(\overline{M}) = \Sigma^* - L(M) = \overline{L(M)}$