A *2-DFA* M is a 5-tuple $(Q, \Sigma, \delta, (q_{01}, q_{02}), F)$ that is equivelent to a DFA with two branches of computation one that starts in state q_{01} and the other that starts in state q_{02}. The machines accepts a string $x \in \Sigma^*$ if at least one of the two branches ends in an accept state ($q \in F$) after reading x. Show that 2-DFAs recognize the class of regular languages.