

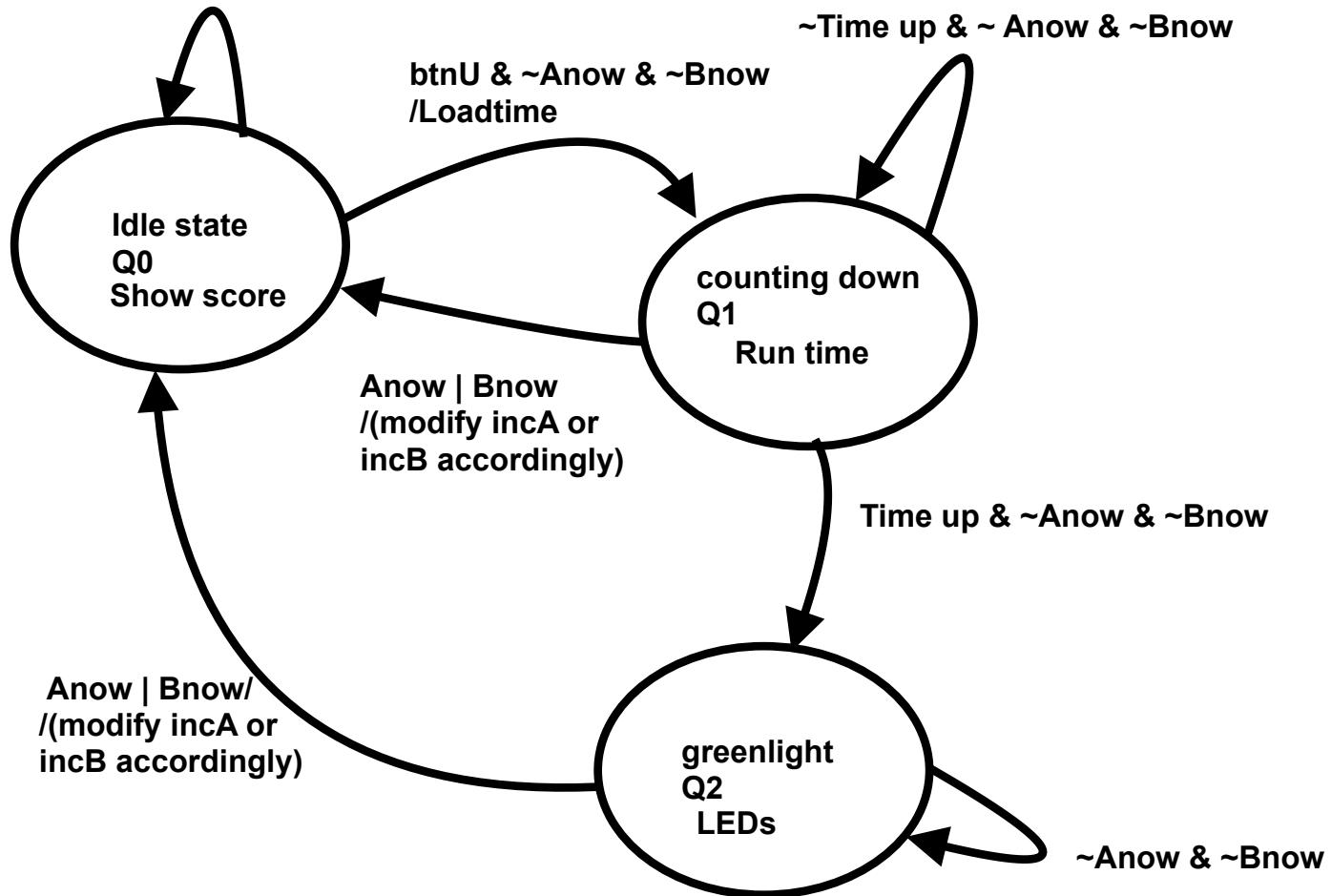
Lab 5 state machine logic:

Inputs: btnU, Time up, Anow, Bnow

Outputs: Load time, Run time, incA, incB, Show Score

Note there are many areas which can consider a don't care scenario

$\sim \text{btnU} | \text{Anow} | \text{Bnow}$



$$\text{Loadtime} = Q0 \& \text{btnU} * \sim \text{Anow} * \sim \text{Bnow}$$

$$\text{Run time} = Q1$$

$$\text{Led} = Q2$$

$$\text{show score} = Q0$$

$$\text{incB} = Q1 \& (\text{A} \& \sim \text{B}) | Q2 \& \text{B}$$

$$\text{incA} = Q1 \& (\text{B} \& \sim \text{A}) | Q2 \& \text{A}$$

$$\begin{aligned} Q0 = & q0 \& (\sim \text{btnU} | \text{Anow} | \text{Bnow}) | \\ & q1 \& (\text{Anow} | \text{bnow}) | \\ & q2 \& (\text{Anow} | \text{bnow}) \end{aligned}$$

$$\begin{aligned} Q1 = & q0 \& (\text{btnU} & \sim \text{Anow} & \sim \text{Bnow}) | \\ & q1 \& (\sim \text{time up} & \sim \text{Anow} & \sim \text{Bnow}) \end{aligned}$$

$$\begin{aligned} Q2 = & Q1 \& (\text{timeup} \& \sim \text{Anow} \& \sim \text{Bnow}) | \\ & Q2(\sim \text{Anow} \& \sim \text{Bnow}) \end{aligned}$$

initialize q0 to 1