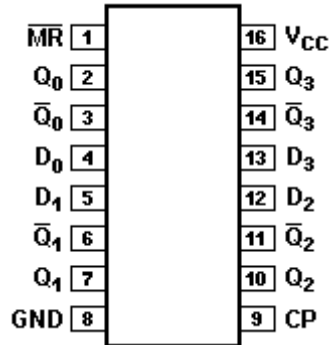# D Flip-Flop Lab #5

We will use the 74175 D Flip Flop for this lab. The 74175 contains 4 D flip-flops, all clocked from the same pin and all reset from the same pin. The pin-out diagram is shown below.

$\overline{MR}$ is the reset, Q_x and $\overline{Q_x}$ are the outputs for flip-flop x, and CP is the clock. D_x is the input for flip-flop x. The function table is as follows:

Inputs			Outputs	
$\overline{MR}$	CP	D	Q	$\overline{Q}$
L	X	X	L	H
H	↑	H	H	L
H	↑	L	L	H
H	L	X	Previous Level	Previous Level

Connect one D flip-flop correctly on the IC. Pay attention to ground, Vcc, and the reset and clock pins. The tricky part will be the clock. For students on campus, set the function generator (on the left side of the box) to 1 Hz, (switch to Hz, slider up to 1, switch on right to 1), the Function Generator switch needs to be set to square wave (on the left), and then use the TTL output to drive your circuit. You can look at the clock by running a wire to the LED indicators on the right. If you are off campus and don't have access to a clock, it may be a bit more difficult. You will have to move a wire quickly from ground to +5 and back. It might help to run your "clock" through an inverter (NOT) circuit. That may give you a sharper edge on the clock.

Verify the function table above. Write your lab report with your observations. How might you use a D flip-flop in practice?