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CS\_204\_LAB\_013

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1. A flip-flop (or a “latch”) in electrical engineering is a circuit that has two stable states and can be used to store state information (also called a bistable multivibrator), and are the fundamental building blocks of digital systems[[1]](#footnote-1). Each state (either a flip or a flop) stores a single bit of data (a 1 or a 0), and is activated by high or low voltages in most computer systems. Theoretically any medium could be used to store binary states in a digital system (e.g., on / off or high / low states of water flow, temperature, even the movement of ants in an ant colony could be manipulated to build digital logic gates), however transistors are the most prevalent elements used for latches in electric digital systems, which are nowadays built on a nm scale.
2. Within the program for this lab, a timer with a 1250ms delay is set to alternate between two states (flip and flop).
3. By placing a button within the program code, we are now able to activate the flip-flop action via user input, adding an element of interactivity with our program.
4. The count increment within the actionPerformed event set on the timer is included because we need it for our exit condition (count == 10), and it makes sense to have the increment within the actionPerformed callback.
5. A “flip-flop” is also known as an “Eccles-Jordan switch” because those are the two physicists who first implemented an electronic binary switch using vacuum tubes in 1918, a design which was later implemented at scale by codebreakers during WW2 in the computers at Bletchley Park, an historic moment in computing.

1. From <https://en.wikipedia.org/wiki/Flip-flop_(electronics)> [↑](#footnote-ref-1)