Digital circuits provide a facility for producing circuits where each line (input or output) has only two effective states; on or off (1 or 0). Digital circuits are not really digital. They are actually analog circuits that are designed to approximate digital functions. The effective states are accomplished by specifying that a voltage above a certain threshold is on, and below a certain threshold is off, such that passing signals through diodes (and transistors in some case) will result in an output that is either on or off, or power supply issues should allow for a relatively consistent, effective digital signal.

The range is needed to account for power supply issues, as well as small fluctuations in voltage that occur when signals pass through gates. A circuit operating on 5 volts should continue to operate when operated at 4.9 volts, or even 3.7 volts. This does, however, limit the operating voltage of digital circuits to a particular range, as the circuit will be unreliable if it is operated at such a low voltage that all values are zero, or where values will be in ambiguous, glitch region of voltages.

Digital circuits can be seen almost everywhere now, as they can provide more accurate mathematical functions, and for better data transmission.

This lab allowed us to explore a digital circuits. We built AND and OR gates out of diodes, demonstrating how a computer internally works, and also built logic circuits with IC logic gates, which allowed us to experience a more practical application of logic, as well as some proper logic design.