

Preface

Computers.

They are essentially made of a big lump of inanimate mechanical objects, yet when they are pieced together in an orderly fashion and given meticulous instructions, they are able to perform a plethora of tasks, from basic arithmetic to rendering 3D structures with realistic shadows.

It is a well known fact that computers read information in binary. Yet, how is that a series of 1s and 0s can be interpreted to calculate the 62 trillionth digit of π ?
Mysterious, isn't it?

To understand how computers work, we need to deep-dive into their basic circuitry.

Modern-day computers are part of a field called “digital electronics”, a subfield of electronics that involves the study and engineering of digital signals to manufacture devices, such as computers.

Digital circuits are assembled by chaining multiple logic gates, and in this tutorial, we shall delve into the specificities of how logic gates function, how a computer remembers things, and finally, we will create our very own calculator.

Prerequisites

While following along this tutorial, feel free to experiment with the logic gates by downloading the [simulator](#) by Sebastian Lague.