I use my mobile to connect with everybody as I assume everybody else does as well. The mobile phone is a device that’s so burnt into our souls, that we don’t even realise that in the end, it’s just a piece of hardware. Sure, you might know the RAM size, Storage and make of the CPU, but, what are they really?

Do you realise, that the computer in your pocket is about 1500 times more powerful than the computer on board the Apollo 11, that took Neil Armstrong to the moon?

Have you ever wondered how a few geometric shapes etched onto a piece of silicon turn something as dead as a mobile phone, alive?

What if I tell you that even if you answered no to every single question, by the end of this course, you would’ve built a full blown computer. Period.

I am Varun and welcome to computer design and architecture and in 3 weeks you’re gonna go from not knowing how a computer works, to making one by yourself. Now don’t worry, there’s not going to be any soldering or tinkering with actual hardware, we are going to use simulators, just as real hardware engineers do in practice.

In this course, We're going to go build a computer layer by layer from the inside out.

I’m going to introduce you to the basic logic gates ,a little bit of boolean algebra and a hardware description language called hack. You'll see how a funny combination of these simple gates builds a complete and fully functional Arithmetic and Logic Unit (or ALU).

Next, the basics of memory and the smooth progression to building a 16 KB RAM Unit.

Finally, we’re going to Build a CPU that ties together all programs and chips we built earlier. We’re also going to make our very own primitive assembly language that can run machine code on the CPU.

If this was the movie “The Matrix”, you are the chosen one. You can either take the blue pill and let the RAM and CPU of your machine just be mere numbers to you, or, you can take the red pill and I’ll show how beautiful and deceptively simple it is to build your very own computer.