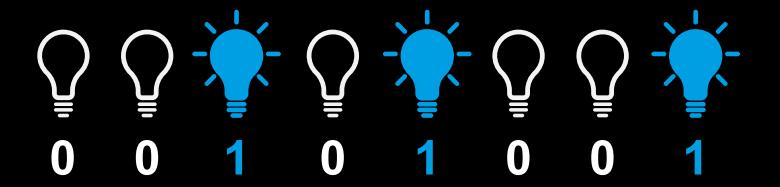
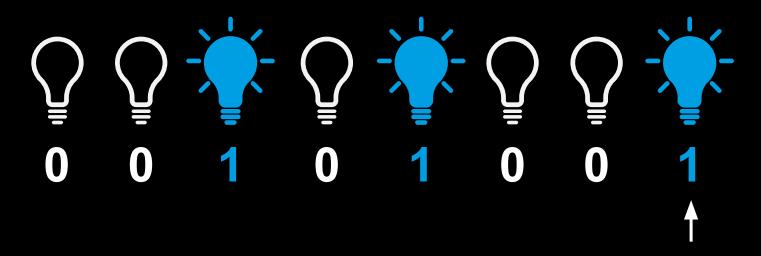
BITS

why do computers think binary?

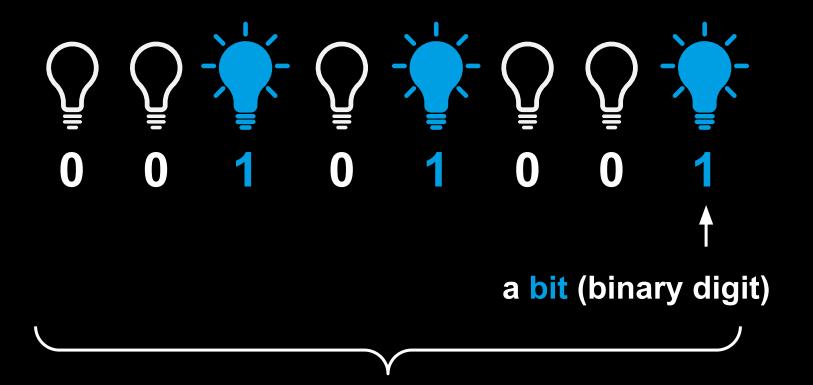




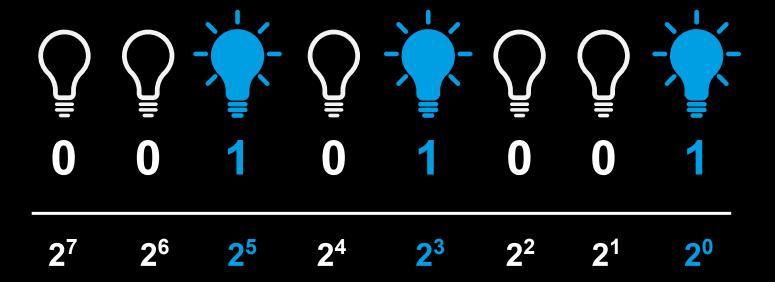


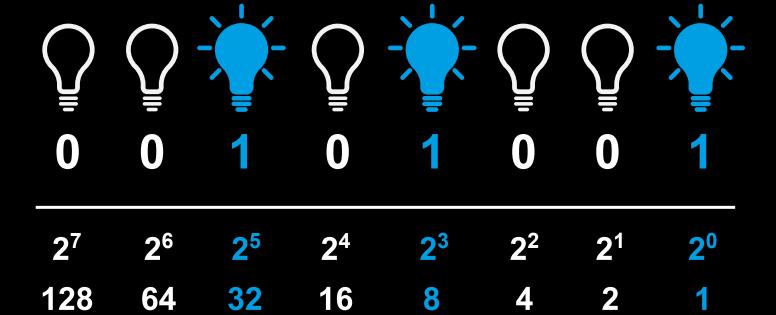


a bit (binary digit)



a byte (8 bits)







what can we store in one byte?

what comes after the byte?

```
2^{10} bytes = 1.024 bytes = 1 Kibibyte (KiB)

2^{20} bytes = 1.048.576 bytes = 1 Mebibyte (MiB)

2^{30} bytes = 1.073.741.824 bytes = 1 Gibibyte (GiB)
```

```
10<sup>3</sup> bytes = 1.000 bytes = 1 Kilobyte (KB)

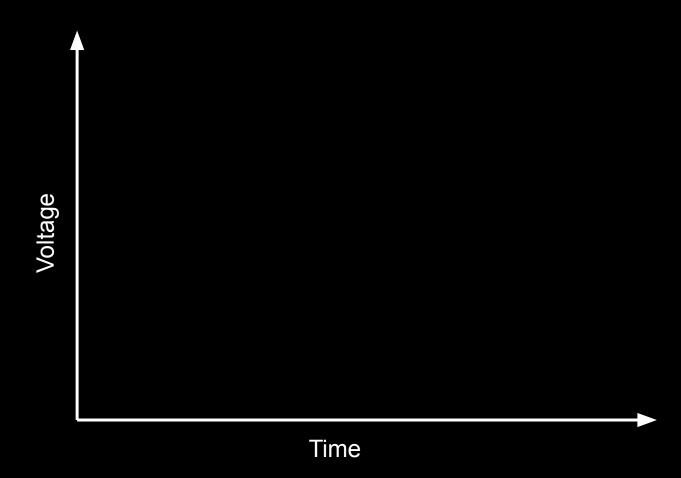
10<sup>6</sup> bytes = 1.000.000 bytes = 1 Megabyte (MB)

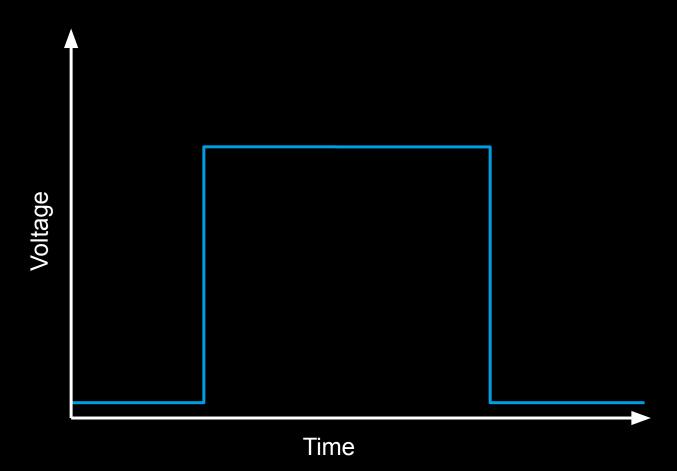
10<sup>9</sup> bytes = 1.000.000.000 bytes = 1 Gigabyte (GB)

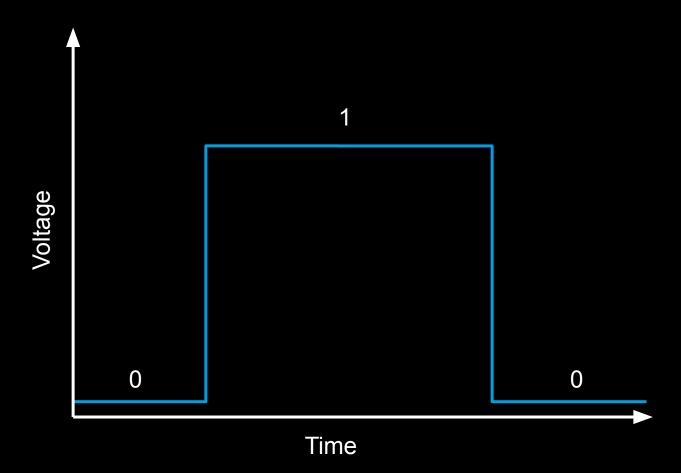
10<sup>12</sup> bytes = ?
```

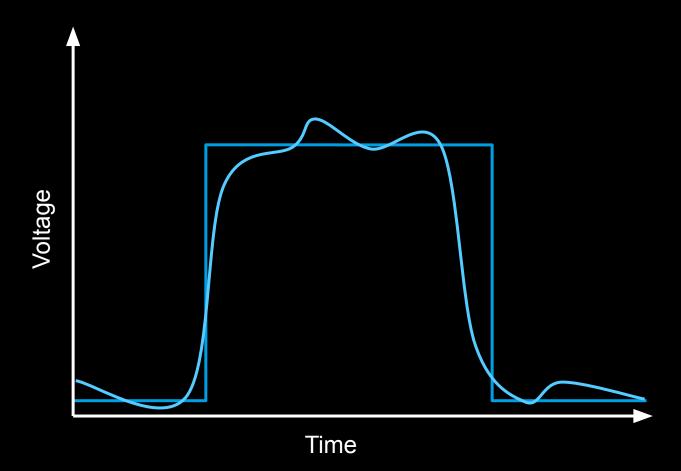
how many bits are on a DVD with 4.7 GB capacity?

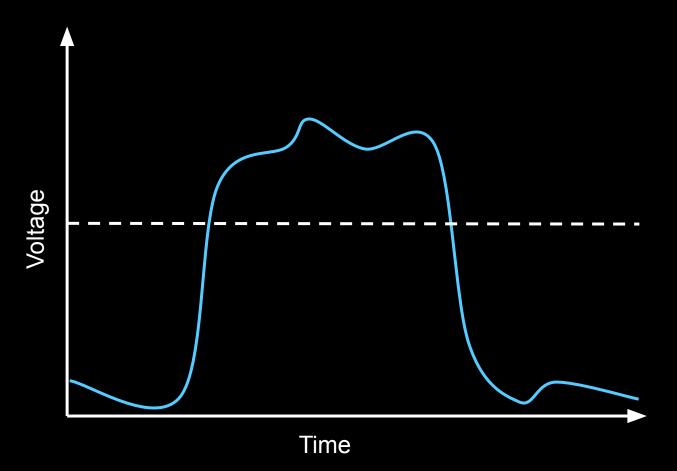
are we stuck with binary?

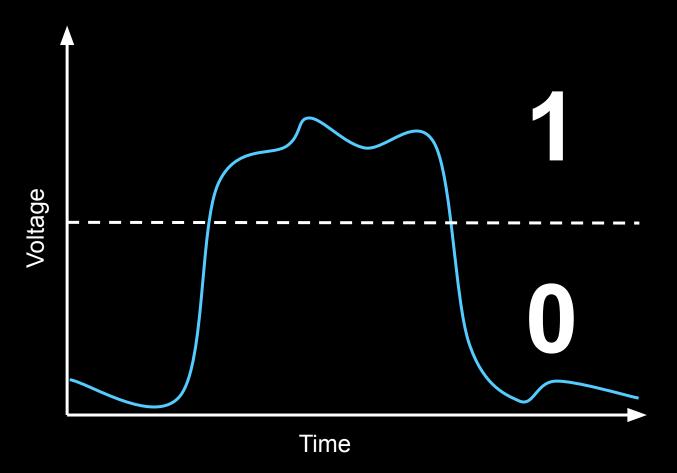


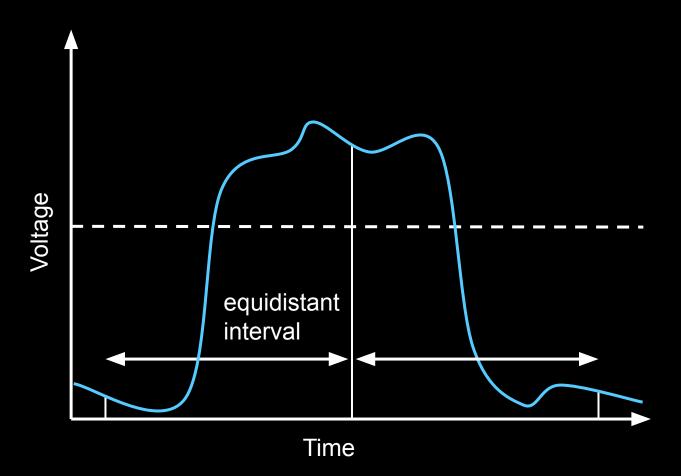


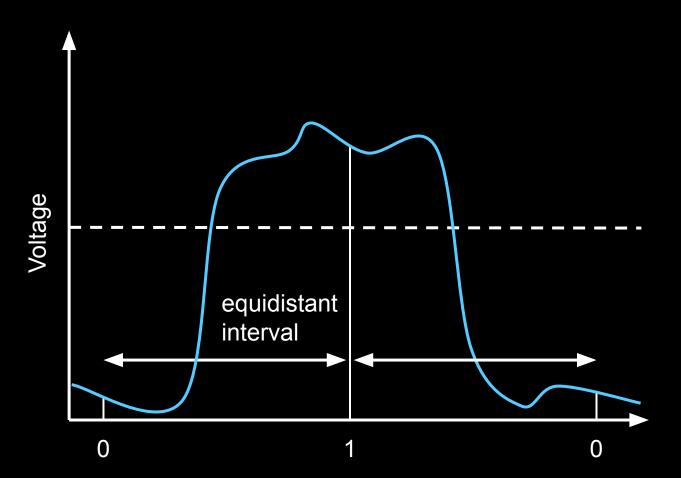


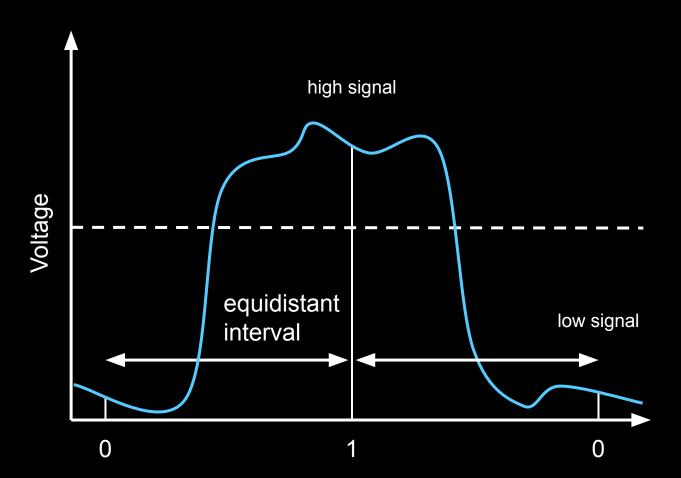




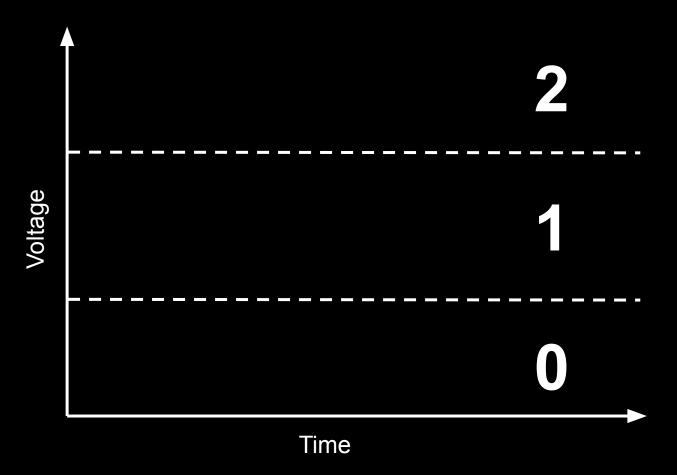


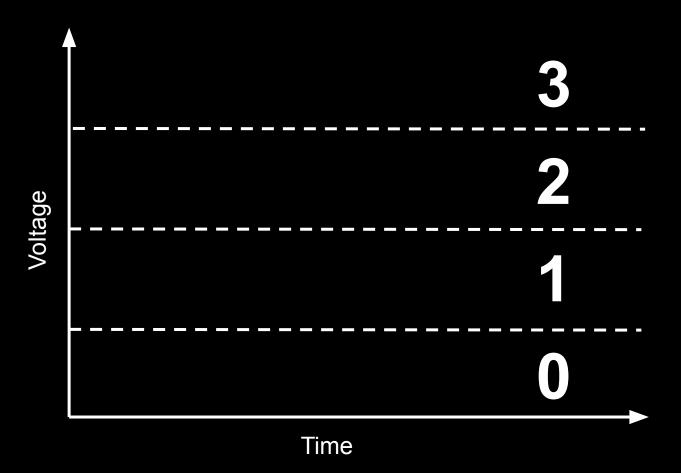


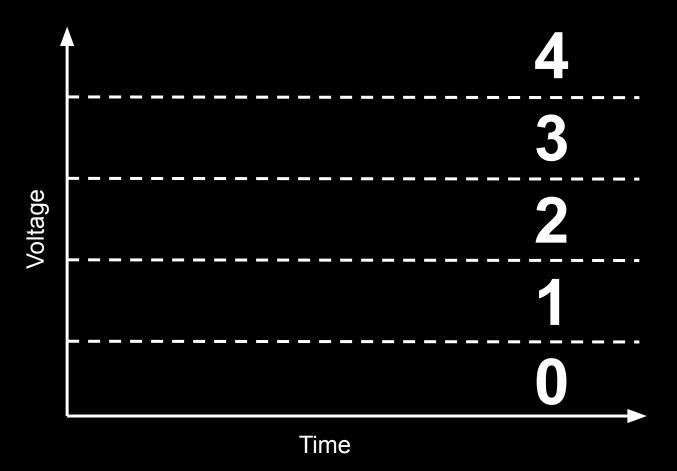


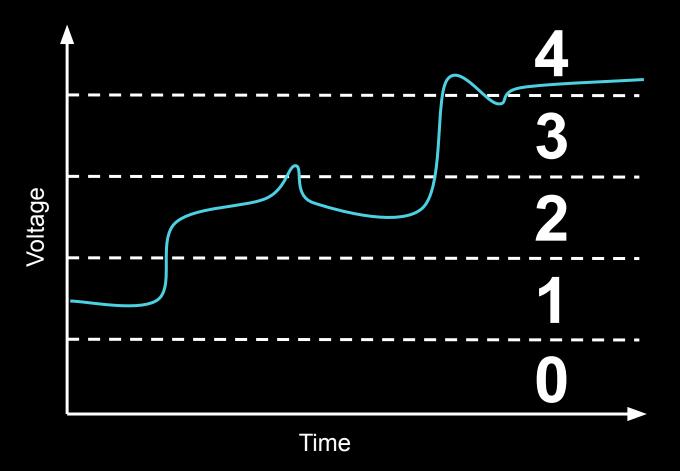


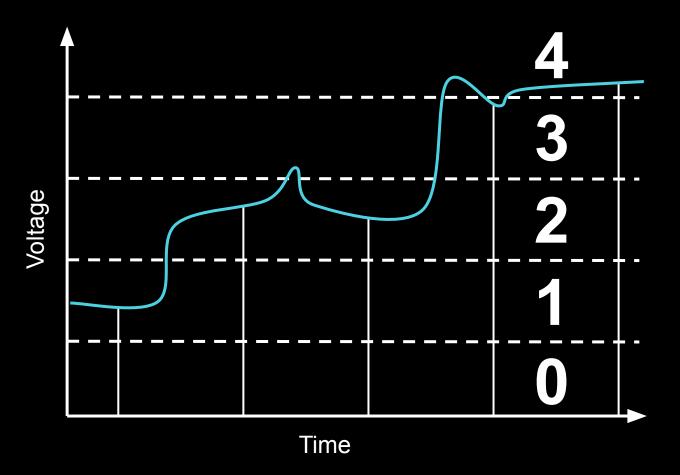
what about R > 2?

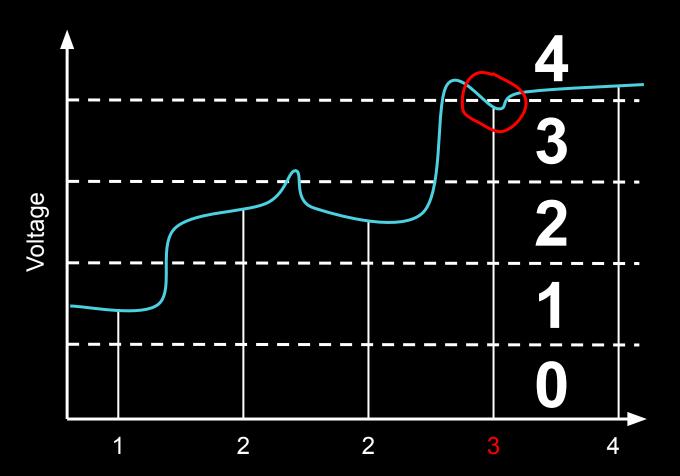












a higher base means less hardware

a higher base means less hardware but more complex devices

a higher base means less hardware but more complex devices and more errors