

“On two occasions I have been asked ‘If you put into the machine wrong figures, will right answers come out?’ I cannot comprehend the kind of confusion that could provoke such a question.” - *Charles Babbage*

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However, my dictionary defines a computer as "an electronic¹ machine for making calculations, and for storing and analyzing information". That definition pretty well excludes both the abacus and Babbage's machine, not to mention our fingers and toes, since none of these are electronic. By the dictionary's definition, the first true general-purpose computer was a room-sized monstrosity called ENIAC. This machine was built in 1946 at the University of Pennsylvania, entirely out of vacuum tubes² since the transistor³ hadn't been invented yet. ENIAC stood for "Electronic Numerical Integrator and Computer". Integrate means to combine, so in plain English, ENIAC was a machine used to combine numbers and figure things out (compute). It used an enormous amount of electricity but had less computing power than the average battery-powered laptop⁴ of today.

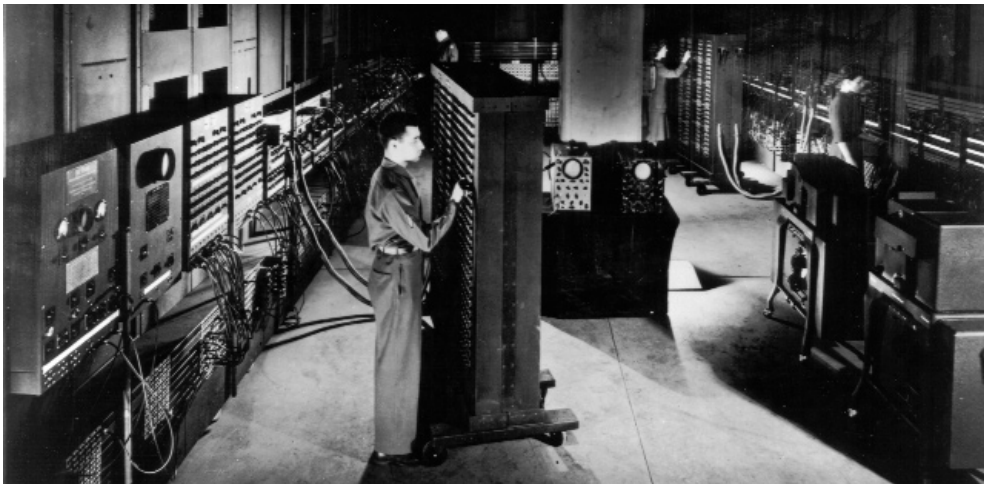


Photo: John W. Mauchly Papers, Rare Book & Manuscript Library
University of Pennsylvania

The ENIAC was as large as an entire room.

¹ Electronic: Having to do with the flow of electrons.

² Vacuum tube: A glass tube used to modify electric current

³ Transistor: A device using solid material (usually silicon) to modify an electric current. It does the same thing as a vacuum tube, but is much smaller, more durable and more efficient.

⁴ Laptop: A portable computer small enough to fit in your lap.

MODERN TIMES

With the invention of the transistor in 1947 and even more so with the Integrated Circuit⁵ in 1958, computers got smaller and much more power-efficient, but they were still quite large and expensive by today's standards. By the early 1970's, the smaller computers were still about the size of a refrigerator, and cost more than the average 3-bedroom house. Only large companies and institutions could afford to own computers.

In the late 1970's in a garage in San Jose, California a bright young guy named Steve Wozniak built a small computer designed for one person to use. The first models had cases made of wood, and they sold just as fast as Steve could build them in his garage. A company was formed to mass-produce them, and Steve and his partner Steve Jobs called their company "Apple Computer". Perhaps you've heard of it.



One of Apple's later computers, the Macintosh.

⁵ Integrated Circuit: A device that combines (integrates) many transistors and other components.

About this same time IBM decided the idea of a personal computer had some promise, and they set out to build their own. They called theirs the IBM Personal Computer, soon abbreviated to "PC", and the first ones hit the stores in 1981. The software⁶ to run these IBM machines was provided by a little start-up company in Seattle called Microsoft.



A more modern PC desktop computer

Almost right from the beginning, IBM chose to make public the inner workings of their machine, while Apple decided to keep theirs private. As a result, IBM now has many competitors making systems that are "IBM-compatible", but there are also lots of companies making lots of

nifty programs for this type of system. The IBM-type PC has become the most common type of computer throughout the world, and along the way, Bill Gates of Microsoft became for a while the world's richest man by providing much of the software for those PCs. On the other hand, Apple has the market all to themselves for the Apple and Macintosh-type computers, but it's only a sliver of the whole personal-computer market.

⁶ Software: Programs containing instructions for the computer.

Many otherwise calm and peace-loving people will gladly raise their blood pressure through the roof discussing whether Apple or IBM makes the best personal computer. Both sides have some hard facts to back up their arguments, and we don't wish to get caught in the middle of this debate. We must point out, however, that the A+ test covers only IBM-compatible systems, and no longer includes any questions about products from Apple Computer.