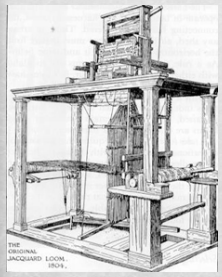
The Evolution of Information Technology: Origins

Ian King, Sr. Vintage Systems Engineer
Living Computer Museum
Vulcan, Inc.

Before the beginning: process automation



Before the beginning: tabulation

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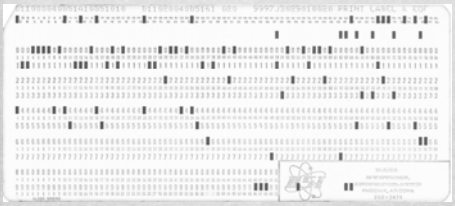
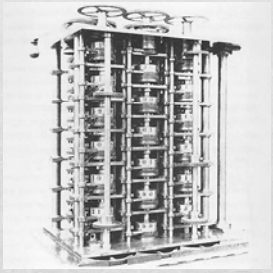
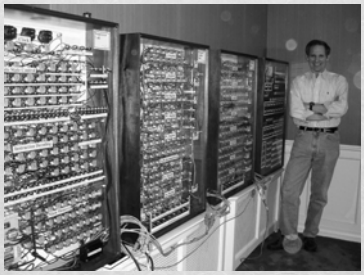


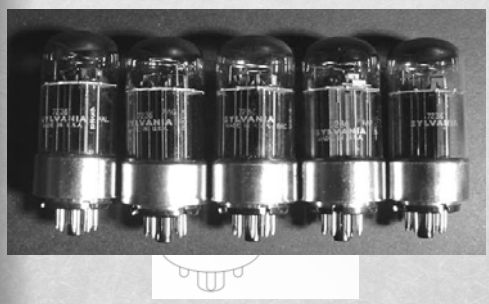
Before the beginning: automated calculation



~~Electronic~~ digital computer

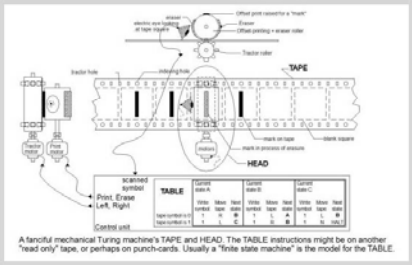


Electronic digital computer



Electronic ~~digital~~ computer

Electronic digital computer



A fanciful mechanical Turing machine's TAPE and HEAD. The TABLE instructions might be on another "read only" tape, or perhaps on punch-cards. Usually a "finite state machine" is the model for the TABLE.

First (?) electronic digital computer

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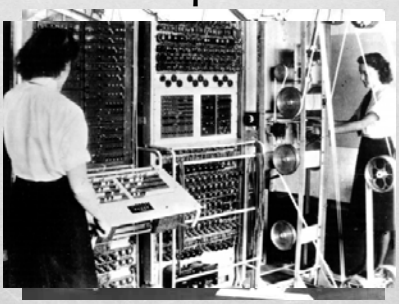
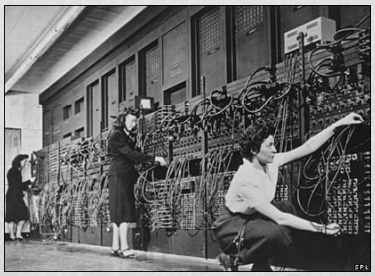


First (!) electronic digital computer

Programming the ENIAC



Program? Data?

The von Neumann approach

0010 0101 0001

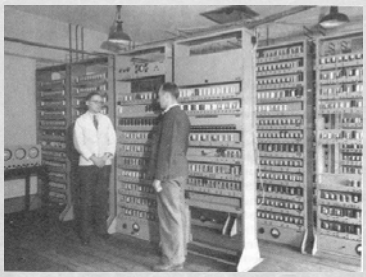
593_{10}

'IQ'

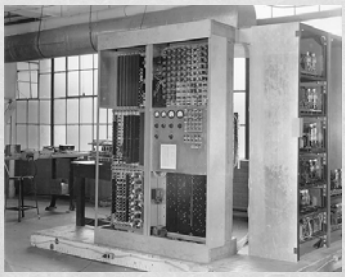
TAD 0001

- two's complement add, AC <- (location 0001) + AC

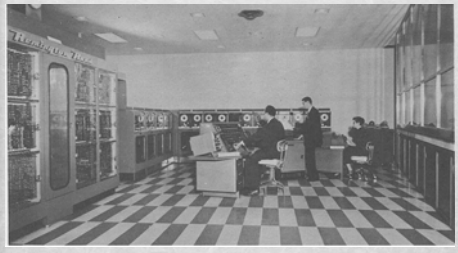
Stored Program Electronic Digital Computer



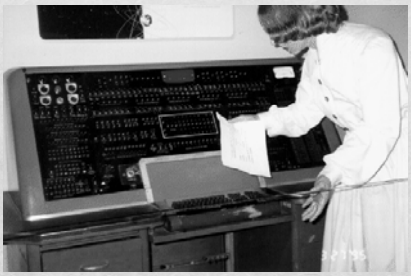
Stored Program Electronic Digital Computer



UNIVAC I



UNIVAC I



UNIVAC I

And what of IBM?

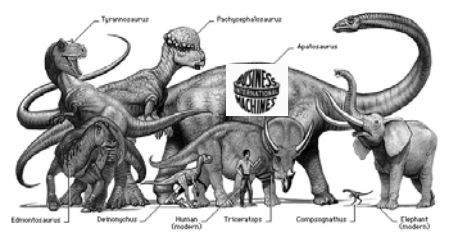
IBM's greatest hits

IBM System/360

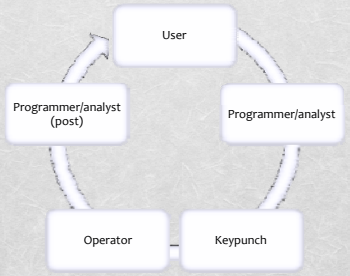
IBM System/360

IBM System/360

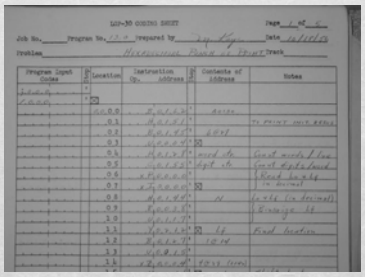
When dinosaurs ruled the earth



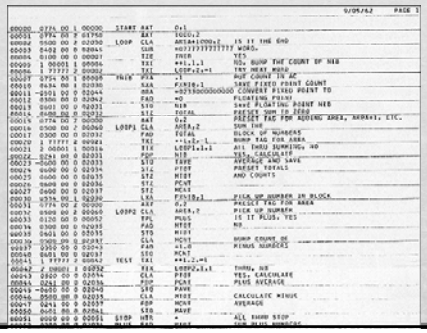
When dinosaurs ruled the Earth



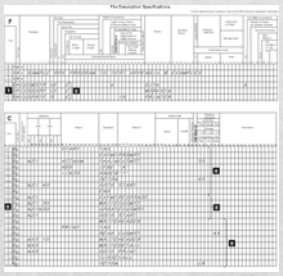
Programming paradigms



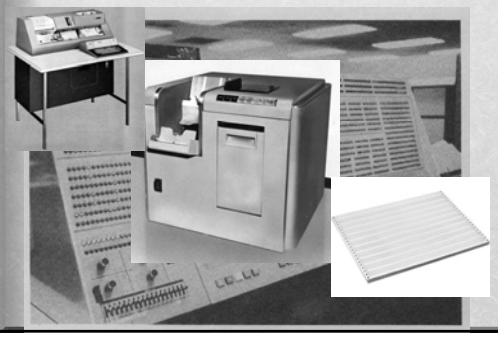
Programming paradigms



Programming paradigms



Computer/human interaction



Outliers: Whirlwind

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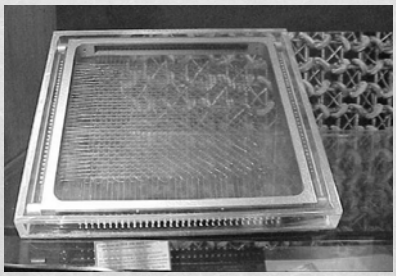


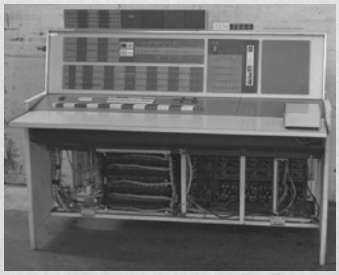
Outliers: SAGE

First powered: 1963
Retired: 1983

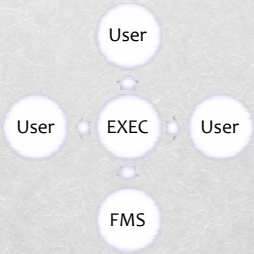
Weight: ~250 tons
Tube count: ~60,000

Outliers: SAGE

Outliers II



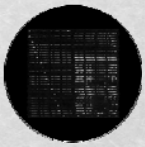
Outliers II:
Compatible Time Sharing System



Under the hood: working store

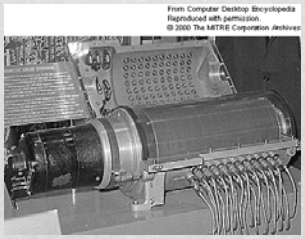
- Acoustic delay lines

- Williams tubes



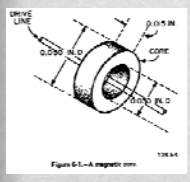
Building the machine: working store

- Magnetic drum



Building the machine: working store

- Magnetic core



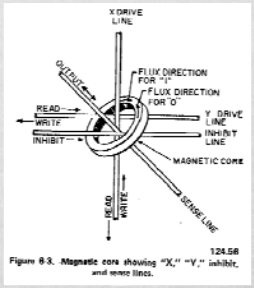
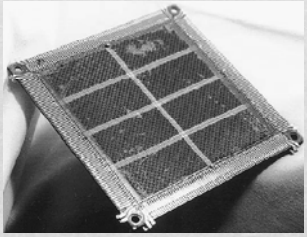


Figure 8-3. Magnetic core showing "X," "Y," inhibit, and sense lines.

Building the machine: working store

- Magnetic core



Questions?