

Problem Solving with C Language:

HISTORY OF COMPUTER

Computer is a machine which is capable of executing instructions on data and store it.

Analog/Digital was lectured firstly during the 1930's and 1940's at Moore School of Engineering and MIT. In terms of digital computer, its value is represented 0 or 1 (discrete) and in an analog computer its value ranging within limits of power supplies.

History of Computers:

1. Digital Computer was in form of Abacus 3000-4000 years ago.
2. Analog computer was in form of Abacus too and used as an calculator with operator of multiplier and divider. E.g. : Pascal Calculator



Source: https://en.wikipedia.org/wiki/Pascal%27s_calculator#/media/File:Pascaline-CnAM_823-1-IMG_1506-black.jpg

Program Storage:

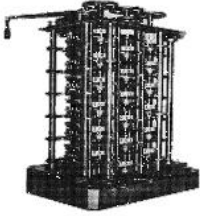
1. IBM Punch Card



Source : <https://twobithistory.org/2018/06/23/ibm-029-card-punch.html>

IBM punch card is a type of data storage to contain digital data in form of stiff paper. Punch cards is widely used as the primary platform for input with an organized semiautomatic data processing systems.

2. Babbage's Difference Engine

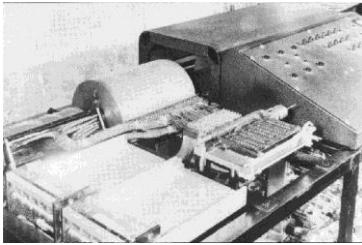


Source : <https://www.computerhistory.org/babbage/engines/>

Babbage difference engine invented by Charles Babbage, a computer pioneer. The engine uses only arithmetical addition. They crunch numbers and add consecutively by using the method of finite differences.

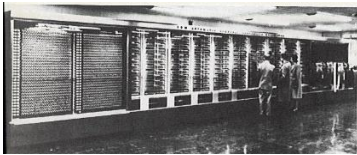
Early Computers:

1. Atanasoff-Berry Computer:



Created by Atanasoff and Berry on 1942, Atanasoff Berry Computer has a title as first automatic electronic digital computer. The computer designed only to solve linear equation by the Iowa State physics professor and the graduate student.

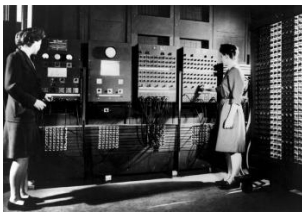
2. IBM Mark I



Source: <http://www.columbia.edu/cu/computinghistory/mark1.html>

IBM Mark I is a electromechanical computer invented by Mark I on 1944. IBM Mark 1 and used during the World War II to identify the viable positions to detonate a bomb.

3. ENIAC



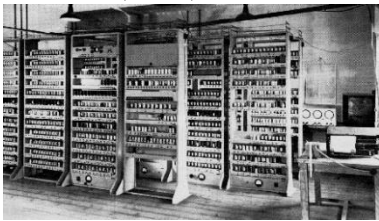
Source: <https://www.computerhistory.org/revolution/birth-of-the-computer/4/78>

Built by Frances Bilas and Jean Jennings on 1946, ENIAC stands for Electronic Numerical Integrator and Computer, and was designed to solve complex wartime ballistic tables proposed by the U.S. Army.

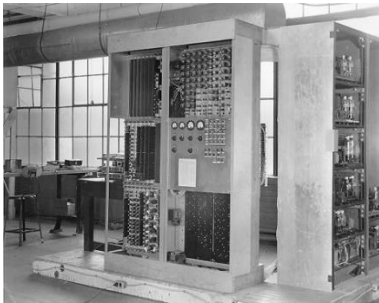
British Colossus was titled first but then dismissed due to its classification. German Zuse Z3 of 1941 then named as one.

US Early Computers:

1. ENIAC (1946)- Electronic Numerical Integrator and Computer
First business computers delivers to any business unit.
2. EDSAC (1949) – Electronic Delay Storage Automatic Calculator



3. EDVAC (1951) – Electronic Discrete Variable Automatic Computer



First Generation Computers:

The first generation of computers used magnetic drums for memory. In those era, the vacuum tubes are commonly used as the circuitry purposes because back then, there had not been any development of electric components. Its computers uses machine language as their base of operation, and it can only solve one problem at a time. It requires about days and even a week and the problem will be input py paper tapes, and the output will be printout. The examples of the first generation computers:

1. UNIVAC (1951) - UNIVersal Automatic Computer (performs add in 282 microsec).

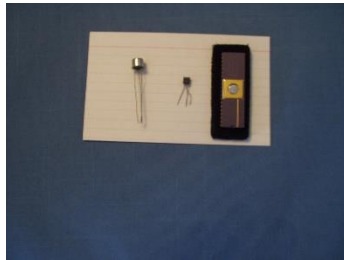


2. IBM 701 (1952)- Data Processing System.
3. IBM 650 (1953).
4. Vacuum Tubes



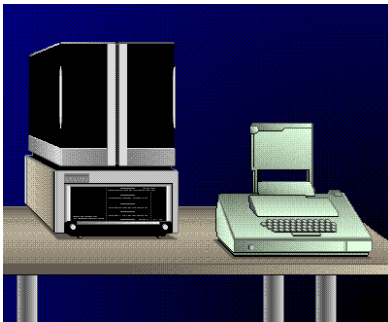
5. UNIVAC II (1955)- Partially transistorized, considered as generation one and a half.

Second Generation Computers



As the technology development continues, vacuum tubes became replaced by the widely use of transistors. Transistors were being used because of its compactibility- making circuits cheaper and more efficient. Second generation computers marked the changing from cryptic binary to more symbolic and assembly language. Examples of second generation computers:

1. TRADIC (1954) - Bell Labs first all-transistor computer.



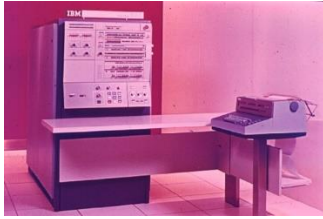
2. IBM 7070 & 7090 (1958)
3. IBM 1401 (1959)
4. CDC 6600 (1964)

Third Generation Computers

The third generation of computers are marked by the development of three orders of magnitude faster than the second generation. The look is remain the same from the first generation and it used

more integrated circuits to provide a solutions to more complex equations rather than discrete transistors, E.g.:

IBM 360 (1964)



Fourth Generation Computer

The fourth generation of computers has several characteristics:

1. Usage of microprocessors and integrated circuits
2. More affordable than third generation (Using more compact components)
3. Bandwidth considerably the same around 1MHz and an 2 GHz Pentium.

Microprocessors is brought up into the public, making multiple components built onto a single silicon chip. Smaller computers has become powerful than ever, creating a simultaneous network between devices which led to the development of the internet. Also, GUI, mouse, and handled devices are developed as well in this era.

Example:

Intel 8088

