

PERKEMBANGAN KOMPUTER

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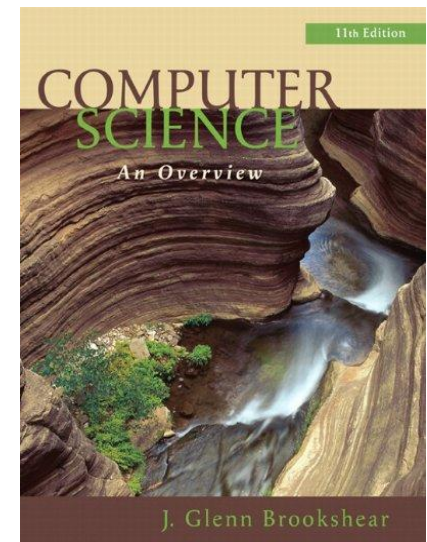
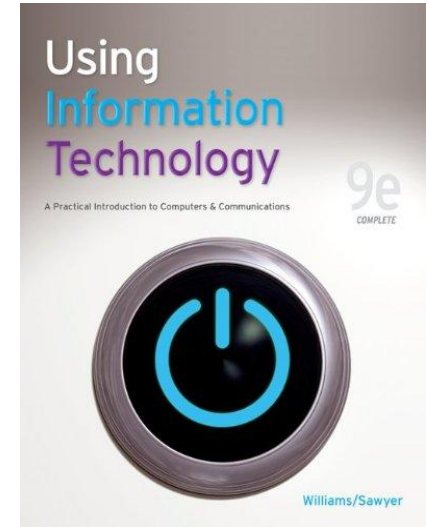
RENCANA KEGIATAN PERKULIAHAN SEMESTER

| W | Pokok Bahasan |
|---|---|
| 1 | Pengenalan Teknologi Informasi |
| 2 | Konsep Sistem Komputer & Pengenalan Perangkat Keras |
| 3 | |
| 4 | Data Storage |
| 5 | Perangkat Lunak |
| 6 | |
| 7 | Data dan Informasi |
| 8 | Ujian Tengah Semester |

| W | Pokok Bahasan |
|----|---|
| 9 | Komputasi Pemrograman |
| 10 | |
| 11 | Rekayasa Perangkat Lunak |
| 12 | Komunikasi data & Jaringan Komputer |
| 13 | |
| 14 | Etika dan dampak sosial teknologi informasi |
| 15 | Teknologi Terkini / Advance Topik |
| 16 | Ujian Akhir Semester |

Reference

- ▶ Bruce K William, Stacey C. Sawyer – Using Information Technology :A Practical Introduction to Computers & Communications 9th Edition (2010)
- ▶ J. Glenn Brookshear – Computer Science :An Overview 11th Edition (2011)



Review Last Week

- ▶ Data ?
- ▶ Information ?
- ▶ Information technology ?

Review Last Week

Data

- Data consist of the raw facts and figures that are processes into information

Information

Information Technology



Review Last Week

Data

- Data consist of the raw facts and figures that are processes into information

Information

- Data that has been summarized or manipulated for use in decision making

Information Technology



Review Last Week

Data

- Data consist of the raw facts and figures that are processes into information

Information

- Data that has been summarized or manipulated for use in decision making

Information Technology

- Any technology that helps to produce, manipulate, store, communicate, and/or disseminate information

Outline

History & Computer Evolution

Architecture of Von Neumann

Trend of Computer Application



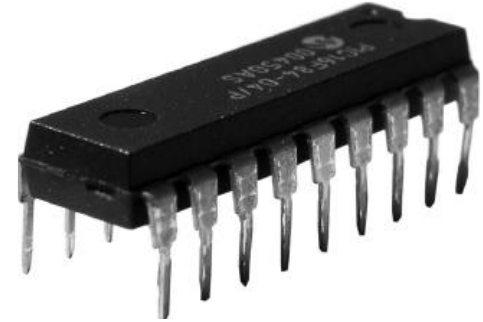
History & Computer Evolution



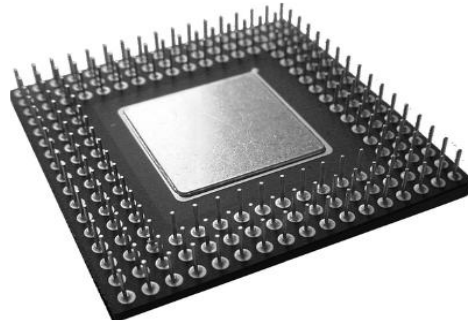
**First
Generation**



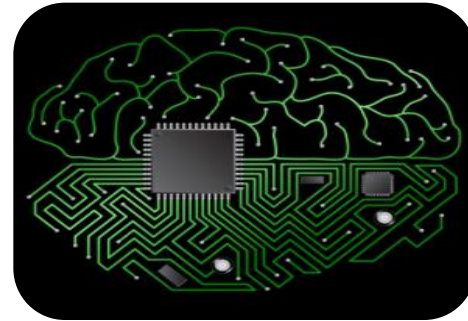
**Second
Generation**



**Third
Generation**

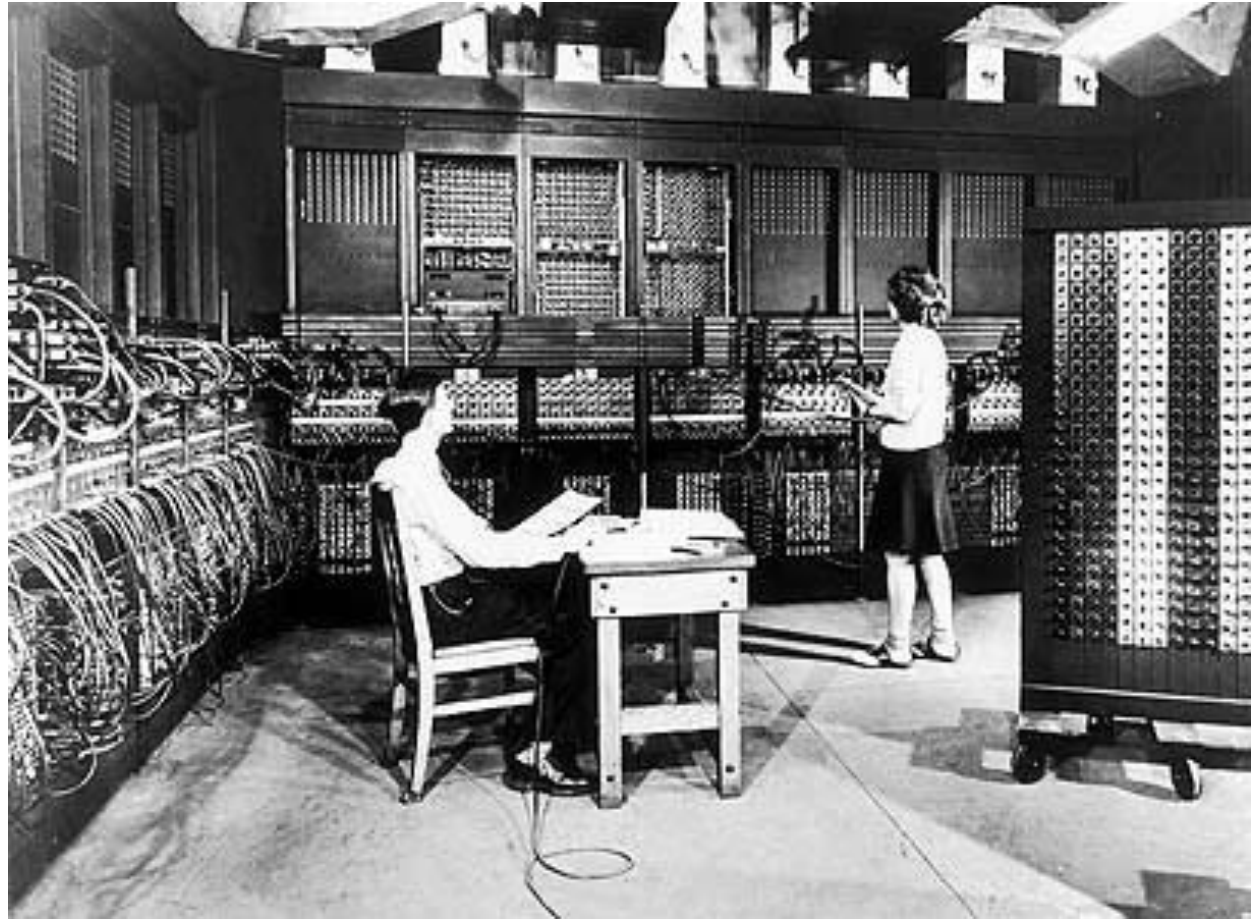


**Fourth
Generation**



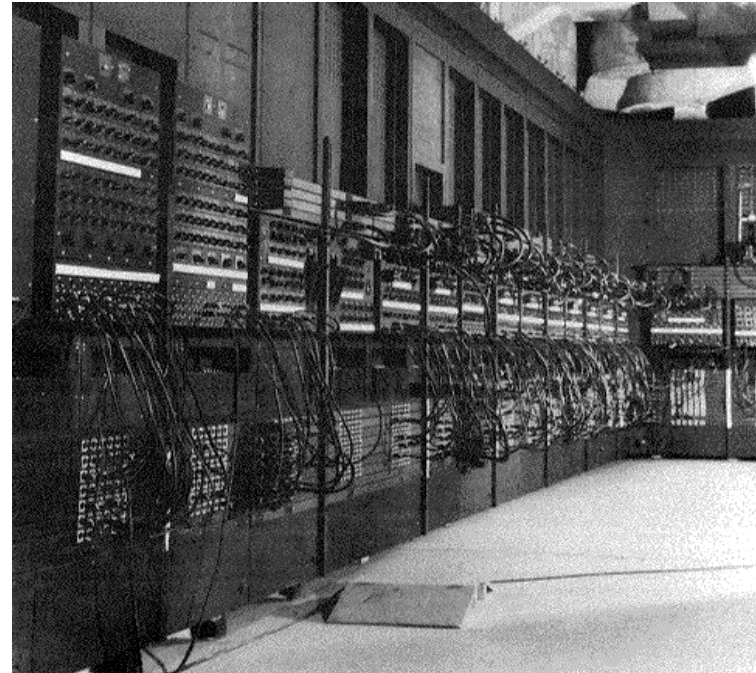
**Fifth
Generation**

First Generation



First Generation

- ▶ ENIAC (Electronic Numerical Integrator And Computer)
 - **John Mauchly** and **John Eckert**, proposed to build a general purpose computer using **Vacuum Tubes**
 - Started 1943 and finished 1946
 - Used until 1955



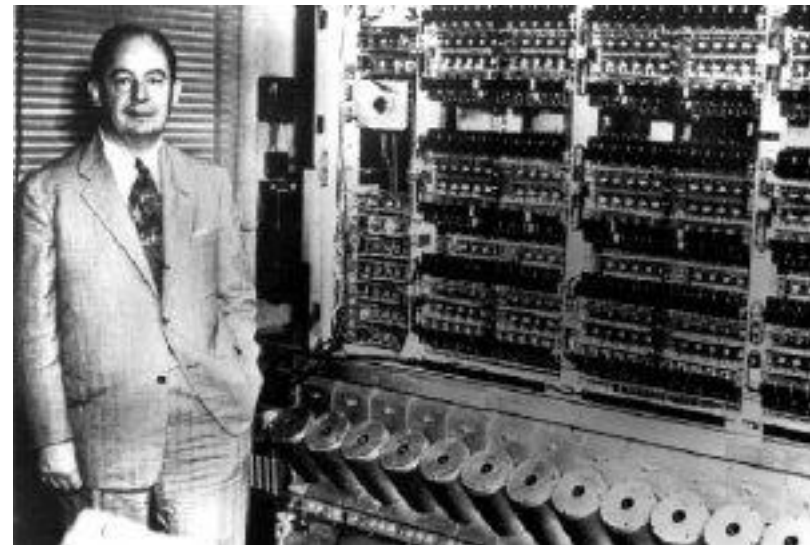
First Generation

▶ ENIAC – detail

- Decimal
- 20 accumulator of digits
- Program manually by switches
- 18,000 vacuum tubes
- 30 tons
- 15,000 square feet
- 140 kW power consumption
- 5000 additions per second

First Generation

- ▶ Von Neumann / Alan Turing
 - Princeton Institute for Advance Studies (IAS)
 - Store program concept
 - Main memory
 - Arithmetic Logic Unit
 - Control Unit
 - Input / Output equipment
 - Completed in 1952



Second Generation

▶ Transistor

- Replaced vacuum tubes
- Smaller
- Cheaper
- Less heat dissipation
- Solid state device
- Invented 1947 at Bell Labs



Second Generation

- ▶ 1947 Eckert – Mauchly Computer Corporation
- ▶ UNIVAC (Universal Automatic Computer)
- ▶ US Bureau of Census 1950 calculation
- ▶ Ex ;
IBM 701
IBM 702



Second Generation

▶ IBM 701

IBM 701 (1952)

Initially built for the U.S. Department of Defense. The first production machine shipped from Poughkeepsie, NY, to the IBM Technical Computing Bureau at World Headquarters in N.Y. City on Dec. 31, 1952.



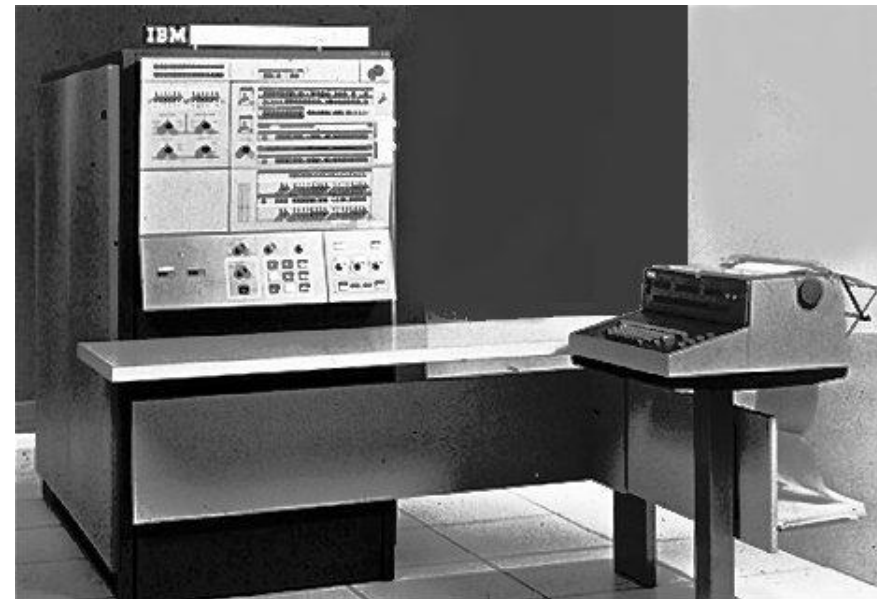
Second Generation

▶ IBM 702



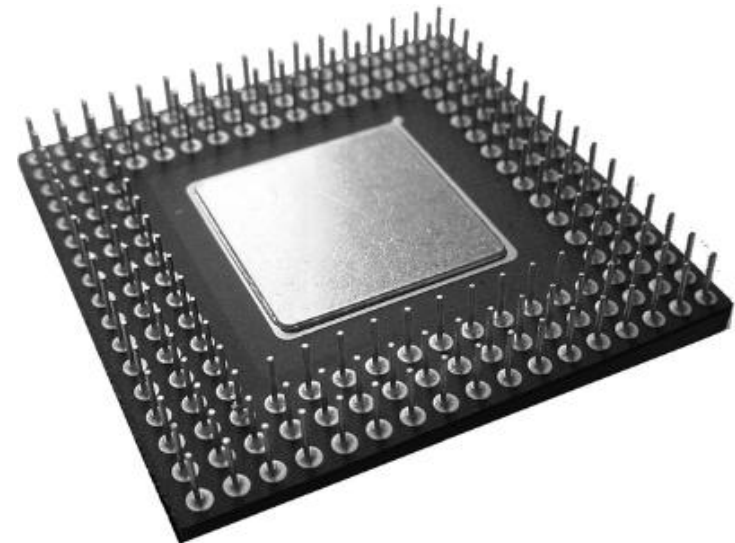
Third Generation

- ▶ Small scale integration circuits (100 transistor on chips)
- ▶ Integrated Circuit
- ▶ Bus structure
- ▶ Ex :
 - IBM 360
 - DEC PDP - 8



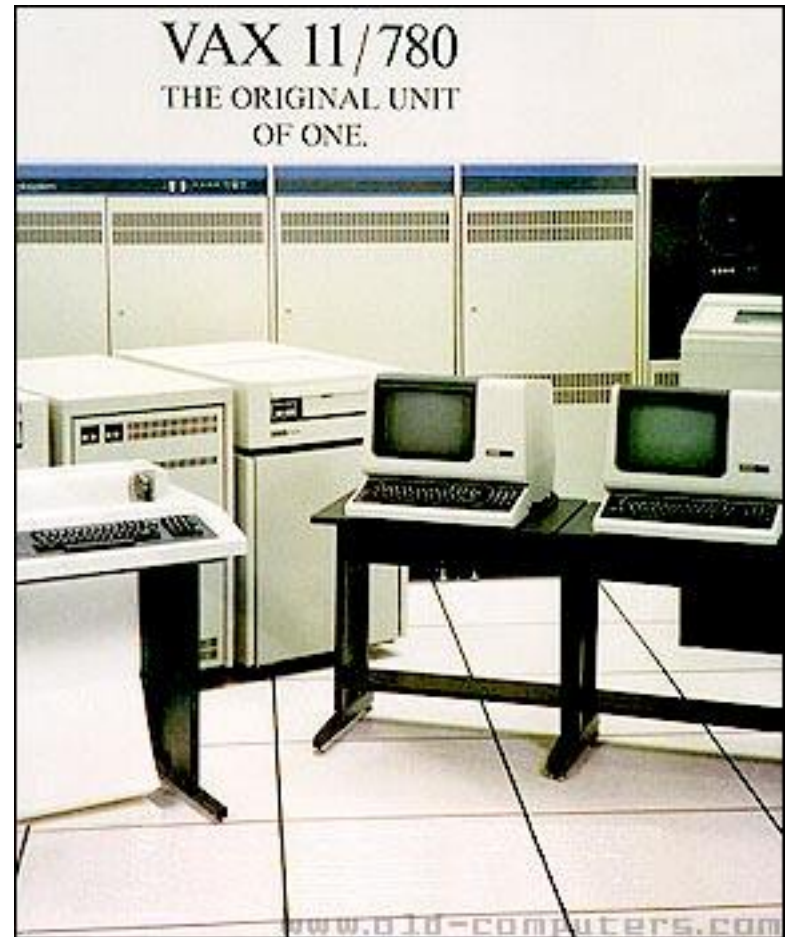
Fourth Generation

- ▶ Microprocessor
- ▶ Small
- ▶ Portable
- ▶ Reliable
- ▶ GUI
- ▶ Ex :
 - DEC VAX



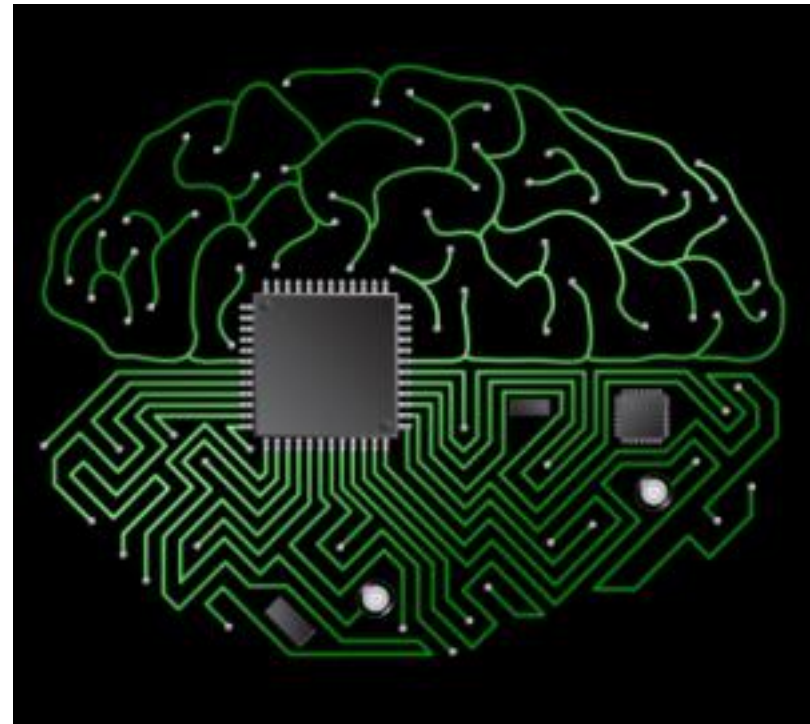
Fourth Generation

▶ DEC VAX



Fifth Generation

- ▶ Artificial Intelligence (Present - ...)
- ▶ Characteristic :
 - Mega chips
 - Parallel processing
 - Artificial Intelligence



Fifth Generation



The Evolution Of Computer

| | History |
|-------------------|--|
| First Generation | <ul style="list-style-type: none">• Using vacuum tube technology• Produce more heat• Easy to break down• Difficult to identify the problem whenever the computer becomes malfunction• Expensive• Data Processing not accurate |
| Second Generation | <ul style="list-style-type: none">• Using transistor• Small size• Low power usage• More efficient• Easy to use• Cheapest• Assembly Language |

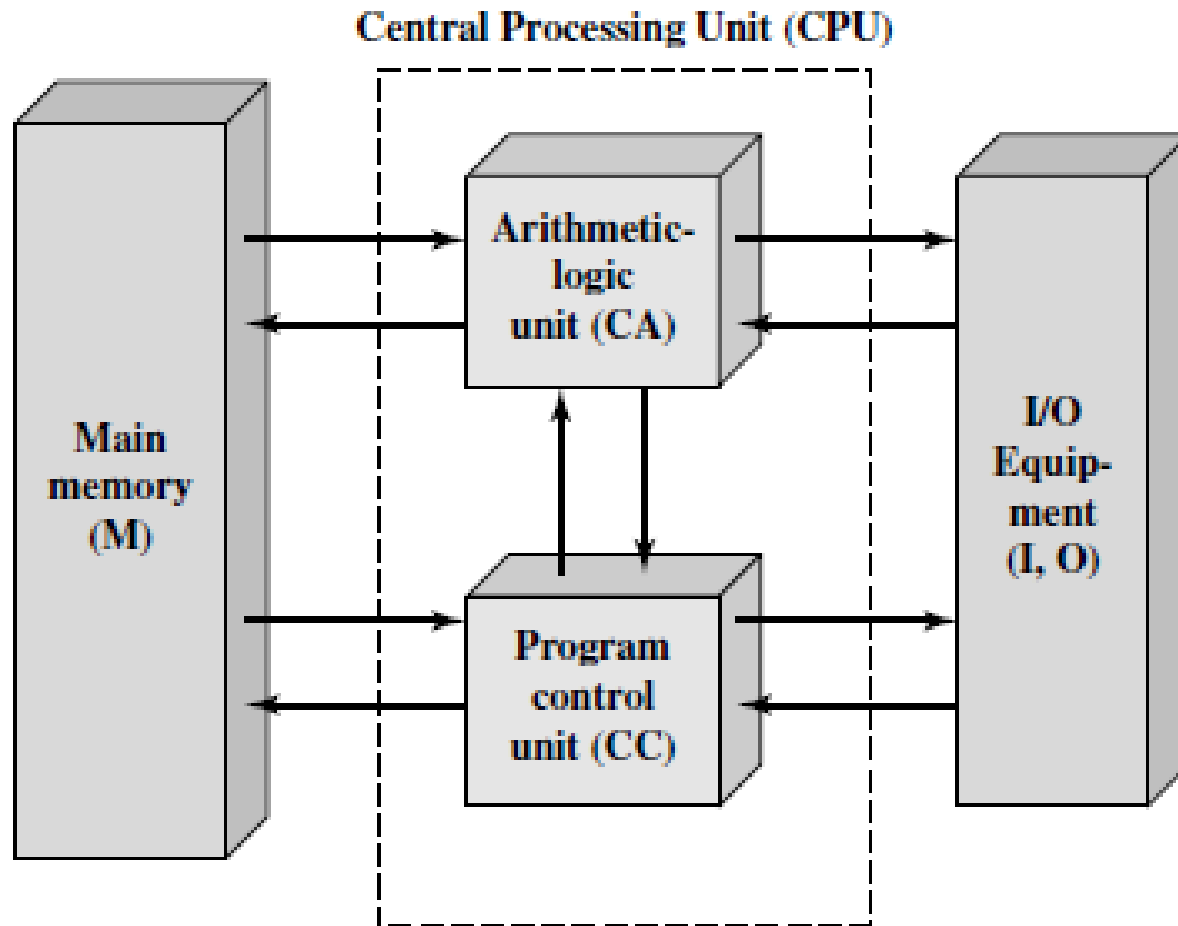
The Evolution Of Computer

| | History |
|-------------------|--|
| Third Generation | <ul style="list-style-type: none">• Using Integrated Circuit• Start implement multiprogramming concept and time sharing• Small size• Low power usage• More efficient• BASIC, PASCAL |
| Fourth Generation | <ul style="list-style-type: none">• Using Microprocessor• Using LSI technology (Large Scale Integration)• Main memory becomes more efficient, faster, and large |
| Fifth Generation | <ul style="list-style-type: none">• More sophisticated• Cheapest• Faster• have ability to see, listen, talk, think like human• Have AI |

Architecture of Von Neumann

- ▶ Computer designs are based on **John Von Neumann**
- ▶ Data and instruction are stored in a single read memory
- ▶ Execution occurs in a sequential fashion from one instruction to the next

Structure of The IAS Computer



Structure of The IAS Computer

- ▶ **Main memory** storing program and data
- ▶ **ALU** operating on binary data
- ▶ **Control Unit** interpreting instructions from memory and executing
- ▶ **I/O** equipment operated by Control Unit

Trend of Computer Application

▶ Augmented Reality



TERIMA KASIH