# Microprocessors and Micro controllers
# CSE3815

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# Evolution of Microprocessors

There should be overview chart of difference between intel 4004 to pentium 4.

## Microprocessors:

‘-->Is a semiconductor device consisting of electronics logic circuit.
‘--->Manufactured by using various fabrication schemes.
‘---->Capable of performing computing functions.
‘----->Capable of transporting data/information.

Can be divided into 3 segments:
    (-)Arithmetic adn logic unit
    (-)Registers unit
    (-)Control unit

## Von Neumann Machine:

Von Neumann machine may refer to: Von Neumann architecture, a conceptual model
of nearly all computer architecture

Three key concepts:
(-)Data and instructions are stored in a single set of read-write memory.
(-)Contents of memory are accessed by memory address without regard to the type
    of data.
(-)Execution occurs in a sequential fashion, unless explicitly stated otherwise.

## Computer System Components:

(-) Memory:
      Stores data and instructions.
(-) Input/Output:
      Called peripherals.
      Used to input and output data and instructions.
(-) Arithmetic and Logic Unit:
      Performs arithmetic(+, -)  operations.
      Performs logical(AND, OR, XOR, Shift, Rotate) operations.
(-) Control Unit:
      Coordinates the execution of instructions by managing the flow of data
        between the CPU's components.
(-) System Interconnection and Interaction:
      (+)BUS: A group of lines used to transfer bits between µp and other components.
          Bus is used to communicate between parts of the computer. There is only
          one transmitter at a time and only the addressed device can respond.
          ^\types:
              >>address
              >>data
              >>control

## CPU Components:

(-) Registers:

Holds data, instructions or other items. Program counter and memory address registers must be of same size/width as address bus. Register which holds data must be of same size/width as memory words.

(-) Control Unit: