Introduction to Computer, Number System & adding/dropping procedure

Course Code: CSC 1101 Course Title: Introduction to Computer Studies

Dept. of Computer Science
Faculty of Science and Technology

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Lecture Outline

- List of topics,
  - ✓ Introduction to Computer
  - ✓ IT Essentials-Chapter 1
  - ✓ Number System
  - ✓ Course Adding/Dropping procedure

Specific Objectives

- Will have a discussion on,
  - ✓ What is a Computer?
  - ✓ How does Computer work?
  - ✓ Familiarization with basic Input and Output Devices
  - ✓ What is number system
  - ✓ Conversion between various number system(any base to any other base)
  - ✓ Significance of Number system in computing
  - ✓ Discussion about the procedure of course adding and dropping

Introduction to Computer

What is a Computer?

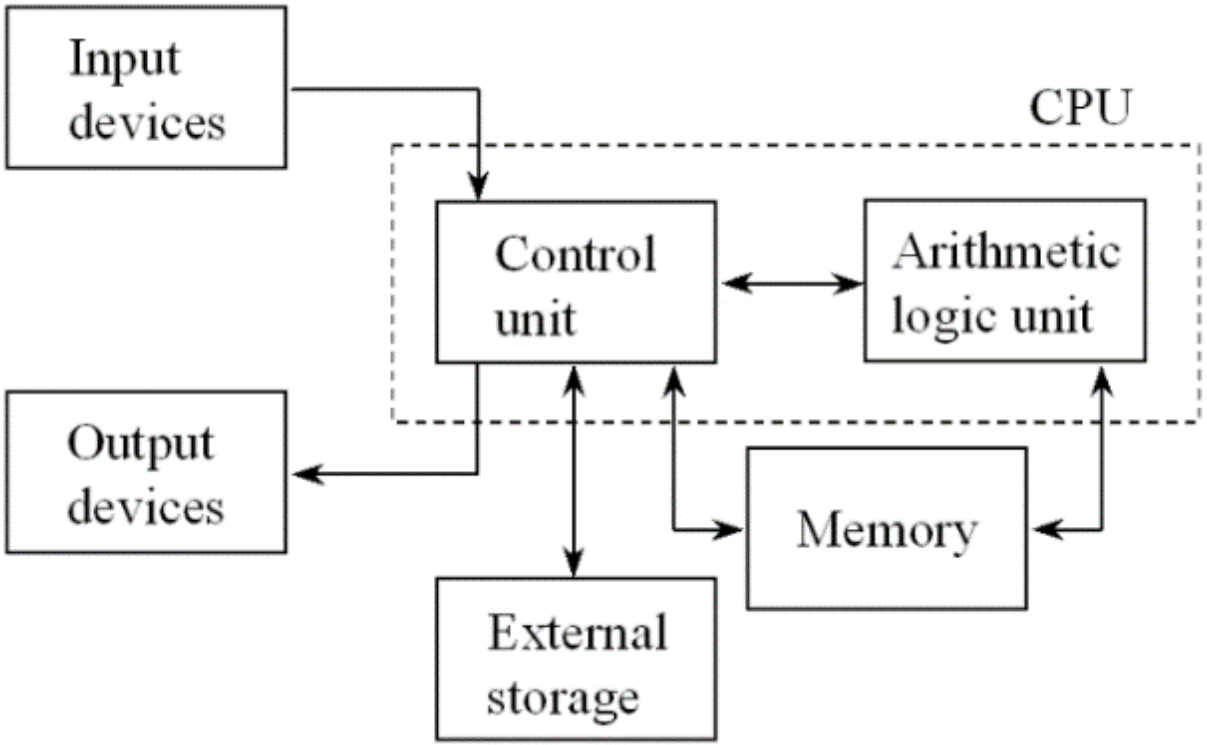
A computer is an electronic device, operating under the control of instructions stored in its own memory that can

- ✓ accept or receive data as input
- ✓ produce information as output[process the data according to specified rules]
- ✓ store the information for further use and
- ✓ retrieve data whenever desired

Introduction to Computer

How computer does work?

Let's consider this simple architecture to understand how computer works,



How computer does work?

Computer works by combining input, storage, processing, and output. All the main parts of a computer system are involved in one of these four processes.

- ***Input***

Any information or data sent to a computer for processing is considered as input.

- ***Memory/storage:***

Storage is a process through which digital data is saved within a data storage device by means of computing technology either temporarily or permanently

How computer does work?

- ***Processing:***

Known as the central processing unit(CPU) and brain of the computer. It is responsible for all functions and processes and most important element of a computer system. Main Parts of CPU are,

- Arithmetic Logic Unit(ALU)
- Control Unit(CU)

- ***Output:***

Anything that comes out of a computer considered as output. it can be meaningful information and may appear in a variety of forms –

- binary numbers
- Characters
- Pictures
- printed pages

I/O Devices

Input Device

Input device is a piece of computer hardware equipment to provide data and control signals to an information processing system such as a computer or other information appliance. Some of most common input devices are-

- Keyboard
- Mouse (pointing device)
- Microphone
- Touch screen
- Scanner
- Webcam, etc.

I/O Devices

Output Device

An output device is a piece of computer hardware equipment used to-

- communicate the results of data processing
- converts the electronically generated information into human readable form.

Some of common output devices are-

- Monitor
- Speaker
- Printer
- Projector

IT Essentials

Chapter-1

Chapter 1: Introduction to Personal Computer Hardware

- ✓ We will find more details description in the CISCO modules which are available on CISCO account.

Number System

What is number system?

- ✓ Number System is a technique which defines how to represent a number in the computer system architecture.
- ✓ Defines how same number can be represented differently in different number system using distinct symbols.

Number System

Types of number system?

- ✓ **Two types number system we have**
  - Non-positional number systems
  - Positional number systems

Types of Number System

Non-positional number systems

- ✓ Use symbols such as I for 1, II for 2, III for 3, IIII for 4, IIIII for 5, etc.
- ✓ Each symbol represents the same value regardless of its position in the number
- ✓ The symbols are simply added to find out the value of a particular number
- ✓ It is difficult to perform arithmetic with such a number system

Types of Number System

Positional number systems

- ✓ Use only a few symbols called digits
- ✓ These symbols represent different values depending on the position they occupy in the number
- ✓ The value of each digit is determined by:
    1. The digit itself
    2. The position of the digit in the number
    3. The base of the number system
- ✓ The maximum value of a single digit is always equal to one less than the value of the base

Types of Number System

Positional number systems

- ✓ Some examples of Positional Number System,
  - Binary number system
  - Octal number system
  - Decimal number system
  - Hexadecimal (hex) number system

Positional Number System

Decimal number systems

- ✓ A positional number system
- ✓ Has 10 symbols or digits (0, 1, 2, 3, 4, 5, 6, 7,8, 9). Hence, its base = 10
- ✓ The maximum value of a single digit is 9 (one less than the value of the base)
- ✓ Each position of a digit represents a specific power of the base (10)
- ✓ We use this number system in our day-to-day life

Positional Number System

Binary number systems

- ✓ A positional number system
- ✓ Has only 2 symbols or digits (0 and 1). Hence its base = 2
- ✓ The maximum value of a single digit is 1 (one less than the value of the base)
- ✓ Each position of a digit represents a specific power of the base (2)
- ✓ This number system is used in computers

Positional Number System

Octal number systems

- ✓ A positional number system
- ✓ Has total 8 symbols or digits (0, 1, 2, 3, 4, 5, 6, 7).Hence, its base = 8
- ✓ The maximum value of a single digit is 7 (one less than the value of the base
- ✓ Each position of a digit represents a specific power of the base (8)

Positional Number System

Hexadecimal number systems

- ✓ A positional number system
- ✓ Has total 16 symbols or digits (0, 1, 2, 3, 4, 5, 6, 7,8, 9, A, B, C, D, E, F). Hence its base = 16
- ✓ The symbols A, B, C, D, E and F represent the decimal values 10, 11, 12, 13, 14 and 15 respectively
- ✓ The maximum value of a single digit is 15 (one less than the value of the base)

Number System

Conversion

- Decimal to Binary
- Binary to Decimal
- Octal to Binary
- Binary to Octal
- Hexadecimal to Binary
- Binary to Hexadecimal
- Converting a number of any base to a number of another other base

Number System

Significance of Number System in Computing

- In order to understand the language used by computers and other digital system it is crucial to have a better understanding of number system.

Course Adding/ Dropping Procedure

1. All ADD/DROP procedure can be completed online.

2. Login into the VUES account Click ADD/DROP button
Select the courses to ADD/DROP Click CONFIRM button.

3. Full Course Fee should be paid for the Added Courses within 24 hours. The printout for the payment must be collected from the concerned department.

4. 10% Penalty will be charged for dropped course.

Course Adding/ Dropping Procedure

5. Minimum load should be maintained even after dropping (as per following table):

Program	Minimum Number of credits	
	Regular Load	*Load for Discount/Scholarship*
Undergraduate	12	14-15

6.Adding / Dropping is not allowed for PROBATION STUDENTS.

7. A student can Add or Drop a course after first week of a semester.

8. In case of **less than 12 credits** approval must be taken from **Dean / Director**.

Books

i. Computer Fundamentals by Pradeep K. Sinha & Priti Sinha
ii. http://mycsvtunotes.weebly.com/uploads/1/0/1/7/10174835/computer_fundamental_complete-i.pdf

References

i. https://www.explainthatstuff.com/howcomputerswork.html#computer
ii. https://www.gr8ambitionz.com/2015/01/how-computers-work.html
iii. http://www.just.edu.jo/~mqais/CIS99/PDF/Ch.01_Introduction_%20to_computers.pdf
iv. https://www.techopedia.com/definition/1115/storage
v. https://www.webopedia.com/TERM/O/output.html