APPLICATIONS OF ICT

CREDITS HOURS: 2+1

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PRESENTATION CREDITS

- “Introduction to Computer” by Peter Norton
- “Using Information Technology” by Williams and Sawyer
- “Let us C” by Yashavant Kanetkar
- “A First Book of C++” by Gary J. Bronson

WHAT IS INFORMATION TECHNOLOGY

- Fusion of computer and communication technology
- Computer Technology
  - programmable, multiuse machine that accepts data and processes it into usable information
    - summaries, totals, or reports
  - used to speed up problem solving and increase productivity.

WHAT IS INFORMATION TECHNOLOGY

- Communication Technology
  - consists of electromagnetic/optical devices and systems for communicating over long distances
- merges computing with high-speed communications links carrying data, sound, and video

EXERCISE

- **How have you been using computer Technology in your life?**

SOME EXAMPLES OF IT

Image Courtesy: www.ivci.com/newsletter0907part2.html

SOME EXAMPLES OF IT

- GPS Tracking
  - Track your vehicles, wherever they go, using

Image Courtesy:www.miamidetectiveservices.com

EXERCISE

- **List some other uses of**
  - Computer Technology
  - Communication Technology

ABOUT THE COURSE

- **Prerequisites: None**
- **Course Overview**
  - This is an introductory course on Information and Communication Technologies (ICT). Topics include ICT terminologies, hardware and software components, the internet and world wide web, and ICT based applications

THE COMPUTER DEFINED

- A device that computes
- Electronic device
- Converts data into information
- Modern computers are digital
  - Two digits combine to make data (1s and 0s)
- Older computers were analog
  - A range of values made data

COMMUNICATION DEFINED

- Communication: To transfer data/information from one point to another
  - Using Wires
    - Electrical Signals
    - Optical Signals (Light)
  - Wirelessly
    - ElectroMagnetic Waves

RELATED IT TERMS

- What is a Network?
  - communications system connecting two or more computers with/without wires
- What does being online mean?
  - using a computer or other information device, connected through a voice or data network, to access information and services from another computer or information device

RELATED IT TERMS

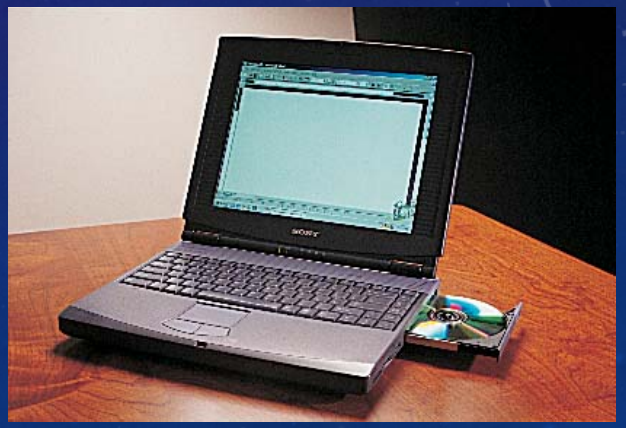
- The E-word ; E Stands for Electronic
  - E-mail
  - E-learning
  - E-business
  - E-commerce
  - E-government

COMPUTERS FOR INDIVIDUAL USE

- Desktop computers
  - The most common type of computer
  - Sits on the desk or floor
  - Performs a variety of tasks
- Workstations
  - Specialized computers
  - Optimized for science or graphics
  - More powerful than a desktop

COMPUTERS FOR INDIVIDUAL USE

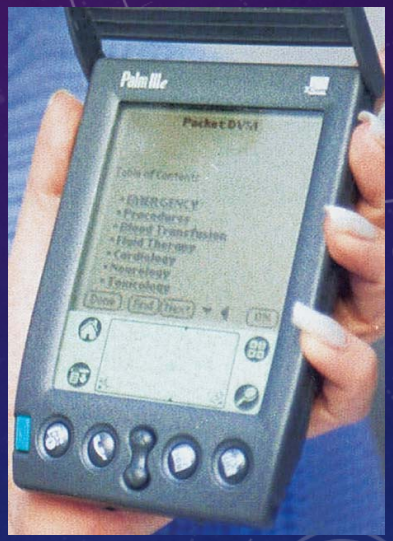
- Notebook computers
  - Small portable computers
  - Weighs between 3 and 8 pounds
  - About 8 ½ by 11 inches
  - Typically as powerful as a desktop



COMPUTERS FOR INDIVIDUAL USE

- Tablet computers
  - Newest development in portable computers
  - Input is through a pen
  - Run specialized versions of office products

COMPUTERS FOR INDIVIDUAL USE



- Handheld computers
  - Very small computers
  - Personal Digital Assistants (PDA)
  - Note taking or contact management
  - Data can synchronize with a desktop
- Smart phones
  - Combination of cell phone and PDA
  - Web surfing, e-mail access

SMART PHONE:

- Features
  - Phone
  - Internet (Email, Browsing)
  - Camera
  - Video Recording

COMPUTERS FOR ORGANIZATIONS

- Network servers
  - Centralized computer
  - All other computers connect
  - Provides access to network resources
  - Multiple servers are called server farms
  - Often simply a powerful desktop

COMPUTERS FOR ORGANIZATIONS

- Mainframes
  - Used in large organizations
  - Handle thousands of users
  - Users access through a terminal

COMPUTERS FOR ORGANIZATIONS

- Minicomputers
  - Called midrange computers
  - Power between mainframe and desktop
  - Handle hundreds of users
  - Used in smaller organizations
  - Users access through a terminal

COMPUTERS FOR ORGANIZATIONS

- Supercomputers
  - The most powerful computers made
  - Handle large and complex calculations
  - Process trillions of operations per second
  - Found in research organizations

SPECIALIZED COMPUTERS

- Microcontrollers
  - also called embedded computers.
  - tiny, specialized microprocessors installed in

COMPUTERS EVERYWHERE

- Not just Desktops, Workstations, Tablet PCs, Handheld PCs (PDAs), Servers, Mainframe computers, Minicomputers
- But also…
  - Cell phones
  - Alarm Clocks
  - Microwave Ovens
  - Lighting control in a building
  - Washing Machines

COMPUTERS IN SOCIETY

- More impact than any other invention
  - Changed work and leisure activities
  - Used by all demographic groups
- Computers are important because:
  - Provide information to users
  - Information is critical to our society
  - Managing information is difficult

EXERCISE

- Generate a list of ways the computer/IT has impacted the world.
  - Include both positive changes and negative changes.
  - think creatively.

EXERCISE

- How difficult would it be to live without computers?

COMPUTERS IN SOCIETY

- Computers at home
  - Business
  - Entertainment
  - Communication
  - Education

COMPUTERS IN SOCIETY

- Computers in education
  - Computer literacy required at all levels
- Computers in small business
  - Makes businesses more profitable
  - Allows owners to manage
- Computers in industry
  - Computers are used to design products
  - Assembly lines are automated

COMPUTERS IN SOCIETY

- Computers in government
  - Necessary to track data for population
    - Police officers
    - Tax calculation and collection
  - Governments were the first computer users

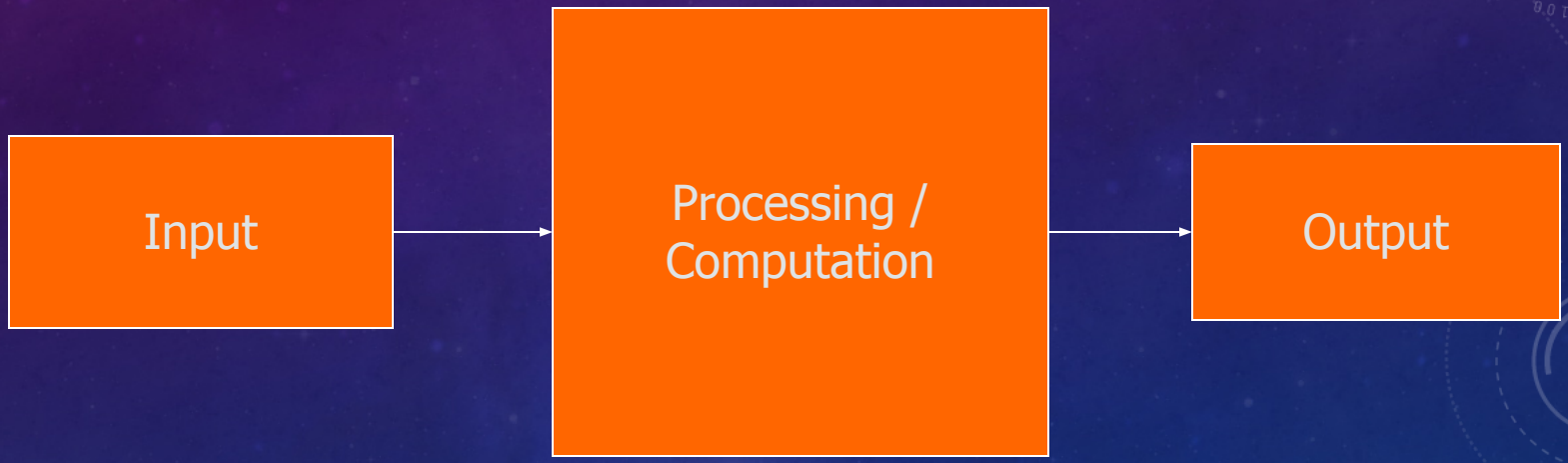
COMPUTERS IN SOCIETY

- Computers in health care
  - Revolutionized health care
  - New treatments possible
  - Scheduling of patients has improved
  - Delivery of medicine is safer

MOVING ON TO COMPUTER…

WHAT IS A COMPUTER?

a device that computes



WHAT IS PROCESSING?

- Conversion of Data into Information
- Data
  - The raw facts and figures that are processed into information
- Information
  - Data that has been summarized or otherwise manipulated for use in decision making

Place the following Data Items into Categories

TYPES OF DATA

- Numeric
  - Record Daily Milk Expenses
    - Sun 20 Rs
    - Mon 30 Rs
    - Tues 35 Rs
    - Wed 23 Rs
    - Thurs 34 Rs
    - Fri 50 Rs
    - Sat 30 Rs

TYPES OF DATA

- Numeric
  - Processing Data
    - Finding Weekly expenditure on Milk
    - Finding a Daily Average of

TYPES OF DATA

- Text
  - Raw:

one of the most important concepts students must understand is the fundamental difference between data and information

  - Processed (1): Formatted

"One of the **most important concepts** students **must understand** is the fundamental ***difference between data and information*** ."

  - Processed (2): Words arranged alphabetically

and between concepts data difference fundamental important information is most must of one students the the understand

TYPES OF DATA

- Image
  - Raw

  - Processed

TYPES OF DATA

- Image
  - Other Examples
    - Fingerprint Recognition
    - Arrangement of your photo albums on PC

TYPES OF DATA

- Audio
  - Raw: Conversation between people of aircraft and Flight Controller recorded in Black box
  - Processed: In case of air crash, the recorded audio will be converted to digital form, background noise will be removed, and the clarity of speech will be improved to assist investigators

TYPES OF DATA

- Video
  - Raw: Old Black and White movies
  - Processed: Black and white movie made colored

  - Raw: Any Video in foreign language
  - Processed: Dub it in Urdu

ASSIGNMENT # 2

- Think and name any other form of Data.

  Other than numeric, text, image, audio, video

- Think and describe in what ways can that form of Data be processed.

CONCEPT CHECK

- What are the two key components of information technology?

CONCEPT CHECK

- Arrange the five sizes of computers from largest to smallest?

- Mainframe, microcomputer, microcontroller, supercomputer, workstation,,

CONCEPT CHECK

- Which size of computer is also called an “embedded computer” ?

CONCEPT CHECK

- What is the term for a computer used to hold collections of data and programs for connecting PCs, workstations, and other devices?

CONCEPT CHECK

- What is the difference between data and information