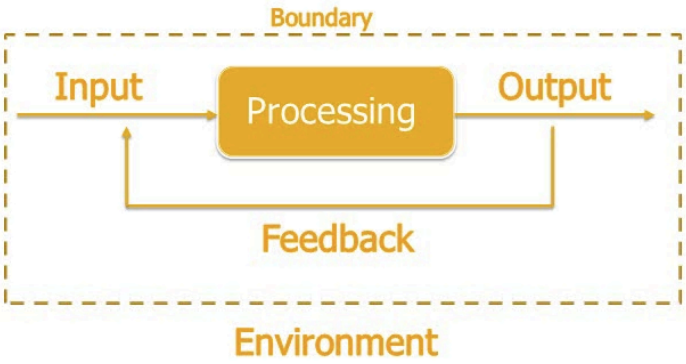
INFS1001 SEMESTER NOTES

INFORMATION SYSTEMS CONCEPTS

THE CONCEPT OF IS

- Conceptual System Structure:



- Diagram describes a general system that can be applied to other systems
- Eg. Australia Post – Letters come in and go out to be sent, but some must be reprocessed if they must change facilities

What is an information system?

- System
  - Collection of objects working together for a common goal
  - Usually inter-related
    - Depend to a significant extent upon each other
    - Systems can be collections of systems
    - If one system is not working correctly, this can affect the larger system
- Information system
  - Set of interrelated components that collect, manipulate, and disseminate data and information, and provide feedback to meet an objective
  - Examples:
    - Books
    - PlayStation
    - Apple watch
    - ATM

DATA AND INFORMATION

Data

- Why is data important?
- Data are the basis of all information technology
- Every IT application uses data

- Data can be used to provide insight into trends

Issues with Data

- Data on their own may be cumbersome
    - Error-prone
    - Hard for humans to understand
    - Often takes a lot of space
        - Now able to store it more easily and cheaply
- We can *process* the data to make them more useful

Processing

- Definitions:
    - "Activities that organise, analyse, and manipulate data" (O'Brien)
    - "A set of logically related tasks performed to achieve a defined outcome" (Stair)
    - "The act of applying **knowledge** by selecting, organising and manipulating raw inputs" (Stair)

Information

- Data, once processed, becomes information
- Information is actually of some tangible use to humans (and computers)
    - Information has value
    - Information has some use beyond that of the original data
- Collection of facts organised so that they have value beyond the facts themselves
- 'In summer it gets hotter, in winter it gets cooler"
- Knowledge is information in context and can be used to process information

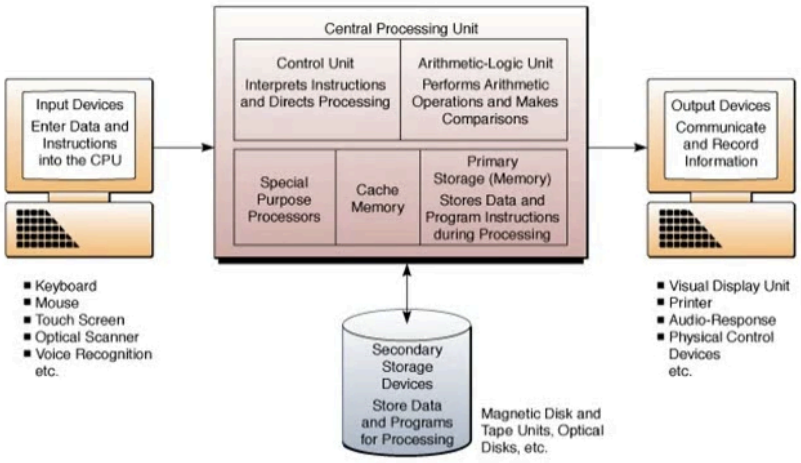
Data -> Processing -> Information

- Take raw data -> Process using small tasks -> Result is information

Examples

- Rainfall figures -> Averaged -> Average rainfall
- Hourly temperatures -> Sorted -> Temperature variance
- Battery power levels -> Plotted on a graph -> Power dissipation levels
- Number of items sold in a month -> Compared to previous months -> Seasonal inventory trends

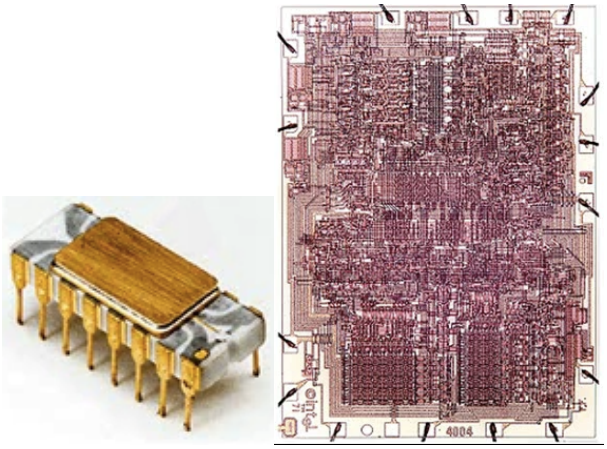
HARDWARE



- Changing slowly – Touch screen phones mean screen is both output and input
- The invention of the transistor was fundamental to today's hardware
    - Switch on or off
    - Can be used together for binary information
- The CPU (central processing unit) processes binary data into information

The First CPU –Intel 4004

- Released 1971
- Contained 2,300 transistors
    - Pentium II contains 7.5 million transistors
- Used in Pioneer 10 spacecraft
- Speed: 108 Kilohertz



- 'Feet' on outside to fit in a circuit board

Intel 80286 – 1982

- 6, 8, 10, 12.5 Megahertz variations
- 134,000 transistors