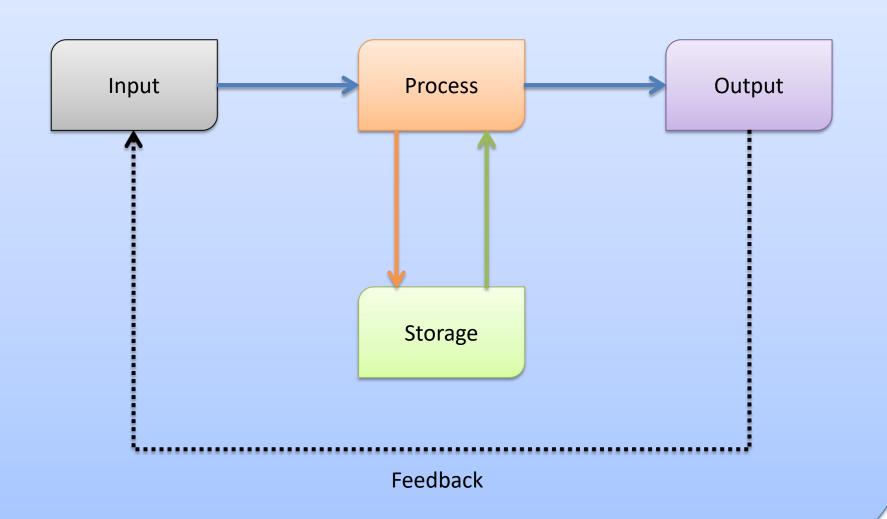
Input, Process, Output, Storage and Feedback

Chapter 1

Contents

- This presentation covers:
 - Inputs
 - Processes
 - Outputs
 - Storage
 - Feedback

Introduction



Input

 Taking data from an external source and entering it into the system.

- Can be done either:
 - Manually
 - Automatically

Input

Manually

 Keyboards are often used to enter data into a system.

Automatically

 Data is sometimes fed into a system using hardware such as OMR and Sensors. Process

- An action performed on the data such as:
 - Search
 - Sort
 - Calculations

 Processing data is important as it leads to useful output from the system. Output

- Data can be outputted from a system in a variety of ways:
 - Printed
 - On Screen
 - Sound
 - Light
 - Etc

Output

- Data can be outputted from a system in a variety of ways:
 - Printed
 - On Screen
 - Sound
 - Light
 - Etc

 Output essentially deals with any data that is leaving the system. Storage

- Data needs somewhere to stay...
- It is often kept on a storage medium such as a hard drive.
- If data doesn't need to be output immediately after processing it may be saved for later use.
- Also, stored data may be called upon when new data is being processed – the combination of data forming new outputs.

Storage

- Storage mediums such as CDs and Disk Drives are somewhat of a problem when defining the inputs and outputs of a system.
- If data is stored on a disk and is required for processing then it becomes an input.
- If data is saved to a disk then it becomes an output.



 When data is processes and output it is sometimes fed back into the system.

 These are often used in realtime systems such as autopilot systems.



 If no user interaction is required when data is fed back into the system then this is an open loop.

 If a user is prompted to do something when data is fed back into the system then this is known as a closed loop.

Turnaround Documents

- These documents comprise of data which is processed and then output.
- Additional data is printed on the document which will be fed into the system later.
- Utility companies produce turnaround documents for their customers:
 - They send details of what they think you should pay.
 - They provide a space for you to write down your actual meter readings.
 - They input the new data into the system and the process recalculates the actual amount you have to pay.

Take note:

- Describe these terms: input, process, output, storage and feedback.
- Draw a diagram to show the input, storage, processing, output and feedback for a vehicle using cruise control.
- Draw a diagram to show the input, storage, processing, output and feedback for a system which controls heating in a house.
- What is the difference between closed-loop and open-loop feedback?
- What are the advantages of using a turnaround document?