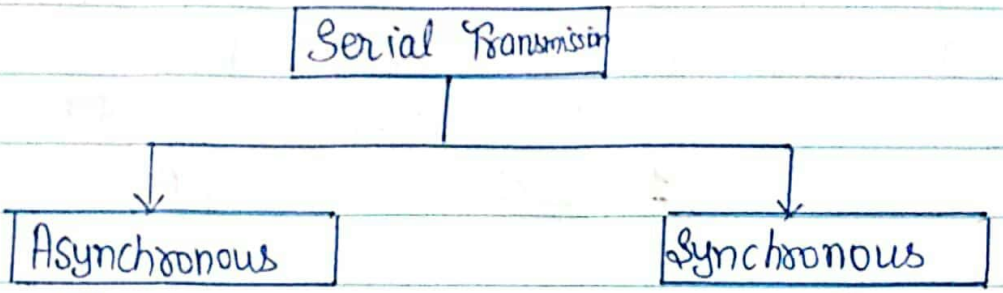
# * Types of Serial Transmission

→ There are Two Types of Serial Transmission:-




→ Both These Transmissions are:- Bit Synchronization.

**Bit Synchronization**:- It is a function that is required to determine when the begining and end of the data transmission occurs.

## 1 = Asynchronous Transmission:-

→ In this, data is sent in form of byte/characte

→ Asynchronous transmission sends only one character at a time, weather that character is number or alphabet.

→ It uses start and stop bits for transferring data.

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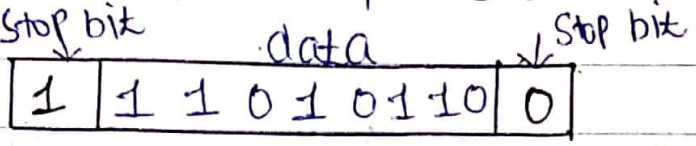
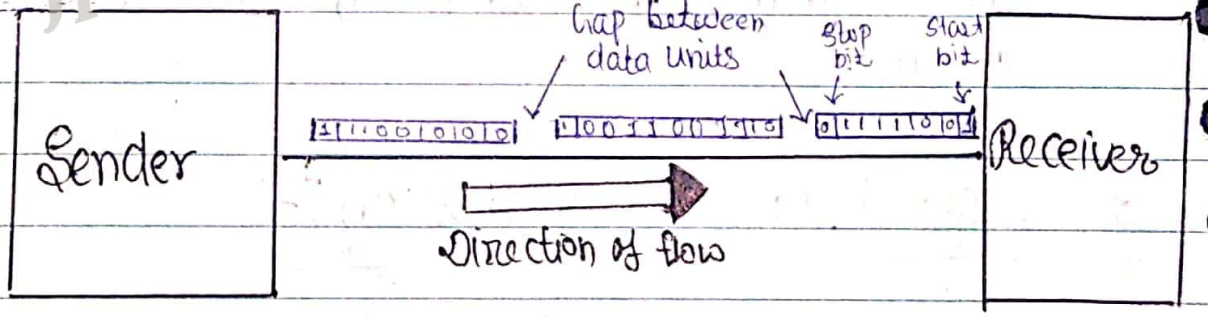
→ Start bit indicates the begining of data, A start bit usually 0 is added to the begining.

→ Stop bit indicates end of data, usually 1s are called Stop bits.




→ Addition of start and stop bits increase the number of bits.

→ It does not require a clock for Synchroniza




* Advantages:- 1. It doesn't need 2-way communication
2. It is striaght forward, cost effective.

* Disadvantages:- This method is less effient and slower than synchronous Transmission

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## 2. Synchronous Transmission :-

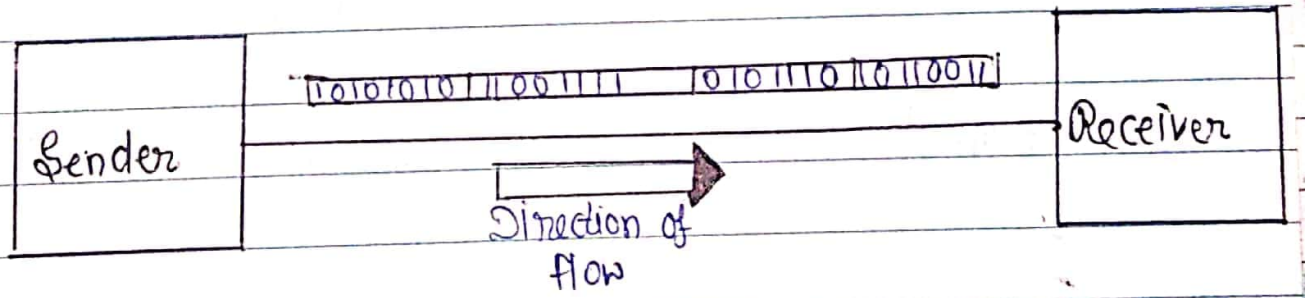
→ In Synchronous Transmission, data is sent in form of chunks or frames.

→ A lot of data is sent in a block. Each block has multiple bits.

→ There is no gap between the data.

→ Synchronous transmission does not use start and stop bits.

→ Between Sender and Receiver, Synchronization is compulsory.




→ It is more reliable than asynchronous transmission to transfer the large amount of data.

→ Synchronization is established between Sender and receiver by 'timing' the transmission of each bit.

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* Advantages:-

→ This method is faster as compared to asynchronous.
  → as there are no extra bits.
  → also there is no gap between the individual data bytes.

* Disadvantages:-

→ It is costly as compared to asynchronous method.

→ Sender and Receiver have to operate at the same clock frequency.
  → It requires proper synchronization which makes the system complicated.

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## * Comparison between Asynchronous and Synchronous:

| Sr no | Factor | Asynchronous | Synchronous |
|---|---|---|---|
| 1. | Defination | Transmits 1 byte or character at a time. | Transmits data in the form of chunks. |
| 2. | Data sent at one time | Usually 1 byte | Multiple bytes |
| 3. | Speed of Transmission | Slow | Quick |
| 4. | Start and Stop bits | Used | Not used. |
| 5. | Cost | Low | High |
| 6. | Gap between data units | Present | Not present |
| 7. | Application | Transfer of data between keyboard and Computer. | Transfer of data between two computers. |
| 8. | Examples | Email. | Telephonic conversation |

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