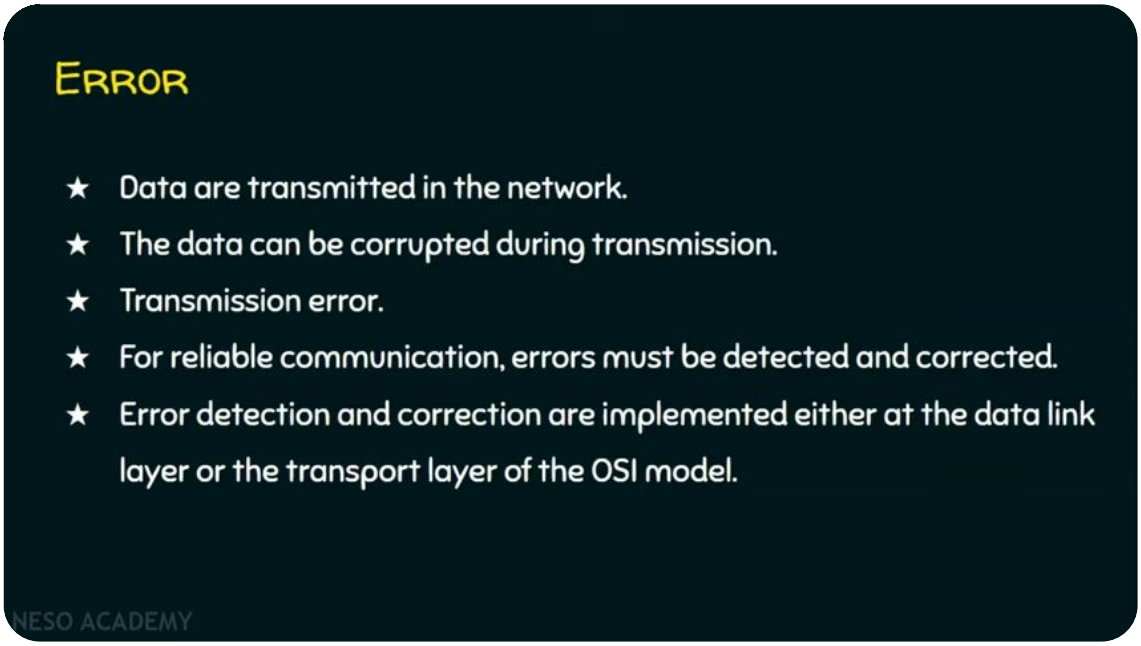
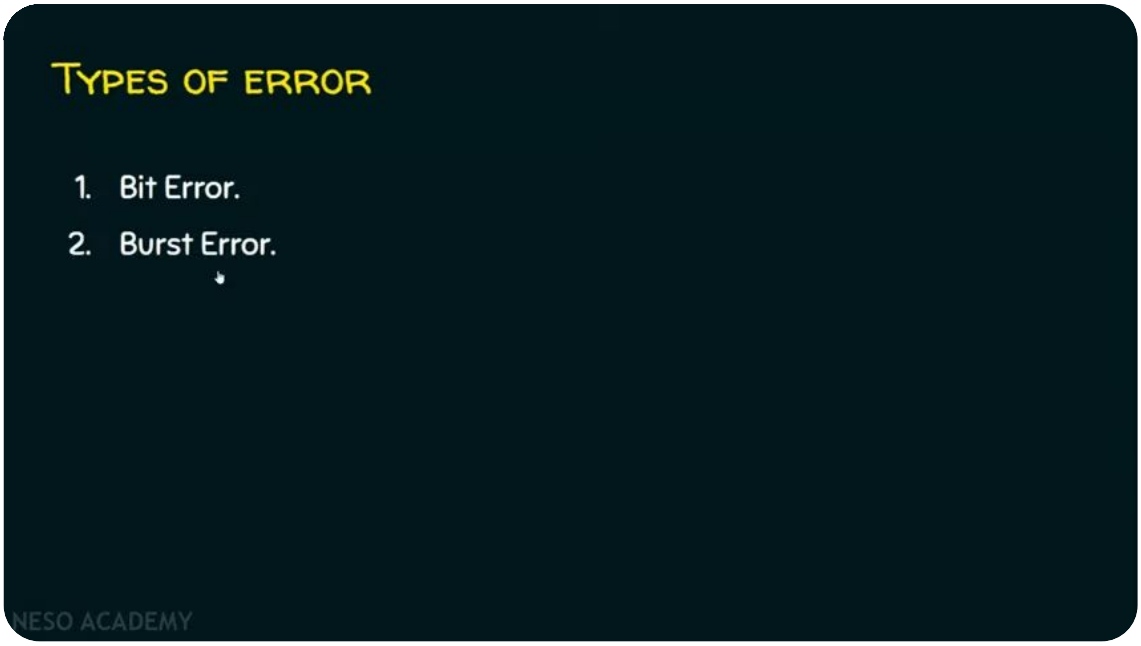
01:15



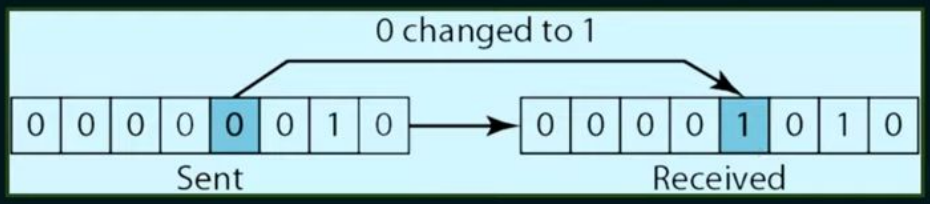
01:30



02:17

Bit error

- ★ a.k.a single bit error.
- ★ In a single bit error, only 1 bit in the data unit has been changed.



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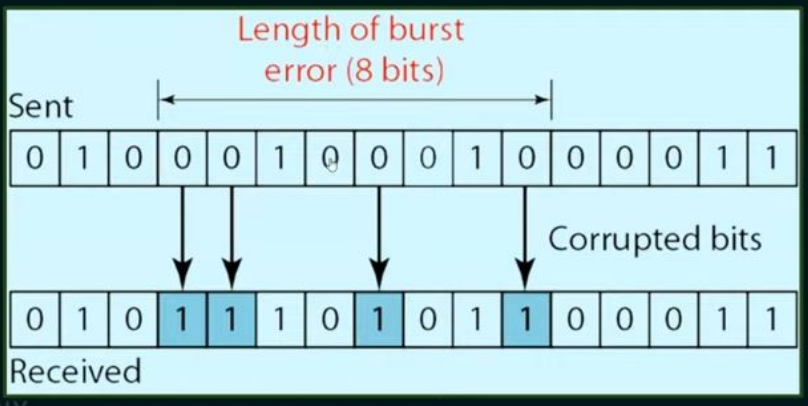
02:31

Burst error

- ★ In burst error, 2 or more bits in the data unit have changed.



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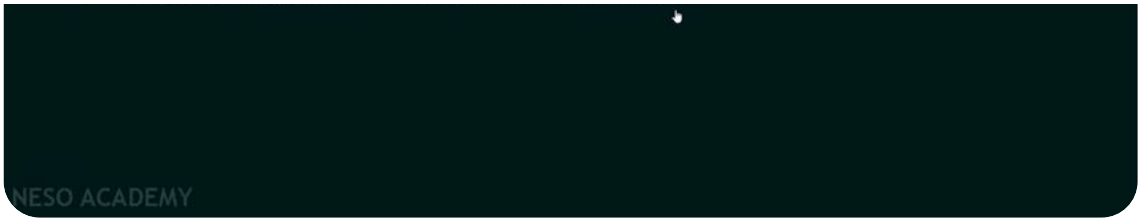
04:02

How to detect the errors?

- ★ Error detection means to decide whether the received data is correct or not without having a copy of the original message.
- ★ To detect or correct errors, we need to send some extra bits with the data.
- ★ The extra bits are called as redundant bits.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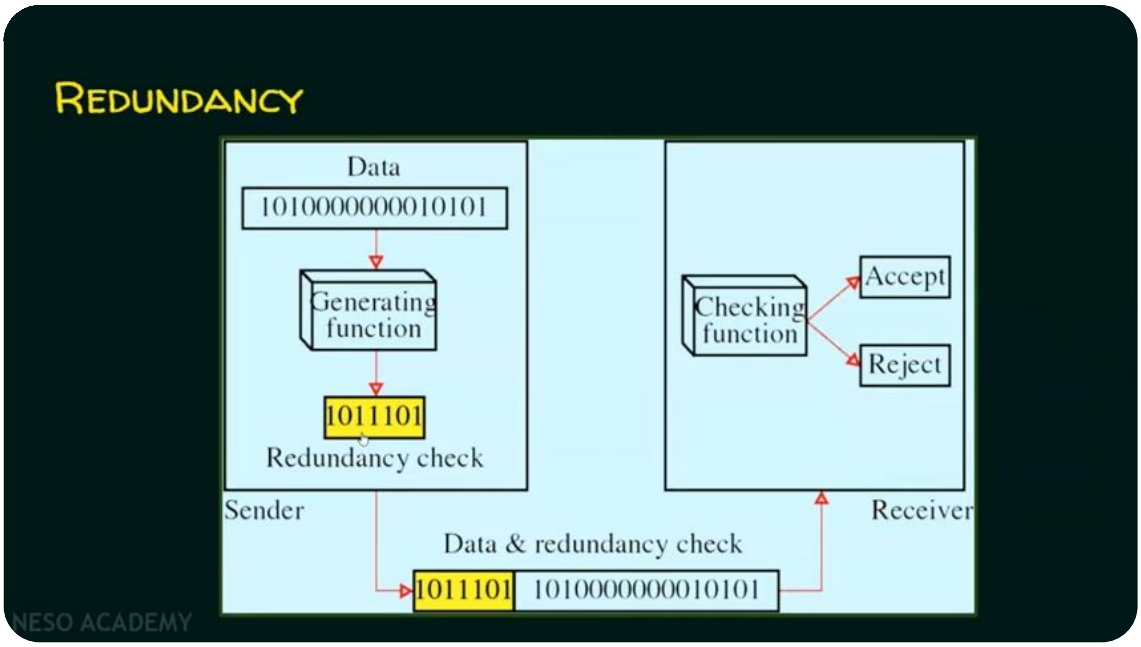
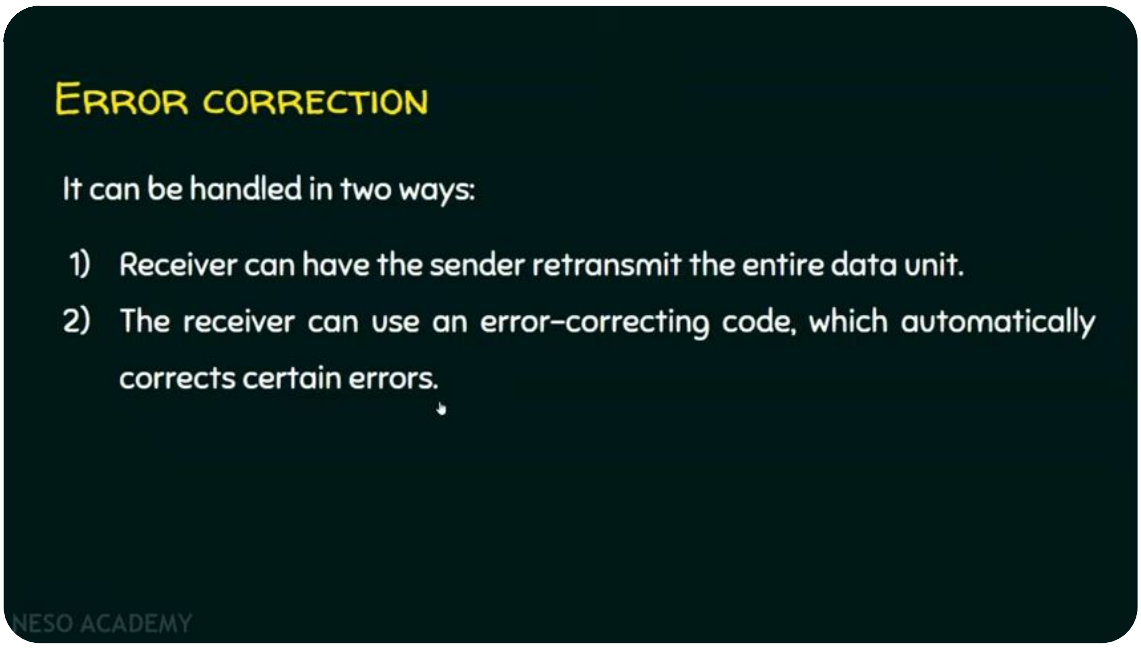
04:32


REDUNDANCY
Data
1010000000010101
Generating function
1011101
Redundancy check
Sender
Checking function
Accept
Reject
Receiver
Data & redundancy check
1011101
1010000000010101
NESO ACADEMY

05:55


ERROR CORRECTION
It can be handled in two ways:
1) Receiver can have the sender retransmit the entire data unit.
2) The receiver can use an error-correcting code, which automatically corrects certain errors.
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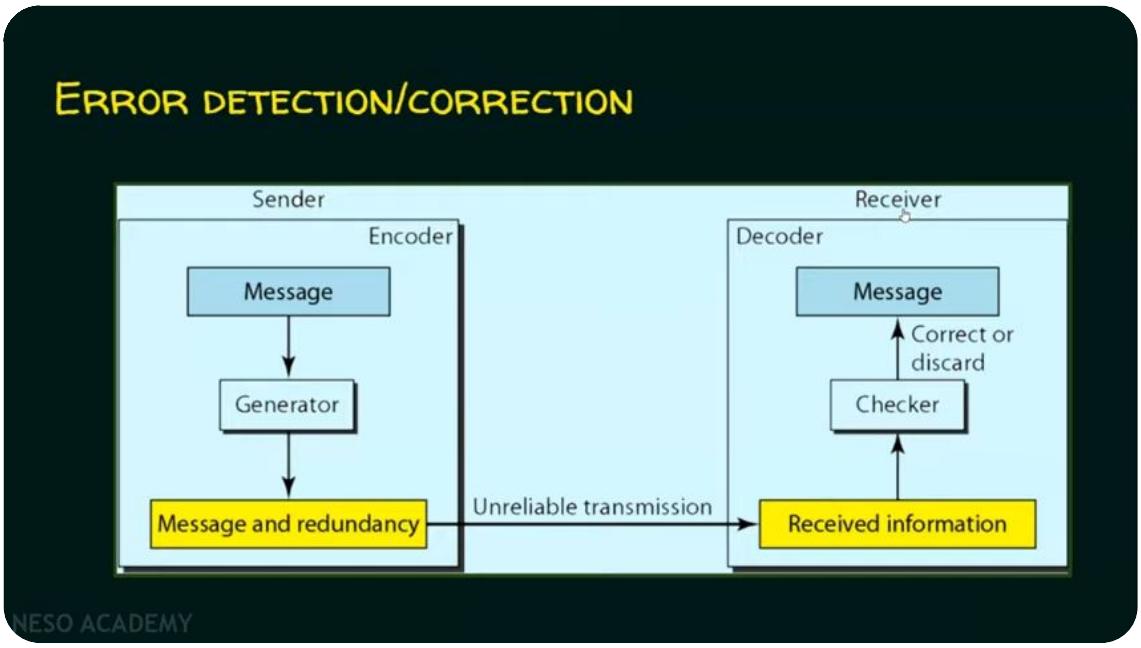
06:52


ERROR DETECTION/CORRECTION
Sender
Encoder
Message
Generator
Message and redundancy
Unreliable transmission
Receiver
Decoder
Message
Correct or discard
Checker
Received information
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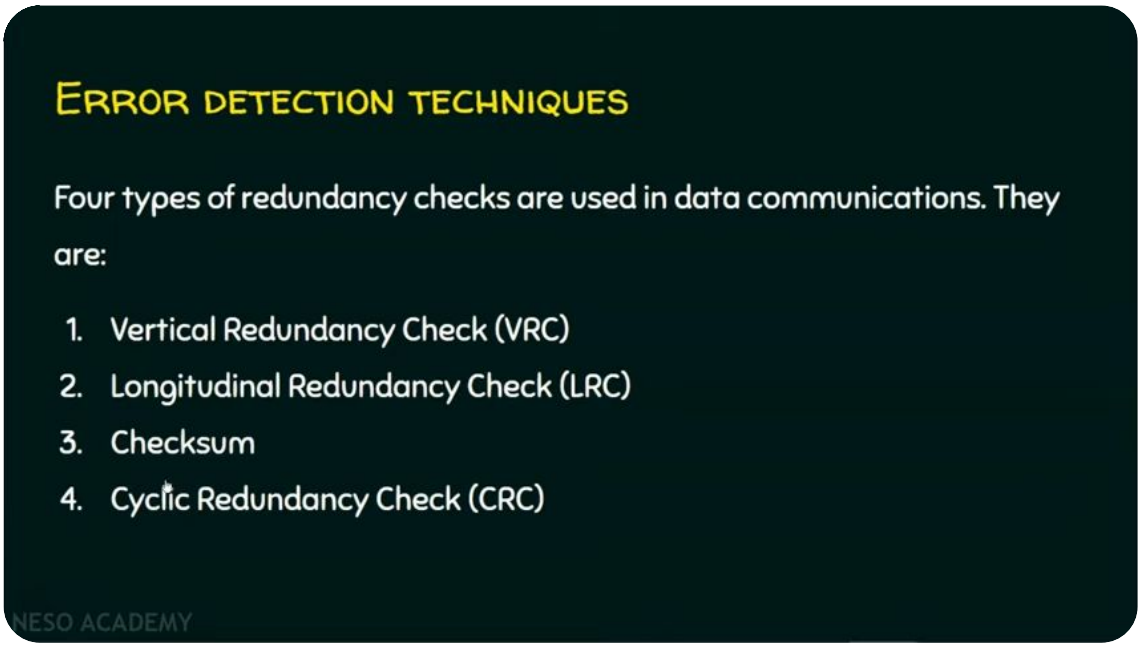
07:18


ERROR DETECTION TECHNIQUES
Four types of redundancy checks are used in data communications. They are:
1. Vertical Redundancy Check (VRC)
2. Longitudinal Redundancy Check (LRC)
3. Checksum
4. Cyclic Redundancy Check (CRC)
NESO ACADEMY