Bit Stuffing for a Given Bit Stream

Given Bit Stream:

010101111101000000101111101

Procedure:

1. The technique of **bit stuffing** is used to prevent confusion with frame delimiters (e.g., 01111110).

2. In this process, a **0 is inserted** after any sequence of **five consecutive '1's** to avoid interpreting it as a control flag.

Steps:

1. Start scanning the bit stream from the left.

2. Identify sequences of 5 consecutive '1's'.

3. Insert a '0' after each such sequence.

Applying to the Given Stream:

- In the given bit stream, the sequence 11111 occurs between the 6th and 11th bits.

- Thus, a '0' is inserted after the 11th bit.

Bit Stuffing Example

Original bit stream: 010101111101000000101111101
Stuffed bit stream: 0101011111001000000101111101

The inserted bit is marked in **red**.

Final Stuffed Bit Stream:

0101011111001000000101111101

Conclusion: After applying bit stuffing, a '0' is inserted after the sequence of five consecutive '1's' in the bit stream.