CNS TUTORIAL-1

IN-TUTORIAL:

1. a) Shawn Mendes wants to send a message "97652 321875 @" to his friend. While sending the message he used character count Framing method in order to re-construct the same frames at receiver"s end. Following is the data sent by Shawn Mendes after using Character Stuffing. Find the number of frames at received at the receiver"s end and illustrate the independent frames.

Assume that the character count of frame-2 is changed to 6 instead of 7, due to bit errors. Now write the frames when there occurs an error in the character count.
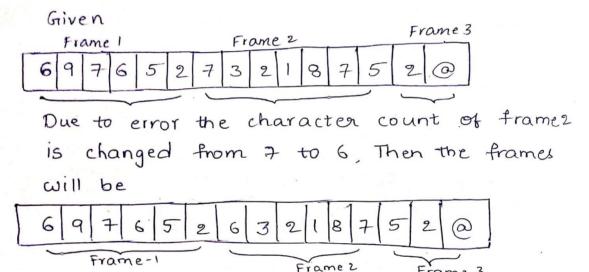
6	9	7	6	5	2	**7**	3	2	1	8	7	5	**2**	@

2. SCREAM indicates the beginning, and the ending of frames. Illustrate what happens if the sequence SCREAM is found in the message byte, and how this scenario is avoided with the help of character stuffing.(Assuming the stuffing byte to be „ESC")
Note: Neglect spaces between words.

Frame: I SCREAM YOU SCREAM WE ALL SCREAM FOR AN ICE CREAM

2. character stuffing :-

Given :-

   I SCREAM YOU SCREAM WE ALL SCREAM
   FOR AN ICECREAM

   The stuffing byte is 'ESC'

SCREAM I ESC SCREAM YOU ESC
   (SOF)

   SCREAM WE ALL ESC SCREAM FOR AN
   ICECREAM SCREAM
                (EOF)

3. Codechef wants to send a message "Your Submission is flagged" to Millie. Below is the data after performing Character Stuffing. Find the data passed to Network Layer at receiver"s side and also explain the greatest disadvantage in following the Character Stuffing, with the help of above example.

Start of Flag byte- FLAG STX

End of Flag byte- FLAG ETX

FLAG	STX	YOUR	SUBMISSION	IS	FLAG	FLAG	GED	FLAG	ETX

3.   Given

FLAG	STX	YOUR	SUBMISSION	IS

FLAG	GED	FLAG	ETX

The data passed to the reciever side is
   'your submission is flagged'.
The disadvantage is to transfer small bit
of data, it takes more bits for the
character stuffing

4. (i) Nemo lost her way and wants to send her friend Darla a code message which helps to   explain Nemo"s situation to her. The code word is 201.Perform bit stuffing on the above code word.(flag=01111110).

(ii) INPUT STREAM = 011011111100111110111111111110000 and FLAG=011111110.
Perform bit stuffing.

(iii) Consider data = 011011111 and assume Flag=01110
Perform bit stuffing and write the final data after bit stuffing. Also explain the disadvantage in taking such type of Flag values.

4. i) The code word 201 = 11001001
        Bit stuffing
            flag = 01111110

    01111110   11001001   01111110

    ii) Given

    0110 11111111 00 11111 0 11111 11 11 11 0000
         7.1's

        FLAG = 011111110

    01111110   0110111110 1 00 11111011111 0 1111 0000
    FLAG   ↓   ↓
                   stuffed   stuffed
                     Bit   Bit
                            01111110
                              FLAG

    iii) data = 011011111
          FLAG = 01110

    01110   011 0 111 011   01110
                      ↓
                  stuffed Bit

    → If we write the stuffed bit there,
       then it can be considered as a flag
       so the next data will not included
       in the receiver side.

POST-TUTORIAL:

1. Hannah Baker sent a message to Clay Jensen. Divide the message(data) into frames of sizes 4, 5, 2, 7, 6 respectively using Character Count method and write the final data.
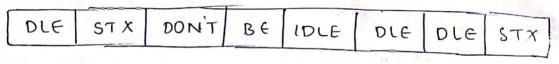
   Data: **WORRY LESS SMILE MORE!**
   Note: Neglect spaces between words.

   POST Tutorial

   1. Data :- WORRY LESSSMILEMORE!

   Given data into frames as sizes
   4, 5, 2, 7, 6

   | 4 | W | O | R | R | 5 | Y | L | E | S | S | 2 | S | 7 | M | I | L | E | M | O | 6 | R | E | ! |

2. Donald noticed Mickey being lazy all the time. So he decided to send a message to Mickey. Data(message) after being character stuffed is given below. Find the data passed to network layer on the Mickey"s side.

DLE	STX	DON"T	BE	IDLE	DLE	DLE	ETX

   2. Given

   | DLE | STX | DON'T | BE | IDLE | DLE | DLE | STX |

   Data :- Don't be IDLE

3. Simba wants to send some data to Nala. So, here are the data bits:
   Data = 1110001100111 and FLAG→ 01111110

   Now, find data after bit stuffing?

   3. Data = 111 0001100111
   FLAG = 01111110

   After bit stuffing

   0111110   111 000110 00111   0111110
   FLAG   DATA   FLAG

4. If STUFFED DATA = 01111110 11101111101111101011110 01111110 and FLAG = 01111110 then, find data before bit stuffing?

4. Data = 01111110 1110111110111110110111C

     FLAG

          01111110

          FLAG

Flag := 01111110

Before Bit Stuffing,

data := 111011111 0 11111 0 10 11110

        ↓   ↓

       stuffed stuffed

        bit bit

because the stuffed
bit must be added it
we get 6 according
to the flag

∴ data = 1110111 11111111011110