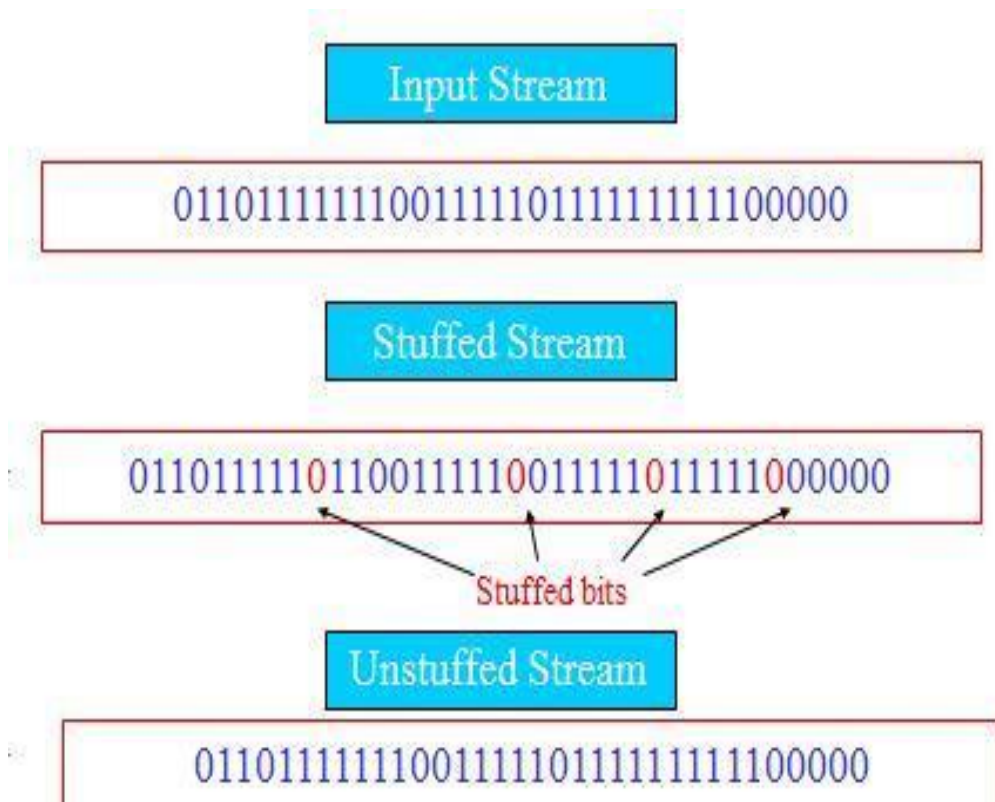## Experiment No : 08

Aim : Bit stuffing

Implement the data link layer framing method of bit stuffing

Theory : In bit stuffing technique each frame begins and ends with a special bit pattern01111110 called a flag byte. Whenever the sender's data link layer encounters five consecutive one's in the data, it automatically stuffs a 0 bit into the outgoing bit stream.

When the receiver sees five consecutive incoming 1 bits followed by a 0 bit, it Automatically de-stuffs the '0' bit. Like character stuffing, bit stuffing is also completely

Transparent to the network layer in both the computers

Algorithm :

Step 1: Read the input stream

Step 2: Scan the input stream of bits from left to right

Step 3: If there are 5 consecutive 1's go to step 5

Else go to step 4

Step 4: Place the string in the stuffed string go to step6

Step 5: Place a '0' bit in the stuffed string

Step 6: Repeat the process until the string is completed

Step 7: Print the stuffed string

Step 8: Stop

Code :

#include<stdio.h>

#include<stdlib.h>

#define MAXSIZE 100

int main()

```c
{
  char *p,*q;

  char temp;

  char in[MAXSIZE];

  char stuff[MAXSIZE];

  char destuff[MAXSIZE];


  int count=0;


  printf("enter the input character string (0's & 1's only):\n");

  scanf("%s",in);


  p=in;

  q=stuff;


  while(*p!='\0')

  {

    if(*p=='0')

    {

      *q=*p;

      q++;
```

```c
        p++;
    }
    else
    {
        while(*p=='1' && count!=5)
        {
            count++;
            *q=*p;
            q++;
            p++;
        }

        if(count==5)
        {
            *q='0';
            q++;
        }
        count=0;
    }
}
*q='\0';
```

```c
printf("\nthe stuffed character string is");

printf("\n%s",stuff);


p=stuff;

q=destuff;

while(*p!='\0')

{

  if(*p=='0')

  {

    *q=*p;

    q++;

    p++;

  }

  else

  {

    while(*p=='1' && count!=5)

    {

      count++;

      *q=*p;

      q++;

      p++;
```

```c
            }

        if(count==5)

        {

          p++;

        }

        count=0;

      }

    }

  *q='\0';

  printf("\nthe destuffed character string is");

  printf("\n%s\n",destuff);

  return 0;


}
```

Output :

```
                                                                    input
enter the input character string (0's & 1's only):
1111011111

the stuffed character string is
11110111110
the destuffed character string is
1111011111


...Program finished with exit code 0
Press ENTER to exit console.
```

Conclusion : The data link layer framing method of bit stuffing is implemented successfully.