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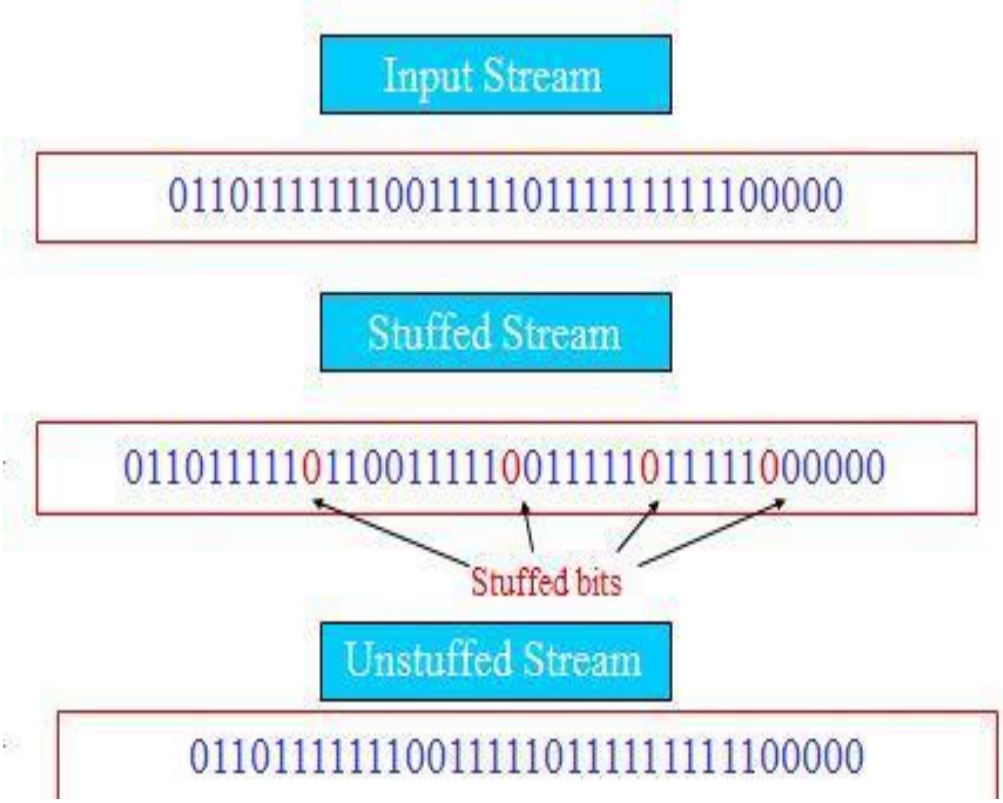
Aim : Bit stuffing

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

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

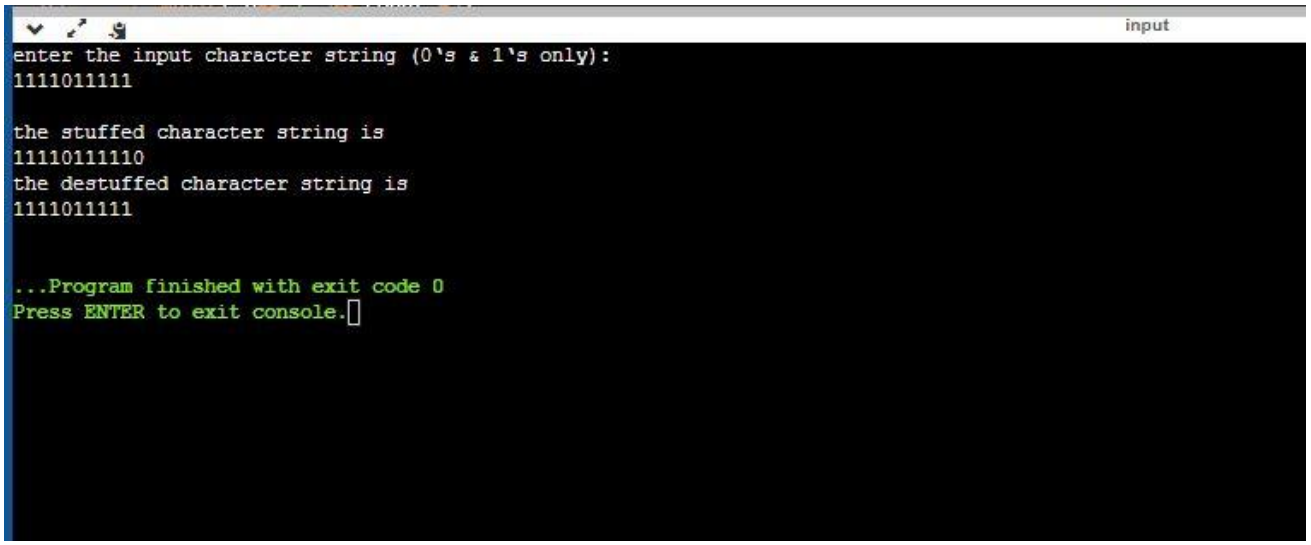
```
    }
    count=0;
  }
}
*q='\0';
printf("\nthe stuffed character string is");
printf("\n%s",stuff);

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++;
    }
    if(count==5)
    {
      p++;
    }
    count=0;
   }
  }
  *q='\0';
  printf("\nthe destuffed character string is");
  printf("\n%s\n",destuff);
  return 0;

}
```

Output :



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