

Practical: 4

AIM: Write a program to implement various framing techniques.

- a. Bit Stuffing
- b. Byte Stuffing



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Q.1 Byte Stuffing

```
flag=input("Enter flag: ")
esc_char=input("Enter ESC Character: ")
data=input("Enter Data: ")
byte_stuff=[]
byte_stuff.append(flag)
for i in data:
    if(i==flag or i==esc_char):
        byte_stuff.append(esc_char)
    byte_stuff.append(i)
byte_stuff.append(flag)
print("Flag is: ",flag)
print("ESC is: ",esc_char)
print("Original data is: ",data)
print("ByteStuff Data is: ","".join(byte_stuff))
```

Output:

```
PS E:\B_Tech\SEM_5\CN\Practical\Code\Practical 4> python -u "e:\B_Tech\SEM_5\CN\Practical\Code\Practical 4\byte_stuffing.py"
Enter flag: a
Enter ESC Character: b
Enter Data: abhcdgcbabdhgdb
Flag is: a
ESC is: b
Original data is: abhcdgcbabdhgdb
ByteStuff Data is: ababbhcdgcbabbabdhgdbba
PS E:\B_Tech\SEM_5\CN\Practical\Code\Practical 4> █
```

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Q.2 Bit Stuffing

```
flag='01111110'
data_list = list(input("Enter Data: "))
c=0
index=0
print("Flag is: ",flag)
print("Original Data is: "+"".join(data_list))
while (index<len(data_list)):
    if(index<len(data_list)):
        if(data_list[index]=='1' and index==0):
            while (index<len(data_list)):
                if(data_list[index]=='1'):
                    index=index+1
                else:
                    break
            if(index<len(data_list)):
                if(data_list[index]=='0'):
                    c=0
                    index=index+1
                elif(data_list[index]=='1'):
                    c=c+1
                    index=index+1
            if(c==6):
                data_list.insert(index-1,'0')
                c=0
print("Bit Stuff Data is: ",flag,"".join(data_list),flag)
```

Output:

```
PS E:\B_Tech\SEM_5\CN\Practical\Code\Practical 4> python -u "e:\B_Tech\SEM_5\CN\Practical\Code\Practical 4\bit_stuffing.py"
Enter Data: 010101010101011111111111111101011
Flag is: 01111110
Original Data is: 010101010101011111111111111101011
Bit Stuff Data is: 01111110 0101010101010111111111110111111101011 01111110
PS E:\B_Tech\SEM_5\CN\Practical\Code\Practical 4> █
```