



Practical  
9

## Framing Protocol: Byte Stuffing.

Implement a Program in C which demonstrates byte-stuffing framing technique, where sender reads data, applies byte stuffing to the frame and sends it to receiver. Assume appropriate character for flag byte and stuff byte.

\* Objective :-

The objective is to implement Byte Stuffing in a framing protocol, where the sender adds extra bytes to prevent misinterpretation of flag or escape characters, ensuring accurate data transmission.



\* Code

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main() {
```

```
    char frame[50][50], str[50][50];
```

```
    char flag[10], esc[10];
```

```
    int i, k = 0, n;
```

```
    strcpy(flag, "flag");
```

```
    strcpy(esc, "esc");
```

```
    strcpy(frame[k++], flag);
```

```
    printf("Enter length of string: \n");
```

```
    scanf("%d", &n);
```

```
    getch();
```

```
    printf("Enter the strings: \n");
```

```
    for(i = 0; i < n; i++) {
```

```
        fgets(str[i], sizeof(str[i]), stdin);
```

```
        str[i][strlen(str[i], "\n")] = '\0';
```

```
    printf("\n You entered: \n");
```

```
    for(i = 0; i < n; i++) {
```

```
        puts(str[i]);
```

```
    }
```

```
    printf("\n");
```





```
for (i = 0; i < n; i++) {  
    if (strcmp(str[i], flag) != 0 &&  
        strcmp(str[i], esc) != 0) {  
        strcpy(frame[k++], str[i]);  
    } else {  
        strcpy(frame[k++], esc);  
        strcpy(frame[k++], str[i]);  
    }  
}
```

```
strcpy(frame[k++], flag);
```

```
printf("-----\n\n");  
printf("Byte stuffing at sender side:\n\n");  
printf("-----\n\n");
```

```
for (i = 0; i < k; i++) {  
    printf("%s\t", frame[i]);  
}  
return 0;
```

```
}
```



### \* Output

Enter length of String:  
5

Enter the Strings:  
Hello  
World  
Good  
morning  
Bye

You entered:  
Hello  
world  
Good  
morning  
Bye

-----  
Byte stuffing at sender side:  
-----

flag Hello world Good morning Bye flag

### \* Learning Outcome :-

-> Understanding and implementing byte stuffing for safe data transmission in framing protocols.