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Batch E-4

Roll 59

Branch: AIML

Course Computer network Lab

Practical 8 Implement the data link layer framing methods such as character count, character stuffing and bit stuffing

Bit stuffing

Programme

```

9  #include<stdio.h>
10 #include<string.h>
11 int main()
12 {
13     int a[20],b[30],i,j,k,count,n;
14     printf("Enter frame size (Example: 8):");
15     scanf("%d",&n);
16     printf("Enter the frame in the form of 0 and 1 :");
17     for(i=0; i<n; i++)
18         scanf("%d",&a[i]);
19     i=0;
20     count=1;
21     j=0;
22     while(i<n)
23     {
24         if(a[i]==1)
25         {
26             b[j]=a[i];
27             for(k=i+1; a[k]==1 && k<n && count<5; k++)
28             {
29                 j++;
30                 b[j]=a[k];
31                 count++;
32                 if(count==5)
33                 {
34                     j++;
35                     b[j]=0;
36                 }
37                 i=k;
38             }
39         }
40         else
41         {

```

```

19     i=0;
20     count=1;
21     j=0;
22     while(i<n)
23     {
24         if(a[i]==1)
25         {
26             b[j]=a[i];
27             for(k=i+1; a[k]==1 && k<n && count<5; k++)
28             {
29                 j++;
30                 b[j]=a[k];
31                 count++;
32                 if(count==5)
33                 {
34                     j++;
35                     b[j]=0;
36                 }
37                 i=k;
38             }
39         }
40         else
41         {
42             b[j]=a[i];
43         }
44         i++;
45         j++;
46     }
47     printf("After Bit Stuffing :");
48     for(i=0; i<j; i++)
49         printf("%d",b[i]);
50     return 0;
51 }

```

Output:

```
input
Enter frame size (Example: 8):10
Enter the frame in the form of 0 and 1 :1010101010
1
11
1
1

78\
After Bit Stuffing :1010101010111117825664064

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

Flag Byte stuffing:

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```
577 | extern char *gets (char *_s) __wur __attribute_deprecated__;
|
| /usr/bin/ld: /tmp/ccdyTs6l.o: in function 'main':
main.c:(.text+0x1d): warning: the 'gets' function is dangerous and should not be used.
Enter no.of String : 6
Enter String
er
t
y
yt
t
t
t
You entered :

er
t
y
yt
t
t
t

-----
Byte stuffing at sender side:
-----
flag er t y yt t t flag

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

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main.c

```
8  *****/
9  #include<stdio.h>
10 #include<string.h>
11 int main()
12 {
13     char a[30], fs[50] = "", t[3], sd, ed, x[3], s[3], d[3], y[3];
14     int i, j, p = 0, q = 0;
15
16     printf("Enter characters to be stuffed:");
17     scanf("%s", a);
18     printf("\nEnter a character that represents starting delimiter:");
19     scanf(" %c", &sd);
20     printf("\nEnter a character that represents ending delimiter:");
21     scanf(" %c", &ed);
22     x[0] = s[0] = s[1] = sd;
23     x[1] = s[2] = '\0';
24     y[0] = d[0] = d[1] = ed;
25     d[2] = y[1] = '\0';
26     strcat(fs, x);
27     for(i = 0; i < strlen(a); i++)
28     {
29         t[0] = a[i];
30         t[1] = '\0';
31         if(t[0] == sd)
32             strcat(fs, s);
33         else if(t[0] == ed)
34             strcat(fs, d);
35         else
36             strcat(fs, t);
37     }
38     strcat(fs, y);
39     printf("\n After stuffing:%s", fs);
40     getch();
41 }
```

input

Character count

code.compile.run.debug.share.

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```
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7
8 *****/
9 #include<stdio.h>
10 #include<string.h>
11 void main(){
12 char frame[50][50],str[50][50];
13 char flag[10];
14 strcpy(flag,"flag");
15 char esc[10];
16 strcpy(esc,"esc");
17 int i,j,k=0,n;
18   strcpy (frame[k++],"flag");
19   printf("Enter no.of String :\\t");
20   scanf("%d",&n);
21   printf("Enter String \\n");
22   for(i=0;i<n;i++)
23   {
24     gets(str[i]);
25   }
26   printf("You entered :\\n");
27   for(i=0;i<n;i++)
28   {
29     puts(str[i]);
30   }
31   printf("\\n");
32   for(i=1;i<n;i++)
33   {
34     if(strcmp(str[i],flag)!=0 && strcmp(str[i],esc)!=0)
35     {
36       strcpy(frame[k++],str[i]);
```

code.compile.run.debug.share.

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```
21 printf("Enter String \\n");
22 for(i=0;i<n;i++)
23 {
24   gets(str[i]);
25 }
26 printf("You entered :\\n");
27 for(i=0;i<n;i++)
28 {
29   puts(str[i]);
30 }
31 printf("\\n");
32 for(i=1;i<n;i++)
33 {
34   if(strcmp(str[i],flag)!=0 && strcmp(str[i],esc)!=0)
35   {
36     strcpy(frame[k++],str[i]);
37   }
38   else
39   {
40     strcpy(frame[k++],"esc");
41     strcpy(frame[k++],str[i]);
42   }
43 }
44 strcpy(frame[k++],"flag");
45 //frame[k++]='\\0';
46 printf("-----\\n");
47 printf("Byte stuffing at sender side:\\n\\n");
48 printf("-----\\n");
49 for(i=0;i<k;i++)
50 {
51   printf("%s\\t",frame[i]);
52 }
53 }
54
```

```
main.c: In function 'main':
main.c:40:9: warning: implicit declaration of function 'getch'; did you mean 'getc'? [-Wimplicit-function-declaration]
   40 |         getch();
      |         ^~~~~
      |         getc
Enter characters to be stuffed:goodday

Enter a character that represents starting delimiter:d

Enter a character that represents ending delimiter:g

After stuffing: dggooddddayg

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