

Experiment No: 3

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Program:

```
#include<bits/stdc++.h>
using namespace std;
void characterCount()
{
    int n, a[100], j = 0, k, end_f, start_f = 0;
    string str;
    cout << "Enter the string data:";
    cin >> str;
    n = str.length();
    for (int i = 0; i < n; i++)
    {
        a[i] = int(str[i]) - 48;
    }
    int i = 0, f_count = 0;
    end_f = a[0];
    while (i < n)
    {
        f_count++;
        cout << "The " << f_count << " frame contain " << a[j] << " char:" << endl;
        for (j = start_f; j < end_f; j++)
        {
            cout << a[j] << " ";
        }
        cout << endl;
        start_f = j;
        end_f = end_f + a[start_f];
        i = start_f;
    }
}

void bitStuffing()
{
    string s;
    cin >> s;
    string stuffed = "0111110 ";
    int count = 0;
    for(int i = 0; i < s.size(); i++)
    {
        stuffed += s[i];
        if(s[i] == '1')
        {
            count++;
        }
    }
}
```

```

        else
        {
            count = 0;
        }
        if(count == 5)
        {
            stuffed += '0';
            count = 0;
        }
    }
    stuffed += " 0111110";
    cout<<stuffed<<endl;
}

int main()
{
    int ch = 0;
    cout << "Aniket Tiwari\n" << endl;
    do
    {
        cout << "1.Character count \n2.bitstuffing \n3.Character stuffing\nEnter choice : ";
        cin >> ch;
        switch (ch)
        {
            case 1:
            {
                characterCount();
                break;
            }
            case 2:
                bitStuffing();
                break;
            case 3:
            {
                char a[30], b[4] = "dle";
                int count = 0, n, p, i;
                cin.ignore();
                cout << "Enter the frame to be sent : ";
                cin.getline(a, 30);
                n = strlen(a);
                cout << "Length of frame is : " << n << endl;
                cout << "dlestx";
                for (int i = 0; i < n; i++)
                {
                    count = 0;
                    for (int j = 0; j < 3; j++)
                    {
                        if (a[i] == b[j])
                        {
                            count++;
                            i++;
                        }
                    }
                }
            }
        }
    } while (ch != 0);
}

```

```

    }
}

if (count == 3)
    cout << "dledle";
else
    cout << a[i];
}
cout << a[(n + 2) - count - i]
    ; cout << "dleetx\n";
break;
}
}
} while (ch < 4);
return 0;
}

```

Output:

```

Microsoft Windows [Version 10.0.22000.856]
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D:\Programming\CPP\College Experiments\Computer networks>cd "d:\Programming\CPP\College Experiments\Computer networks\" && g++ Experiment3.cpp -o Experiment3.exe
Aniket Tiwari

1.Character count
2.bitstuffing
3.Character stuffing
Enter choice : 2
10101010
0111110 10101010 0111110
1.Character count
2.bitstuffing
3.Character stuffing
Enter choice : 1

```

Character count

The screenshot shows the Visual Studio Code interface with a C++ file named `Experiment3.cpp` open. The code defines a menu with three options: 1. Character count, 2. bitstuffing, and 3. Character stuffing. It prompts the user to enter a choice and then a string of data. The terminal output shows the program running, with the user entering '1' for the character count option and a string of 17 characters. The program then displays the character count and the bit stuffing results.

```
1 #include<bits/stdc++.h>

Microsoft Windows [Version 10.0.22000.856]
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D:\Programming\CPP\College Experiments\Computer networks>cd "d:\Programming\CPP\College Experiments\Computer networks\" && g++ Experiment3.cpp -o Experiment3.exe
Aniket Timari

1.Character count
2.bitstuffing
3.Character stuffing
Enter choice : 1
Enter the string data:Acdeedf
The 1 frame contain 17 char:
17 51 52 53 52 54 8 214748364 10 2147483647 58 0 0 0 ~1954546841 191 0
1.Character count
2.bitstuffing
3.Character stuffing
Enter choice :
```