

**Aim:** To Implement Hamming Code Using C or C++

**Program:**

```
#include<iostream>
using namespace std;

int main(){
    int a[10], b[10], c1,c2,c3;
    cout<<"\nEnter the 4 bits: ";
    cin>>a[3];
    cin>>a[5];
    cin>>a[6];
    cin>>a[7];

    a[1] = a[3]^a[5]^a[7];
    a[2] = a[3]^a[6]^a[7];
    a[4] = a[5]^a[6]^a[7];

    cout<<"The generated hamming code is: ";
    for(int i=1; i<8;i++){
        cout<<"\t"<<a[i];
    }

    cout<<"\nEnter the 7 bits: ";

    for(int i=1;i<8;i++){
        cin>>b[i];
    }

    c1 = b[1]^b[3]^b[5]^b[7];
    c2 = b[2]^b[3]^b[6]^b[7];
    c3 = b[4]^b[5]^b[6]^b[7];

    int p = c1*1+c2*2+c3*4;

    if(p==0){
        cout<<"\nThere is no error in the data sent";
    }else{
        cout<<"\nThere is error in the position "<<p<<endl<<"The corrected message is: ";
        if(b[p]==0){
            b[p]=1;
        }else{
            b[p]=0;
        }
    }
}
```

```

    }
    for(int i=1;i<8;i++){
        cout<<"\t"<<b[i];
    }

return 0;
}

```

**Output:**

```

PS D:\Engineering College Work\3rd Semester\Computer Network\Practicals> cd "d:\Engineering College Work\3rd Semester\Computer Network\Practicals\" ; if ($?) { g++ HammingCode.cpp -o HammingCode } ; if ($?) { .\HammingCode }

Enter the 4 bits: 1 0 0 1
The generated hamming code is: 0      1      1      0      0      1
Enter the 7 bits: 0 0 1 1 0 0 1

There is no error in the data sent
PS D:\Engineering College Work\3rd Semester\Computer Network\Practicals>

```

```

PS D:\Engineering College Work\3rd Semester\Computer Network\Practicals> cd "d:\Engineering College Work\3rd Semester\Computer Network\Practicals\" ; if ($?) { g++ HammingCode.cpp -o HammingCode } ; if ($?) { .\HammingCode }

Enter the 4 bits: 1 0 0 1
The generated hamming code is: 0      0      1      1      0      0      1
Enter the 7 bits: 0 0 0 1 0 0 1

There is error in the position 3
The corrected message is: 0      0      1      1      0      0      1
PS D:\Engineering College Work\3rd Semester\Computer Network\Practicals>

```