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: