

CSE1004 – Network and Communication [LAB]

(LAB2 – 22/07/2020) – Faculty: Dr. Kanchana Devi V

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Code in C++ Language

```
#include<iostream>
#include<string>
#include<algorithm>
using namespace std;
string binary(long int n)
{
    string s="";
    while(n>0)
    {
        if(n%2)
            s+='1';
        else
            s+='0';
        n/=2;
    }
    return(s);
}
int main()
{
```

```

long int n=14072020;
int choice, j;
cout<<"Enter 0 for even parity and 1 for odd
parity: ";
cin>>choice;
string s = binary(n), final, r;
for(j=0; s[j]!='\0'; j++);
for (int i = 0; i < j / 2; i++)
    swap(s[i], s[j - i - 1]);
cout<<"Data: "<<s<<endl;
int count=0;
char parity;
for(int i=0; i<j; i++)
    if(s[i]=='1')
        count++;
if(choice==0) //Even parity
{
    if(count%2==0) //Even number of 1s exist
        parity='0';
    else
        parity='1';
}
else //Odd parity
{
    if(count%2==0) //Even number of 1s exist
        parity='1';

```

```

        else
            parity='0';
    }
    final=parity+s;
    cout<<"After parity: "<<final<<endl;

    cout<<"Enter the code received by you: ";
    cin>>r;
    int count1=0, len;
    for(len=0; r[len]!='\0'; len++);
    if(len!=j+1)
    {
        cout<<"Error has occurred";
        exit(0);
    }
    for(int i=1; i<len; i++)
        if(r[i]=='1')
            count1++;
    if((count1%2==0) && (choice==0) && (r[0]==0) && (r==final
))
        cout<<"Transmission has been successful";
    else
    if((count1%2!=0) && (choice==1) && (r[0]==1) && (r==final))
        cout<<"Transmission has been successful";
    else
        cout<<"Transmission has failed";
    return 0;
}

```

Output Screenshot:

1. Successful Case

```
C:\Users\arvin\OneDrive\Documents\parity.exe
Enter 0 for even parity and 1 for odd parity: 0
Data: 110101101011100011010100
After parity: 1110101101011100011010100
Enter the code received by you: 1110101101011100011010100
Transmission has been successful
-----
Process exited after 13.71 seconds with return value 0
Press any key to continue . . .
```

2. Failed Case

```
C:\Users\arvin\OneDrive\Documents\parity.exe
Enter 0 for even parity and 1 for odd parity: 1
Data: 110101101011100011010100
After parity: 0110101101011100011010100
Enter the code received by you: 0110101101011100011010101
Transmission has failed
-----
Process exited after 41.78 seconds with return value 0
Press any key to continue . . .
```