NAME

MOHAMMAD SHAAD

REGISTRATION NUMBER

21BCE1542

CLASS

COMPUTER NETWORKS

FACULTY

PUNITHA K

LAB

EXERCISE 2

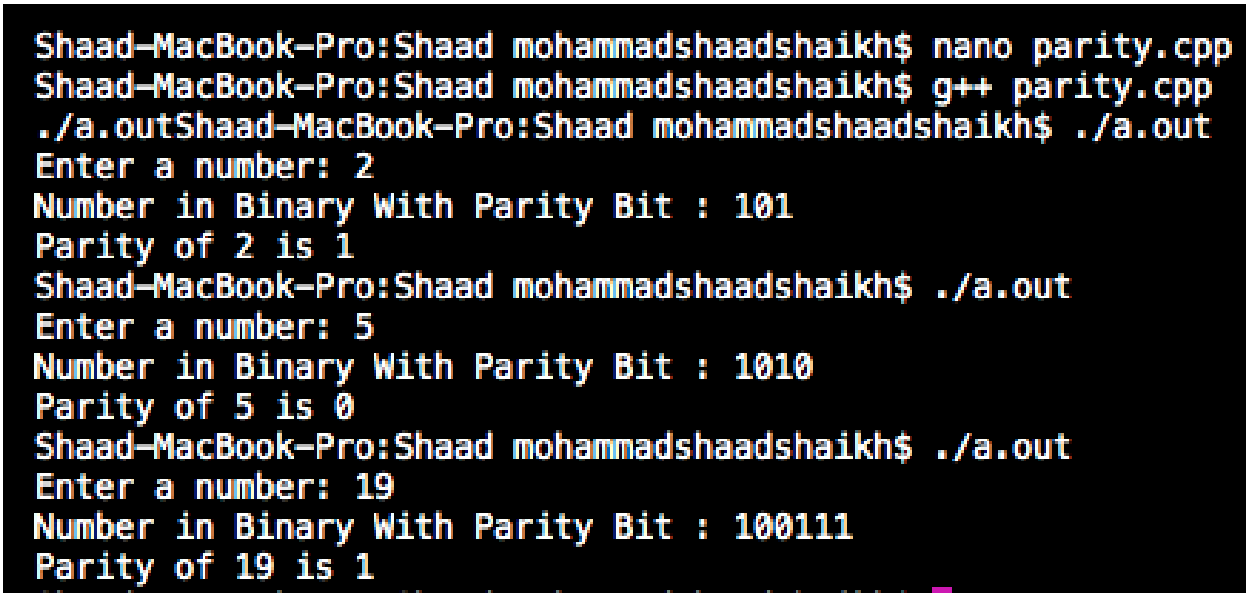
Parity Bit

Code

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

bool findParity(int n) {
   int count = 0;
   int temp = n;

   while (temp>=2) {
      if(temp & 1)    //when LSB is 1, increase count
         count++;
      temp = temp >> 1;    //right shift number by 1 bit
   }
   return (count % 2)?true:false;
}

vector<int> addParity(int n) {
    vector<int> binaryNum;
    findParity(n)? binaryNum.push_back(0) :
binaryNum.push_back(1);
    int bit;
    while (n > 0) {
        bit = n % 2;
        binaryNum.push_back(bit);
        n = n / 2;
    }
    return binaryNum;
}

int main() {
   int n;
```

```
   cout << "Enter a number: "; cin >>n;
   vector<int> binary = addParity(n);
   cout << "Number in Binary With Parity Bit : ";
   for (int j = binary.size() - 1; j >= 0; j--){
        cout << binary[j];
    }
   cout << "\nParity of " << n << " is " << binary[0] <<
endl;
   return 0;
}
```

Output



Checksum

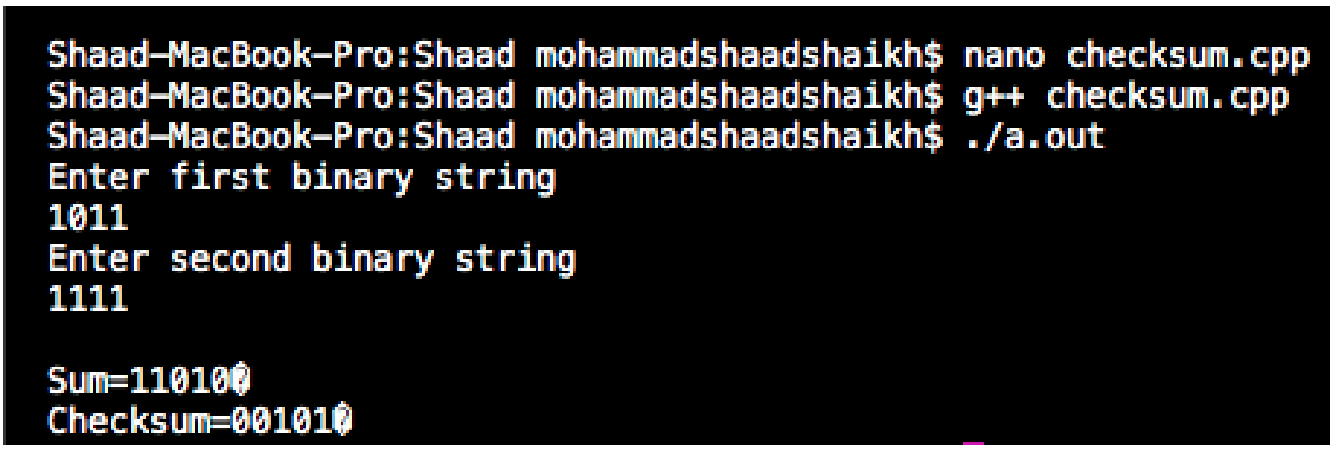
Code

```
#include<iostream>
#include<string.h>

using namespace std;

int main()
{
    char a[20],b[20];
    char sum[20],complement[20];
    int i;

cout<<"Enter first binary string\n";
    cin>>a;
    cout<<"Enter second binary string\n";
    cin>>b;

if(strlen(a)==strlen(b))
    {
        char carry='0';
        int length=strlen(a);

for(i=length-1;i>=0;i--)
        {
            if(a[i]=='0' && b[i]=='0' && carry=='0')
            {
                sum[i]='0';
                carry='0';
            }
            else if(a[i]=='0' && b[i]=='0' && carry=='1')
            {
                sum[i]='1';
```

```
    carry='0';

}
else if(a[i]=='0' && b[i]=='1' && carry=='0')
{
    sum[i]='1';
    carry='0';

}
else if(a[i]=='0' && b[i]=='1' && carry=='1')
{
    sum[i]='0';
    carry='1';

}
else if(a[i]=='1' && b[i]=='0' && carry=='0')
{
    sum[i]='1';
    carry='0';

}
else if(a[i]=='1' && b[i]=='0' && carry=='1')
{
    sum[i]='0';
    carry='1';

}
else if(a[i]=='1' && b[i]=='1' && carry=='0')
{
    sum[i]='0';
    carry='1';

}
else if(a[i]=='1' && b[i]=='1' && carry=='1')
{
    sum[i]='1';
    carry='1';
```

```
            }
            else
                break;
        }
        cout<<"\nSum="<<carry<<sum;

        for(i=0;i<length;i++)
        {
            if(sum[i]=='0')
                complement[i]='1';
            else
                complement[i]='0';
        }

if(carry=='1')
            carry='0';
        else
            carry='1';

    cout<<"\nChecksum="<<carry<<complement;
    }
    else
        cout<<"\nWrong input strings";

    return 0;
}
```

Output


Shaad-MacBook-Pro:Shaad mohammadshaadshaikh$ nano checksum.cpp
Shaad-MacBook-Pro:Shaad mohammadshaadshaikh$ g++ checksum.cpp
Shaad-MacBook-Pro:Shaad mohammadshaadshaikh$ ./a.out
Enter first binary string
1011
Enter second binary string
1111
Sum=11010
Checksum=00101