

## Count number of bits to be flipped to convert A to B

Suggested by Dheeraj

**Question:** You are given two numbers A and B. Write a program to count number of bits needed to be flipped to convert A to B.

**Solution:**

1. Calculate XOR of A and B.  
`a_xor_b = A ^ B`
2. Count the set bits in the above calculated XOR result.  
`countSetBits(a_xor_b)`

XOR of two number will have set bits only at those places where A differs from B.

**Example:**

```
A  = 1001001
B  = 0010101
a_xor_b = 1011100
No of bits need to flipped = set bit count in a_xor_b i.e. 4
```

To get the set bit count please see another post on this portal <http://geeksforgeeks.org/?p=1176>

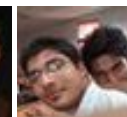
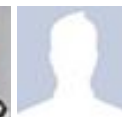
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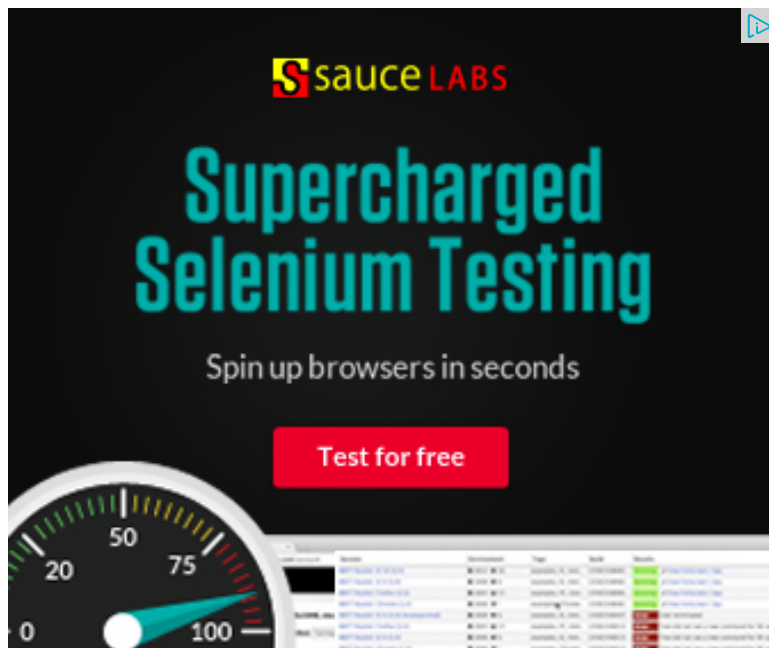
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`#include<iostream>`

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```

using namespace std;
int count_bits(unsigned int x,unsigned int y)
{
int count=0;
while(x||y)
{
count =count + (x&1)^(y&1);
x>>=1;
y>>=1;
}
return count;
}
int main()
{
cout<<count_bits(5,100); return="" 0;="" }="">

```

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**pavansrinivas** • 7 months ago  
code in JAVA..

```

void numOfFlips(int a, int b){
    int x = a^b;
    int c = 0;
    int count = 0;
    while(c<32){
        int i = 1<<c; if((i&x)="">0){
            count++;
        }
        c++;
    }
    System.out.print(count);
}

```



```
        system.out.println(count);  
    }  
}
```

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**Kapil Agarwal** • 2 years ago

```
int count_bit(int a,int b)  
{  
    int c=a^b;  
    int count=0  
    while(c!=0)  
    {  
        c&=(c-1);  
        count++;  
    }  
    return count;  
}
```

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**Satish** • 2 years ago

```
#include
```

```
void main()  
{  
    int a=10;  
    int b=20;  
    b=(a^b)^b;  
    printf("a=%d b=%d",a,b);  
    getch();  
}
```

```
printf("%d %d",a,b);
```

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out put :- a=10 b=10

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another metho

b=(a\*b)/b...

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**loosy** • 2 years ago

This one is more compact answer.

```
int bit_swaps_required( int a, int b ) {  
    unsigned int count = 0;  
    for( int c = a ^ b; c != 0; c = c >> 1 ) {  
        count += c & 1;  
    }  
    return count;  
}
```

<http://www.mytechinterviews.co...>

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**Arpit** • 2 years ago

```
#include  
using namespace std;  
int main()  
{  
    int x,y,i,c=0,n;  
    n=sizeof(int)*8;  
    cin>>x>>y;  
    for(i=0;i<n-1;i++)
```

```

{
if( (x&(1<<i))^y&(1<<i)) )
c++;
}
cout<<c;

return 0;
}

```

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**Swapna** • 3 years ago

```

a = x ^y
count = 0
while ( a != 0 )
{
if (a | 1 == a)
count++ ;
a >> 2 ;
}
cout << count;

```

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**wgpshashank** • 3 years ago

```

void swap(int a,int b)
{
    int count=0;
    for(int c=a^b ;c!=0;c>>=1)
    {

        count+=c&1;

    }
}

```

}

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