

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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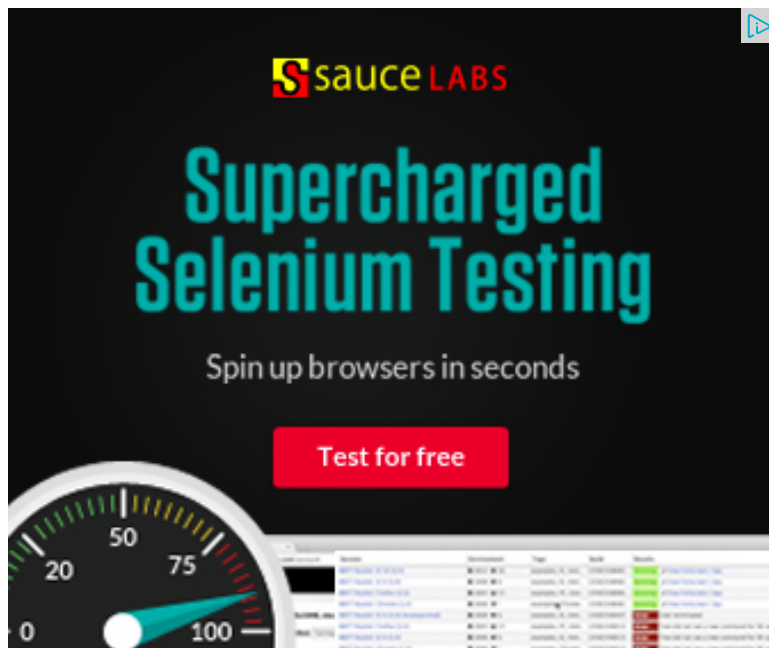
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```

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;="" }="">

```

^ | v .

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++;
    }
}

```

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```

    }
    System.out.print(count);
}
^ | v .

```

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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;
}
2 ^ | v .

```



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();
}

```

out put :- a=10 b=10

^ | v .



Satish → Satish · 2 years ago
another metho

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

^ | v .



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...>

^ | v .



Arpit · 2 years ago

```
#include  
using namespace std;  
int main()  
{  
    int x,y,i,c=0,n;  
    n=sizeof(int)*8;
```

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```
for(i=0;i<n-1;i++)
{
if( (x&(1<<i))^y&(1<<i)) )
c++;
}
cout<<c;

return 0;
}
^ | v .
```



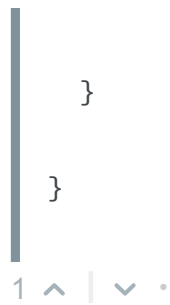
Swapna · 3 years ago

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



wgpshashank · 3 years ago

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



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