

Daily Coding Problem #85

Problem

This problem was asked by Facebook.

Given three 32-bit integers x , y , and b , return x if b is 1 and y if b is 0, using only mathematical or bit operations. You can assume b can only be 1 or 0.

Solution

We can solve this problem by seeing that if we multiply x with b , it solves half the problem. Since we want y to behave in opposite, we can get the same behavior by multiplying y with $(1 - b)$.

Now, $(x * b)$ gives x when b is 1 and 0 otherwise. Similarly, $(y * (1 - b))$ gives y when b is 0 and 0 otherwise. We can just combine the two formulas with either a + or |,

```
def switch(x, y, b):  
    return (x * b) | (y * (1 - b))
```

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