



Lab 2 (Week of 21 August)

Question 1 - "Divisibility By 3"

Problem Description

Input constraints

Input format

Output Format

Sample input and output

Solution

Question 2 - "K-Swap"

Problem Description

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Sample input and output

Solution

Lab 2 (Week of 21 August)

Question 1 - "Divisibility By 3"

Problem Description

Given an integer which has n digits, print YES if it is divisible by 3, and NO otherwise.

Note: The input number will not contain any leading zeroes.

[Link to problem on OJ](#)

Input constraints #

$$0 \leq n \leq 1000$$

Input format

The first line of input contains a single integer n denoting the number of digits.

The second line of input contains the integer which is n digit long.

Output Format

Output YES if the number is divisible by 3 and NO otherwise.

Sample input and output

Sample Input	Sample Output
10 1234567890	YES
2 22	NO

Solution

```

#include <stdio.h>

int main(void) {
    int n; scanf("%d", &n);
    char c; scanf("%c", &c); //Skips the initial new line character
    int sum = 0;
    while (n--) {
        scanf("%c", &c);
        sum += c - '0';
    }
    if (sum % 3) printf("NO\n");
    else printf("YES\n");
    return 0;
}

```

Question 2 - “K-Swap”

Problem Description

You are given three non-negative integers x , y and k where $0 \leq k \leq 31$. Replace the first k bits (from the right) of x with the first k bits of y and print the new value of x . In other words, replace the k least significant bits of x with the corresponding bits from y .

[Link to problem on OJ](#)

Input constraints

$$0 \leq x, y \leq 2^{31}$$

$$0 \leq k \leq 31$$

Input format

The only line of input contains 3 space-separated integers x , y and k .

Output Format

Output a single integer denoting the new value of x

Sample input and output

Sample Input	Sample Output
11 22 3	14

Solution

```
#include <stdio.h>
```

```
int main() {  
    int x, y, k;  
    scanf("%d %d %d", &x, &y, &k);  
    x &= (~0 << k);  
    y &= ~(~0 << k);  
    printf("%d\n", x | y);  
    return 0;  
}
```