***F(X) Divisibility***

**Topic**: Mathematical Calculations

**Difficulty Level**: Easy

**Question / Problem Statement**:

Naomi has an integer variable **X**. A function **F(X)** is defined as the sum of the digits in **X** when written in base 10.

Naomi's task is to determine whether X is divisible by **F(X)** or not.

Write a program to determine whether Naomi’s completes her task or not. If she completes the task then print “YES” and also print the product of the digits in **X** when written in base 10, else print “NO”.

**Note**

An integer **X** is always a positive number.

**F(X)** is always positive.

Product of the digits may be 0.

**Function Description**

In the provided code snippet, implement the provided **fxDivisibility(...)** method using the variables to determine whether Naomi’s completes her task or not. You can write your code in the space below the phrase **“WRITE YOUR LOGIC HERE”**.   
  
There will be multiple test cases running so the Input and Output should match exactly as provided.  
The base Output variable **result** is set to a default value of **-404** which can be modified. Additionally, you can add or remove these output variables.

**Input Format**

First line contains an integer **X**.

**Sample Input**

12 –denotes X.

**Constraints**

10 < **X** < 10⁶

**Output Format**

If she completes the task then print “YES” and also print the product of the digits in **X** when written in base 10, else print “NO”.

**Sample Output**

YES

2

**Explanation**

F(X)=sum of digits of X.

X=12, F(X) = 1 + 2 = 3.

12 is divisible by 3 i.e. X is divisible by F(X).

Product of digits of X is 1 \* 2 = 2.

**Running Solution in C++**

#include <bits/stdc++.h>

using namespace std;

int main(){

int X;

cin>>X;

int orig\_x=X;

int fx=0;

while(X>0){

fx+=(X%10);

X/=10;

}

if(orig\_x%fx==0){

cout<<"YES\n";

int prod=1;

while(orig\_x>0){

prod\*=(orig\_x%10);

orig\_x/=10;

}

cout<<prod<<"\n";

}

else

cout<<"NO\n";

return 0;

}

Input:

14

Output:

NO

**Test Cases [Qty: 12]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case No** | **Input** | **Output** | **Score** |
| 1 | 12 | YES  2 | 0 |
| 2 | 15 | NO | 0 |
| 3 | 148 | NO | 1 |
| 4 | 20 | YES  0 | 1 |
| 5 | 45 | YES  20 | 1 |
| 6 | 56 | NO | 1 |
| 7 | 245 | NO | 1 |
| 8 | 88218 | NO | 1 |
| 9 | 12345 | YES  120 | 1 |
| 10 | 99999 | NO | 1 |
| 11 | 12340 | YES  0 | 1 |
| 12 | 98765 | NO | 1 |