In [24]:

```
# Prime Factors
## Special numbers

def checkPrime(sn):
    flag = 0
    if(sn==2):
        return True
    else:
        for i in range(2,sn):
            if(sn%i==0):
                flag = 1
                break
    if(flag == 1):
        return False
    else:
        return True


def primeFactorsList(num):
    ls=[]
    for i in range(2,num+1):
        if(num%i == 0):
            if(checkPrime(i)):
                ls.append(i)
    # print(ls)
    return len(ls)
def isSpecialNumber(n,p):
    if(primeFactorsList(n)>=p):
        return True
    else:
        return False
n = int(input())
p = int(input())
ls = []
for i in range(1,n+1):
    ls.append(int(input()))
for j in range(0,len(ls)):
    if(isSpecialNumber(ls[j],p)):
        print("YES")
    else:
        print("NO")
```

```
2
2
6
30
YES
YES
```

In [7]:

```
ls = []
ls.append(19)
ls.append(20)
ls
```

Out[7]:

```
[19, 20]
```

In [29]:

```
def checkSeat(a):
    if(a == 1 or a%6 == 0 or a%6 == 1 or a%12==0 or a%12==1):
        return "WS"
    elif(a == 3 or a == 4 or (a/3 == 0 and a%4 == 1) or (a%3 == 1 and a%4 == 2) or (a%3 ==
        return "AS"
    else:
        return "MS"
n = int(input())
ls = []
for i in range(1,n+1):
    ls.append(int(input()))
for j in range(0,len(ls)):
    print(checkSeat(ls[j]))
```

```
1
31
WS
```

Vijay's Task

In [35]:

```
l = input()
l = l.split()
l = l.sort()
l
```

```
3 2
```

Tuples

Differences Between Lists and Tuples denoted by () Lists are mutable tuples are immutable

In [48]:

```
t1 = (1,2,3,4,5,6,6)
t1[::-1] # reverse the tuple
t1[4] #accessing the fourth element
t1[1:4] #Accessing the 1 to 4th element
```

Out[48]:

```
(2, 3, 4)
```

In [49]:

```
t1[len(t1)//2::]
```

Out[49]:

```
(4, 5, 6, 6)
```

In [50]:

```
d1 = {"key1":"value1","key2":"value2"}
```

In [51]:

```
d1["key1"]
```

Out[51]:

```
'value1'
```

In [52]:

```
d1.keys()
```

Out[52]:

```
dict_keys(['key1', 'key2'])
```

In [53]:

```
d1.values()
```

Out[53]:

```
dict_values(['value1', 'value2'])
```

In [54]:

```
d1.items()
```

Out[54]:

```
dict_items([('key1', 'value1'), ('key2', 'value2')])
```

In [55]:

```
d1["key1"]="HAI" # Adding an element to the dictionary
```

In [56]:

```
d1
```

Out[56]:

```
{'key1': 'HAI', 'key2': 'value2'}
```

Contacts Application:

- Add Contact
- Search For a Contact
- List all contacts

- Modify contact
- Remove Contact

In [78]:

```
contacts = {}
def addContacts(name,number):
    if name in contacts:
        print("Name already exists")
    else:
        contacts[name] = number
    return
addContacts("venkat","9492043600")
```

In [79]:

```
contacts
```

Out[79]:

```
{'venkat': '9492043600'}
```

In [80]:

```
addContacts("venkata","9515958193")
```

In [72]:

```
# Searching the Contacts
def searchForContact(name):
    if name in contacts:
        print(name,":",contacts[name])
    else:
        print("Name not Exists")
searchForContact("venkat")
```

```
venkat : 9492043600
```

In [6]:

```
## List all Contacts

def listContacts(contacts):
    for i in contacts:
        print(contacts)
    return
listContacts(contacts)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-6-4335b55f70e9> in <module>
      5         print(contacts)
      6     return
----> 7 listContacts(contacts)

NameError: name 'contacts' is not defined
```

In [98]:

```
keys = contacts.keys()
```

In [99]:

```
## New Contacts is given as a dictionary
def importContact(newContact):
    contacts.update(newContact)
    print(len(newContact.keys()),"Contact Added")
    return
newContact = {"value":12345,"vas":65432}
importContact(newContact)
```

```
2 Contact Added
```

In [100]:

```
contacts
```

Out[100]:

```
{'venkat': '9492043600', 'venkata': '9515958193', 'value': 12345, 'vas': 654
32}
```

In [104]:

```
keys = contacts.keys()
```

Out[104]:

```
dict_keys(['venkat', 'venkata', 'value', 'vas'])
```

In [106]:

```
print(contacts)
```

```
{'venkat': '9492043600', 'venkata': '9515958193', 'value': 12345, 'vas': 654
32}
```

In [15]:

```
import math   # importing math functions

math.floor(123.432)
math.ceil(123.432)
```

Out[15]:

```
124
```

In [19]:

```
math.pi * 3
```

Out[19]:

```
9.42477796076938
```

In [25]:

```
from math import floor,ceil,pi# Importing a particular functions
pi
ceil(123.4343)
```

Out[25]:

```
124
```

Renaming predefined functions

In [26]:

```
from math import floor as gopal
gopal(12.2321)
```

Out[26]:

```
12
```

In [44]:

```
# Define a function to generate n random numbers

import random

def generateNrandomNumbers(n):
    for i in range(0,100):
        print(random.randrange(1,n+1),end=" ")
generateNrandomNumbers(100)
```

```
77 48 22 27 23 87 21 31 71 38 80 46 64 21 26 68 29 16 52 35 14 57 98 74 74 6
0 81 76 58 23 38 90 59 11 47 88 58 5 53 91 99 80 84 94 13 68 11 41 50 59 54
26 41 18 53 23 39 94 19 57 64 13 53 17 13 53 54 90 22 88 48 36 64 93 85 74 4
7 96 5 76 62 68 81 36 42 50 29 75 58 6 100 90 16 97 18 68 92 46 60 71
```

In [47]:

```

from random import randrange as gopal

def generateNrandomNumbers(n):
    for i in range(0,100):
        print(gopal(1,n+1),end=" ")
generateNrandomNumbers(123)
```

```
9 37 11 89 53 17 8 45 78 114 23 60 82 1 75 35 113 63 56 111 59 119 102 31 59
9 93 1 92 11 22 54 13 80 120 45 73 39 103 93 54 30 4 17 34 77 81 9 108 6 45
10 91 21 62 46 72 28 41 17 88 46 97 79 51 98 103 31 73 91 99 13 42 49 45 71
84 9 109 8 111 8 19 25 80 39 47 85 48 50 53 56 120 26 109 101 109 53 92 78
```

In [2]:

```
import numerical

numerical.checkPrime(6)
```

Out[2]:

```
False
```

In [3]:

```
numerical.checkPrime(9)
```

Out[3]:

```
False
```

In [4]:

```
numerical.isSpecialNumber(6,2)
```

Out[4]:

```
True
```

In [7]:

```
if(numerical.isSpecialNumber(6,2)):
    print("YES")
else:
    print("NO")
```

```
YES
```

In [12]:

```
def checkSeat(a):
    if(a == 1 or a%6 == 0 or a%6 == 1):
        return "WS"
    elif(a == 3 or a == 4 or (a%3 == 0 and a%4 == 1) or (a%3 == 1 and a%4 == 2) or (a%3 ==
        return "AS"
    else:
        return "MS"
n = int(input())
ls = []
for i in range(1,n+1):
    ls.append(int(input()))
for j in range(0,len(ls)):
    print(checkSeat(ls[j]))
```

```
1
73
WS
```

```
###
```