12. Unique Prime Years

Program Name: Unique.java Input File: unique.dat

There are many "prime" years in the 21st century. A prime year is any year that is a prime number. There are some prime years that have other unique characteristics. For example, 2053 is a prime year which can be written as the sum of some number of consecutive prime numbers: 199 + 211 + 223 + 227 + 229 + 233 + 239 + 241 + 251 = 2053. Some prime years are even more unique because they can be written as the sum of two or more sets of consecutive prime numbers.

You are to write a program that will determine if a given a year in the 21st century is a prime year or a unique prime year with special characteristics as outlined above.

Input

The first line of input will contain a single integer `n` that indicates the number of years to follow. The following `n` lines will each contain a single year of the 21st century, 2000-2099.

Output

For each year of input, you will print the statement that best describes each of the years:

- *yyyy* `PRIME YEAR`
- *yyyy* `PRIME YEAR AND THE SUM OF` *x* `CONSECUTIVE PRIMES`
- *yyyy* `PRIME YEAR AND THE SUM OF MORE THAN ONE SET OF CONSECUTIVE PRIMES`
- *yyyy* `NOT A PRIME YEAR`

Note: In the output above, *yyyy* is the year given and *x* is the number of consecutive primes whose sum equals the year.

Example Input File

```
4
2053
2012
2087
2099
```

Example Output to Screen

```
2053 PRIME YEAR AND THE SUM OF 9 CONSECUTIVE PRIMES
2012 NOT A PRIME YEAR
2087 PRIME YEAR
2099 PRIME YEAR AND THE SUM OF MORE THAN ONE SET OF CONSECUTIVE PRIMES
```