King Rawana's Palace

Kamal is a historian looking for King Rawana's Palace. According to the ancient texts, there are said to be an ***N*** number of gates, each protected by a puzzle. Kamal has found the first entrance and is asking for your help to figure out how to solve these puzzles.

In each gate there is a grid of ***2 columns*** and ***R rows***. The first row has two numbers **S1** and **S2** in the first and second column respectively. The numbers in all other rows is the next greater natural number to the number directly above.

On top of each gate there are ***2 numbers***, ***D1*** & ***D2***. Near the gate there are ***4 piles*** of puzzle pieces. Each puzzle piece has a word on it. According to the ancient text you must fill each cell with a puzzle piece based on the following rules.

1. **If the number in the cell is divisible by D1**, it should be filled with a piece from the first pile.
2. **If the number in the cell is divisible by D2**, it should be filled with a piece from the second pile.
3. **If the number in the cell is divisible by both D1 & D2**, it should be filled with a piece from the third pile.
4. **If the cell cannot be filled with a piece from the first 3 piles**, it should be filled with a piece from the fourth pile.

Given the ***5 numbers***, ***S1***, ***S2***, ***R***, ***D1*** and ***D2*** and the words in each ***4 types*** of puzzle pieces, you must write a program to print the solution to the puzzle.

Input Format

First line contains a single integer, ***N***. ***N*** lines follow, each with ***5 integers*** (***S1***, ***S2***, ***R***, ***D1***, ***D2*** respectively), followed by a space and ***4 words***, each separated by a space (words on the puzzle pieces on each pile, respectively).

Constraints

- $1 \leq N \leq 2000$
- $1 \leq S1, S2 \leq 10^8$
- $1 \leq R \leq 100$
- $1 \leq D1 < D2 \leq 10^8$

Output Format

For each gate print ***R*** lines - the solution for the puzzle. Each line should contain two space separated words.

Sample Input 0

```
3
1 45 5 3 5 Fizz Buzz FizzBuzz Nil
4 13 10 2 7 Ba Bi Be Bu
49 23 5 5 10 Oong Greeng Kattu Eswah
```

Sample Output 0

```
Nil FizzBuzz
Nil Nil
Fizz Nil
Nil Fizz
Buzz Nil
Ba Bu
Bu Be
Ba Bu
Bi Ba
Ba Bu
Bu Ba
Ba Bu
Bu Ba
Ba Bi
Bu Ba
Eswah Eswah
Kattu Eswah
Eswah Oong
Eswah Eswah
Eswah Eswah
```

Explanation 0

Gate 1:

Column 1	Divisible By 3	Divisible By 5	Answer	Column 2	Divisible By 3	Divisible By 5	Answer
1	FALSE	FALSE	Nil	45	TRUE	TRUE	FizzBuzz
2	FALSE	FALSE	Nil	46	FALSE	FALSE	Nil
3	TRUE	FALSE	Fizz	47	FALSE	FALSE	Nil
4	FALSE	FALSE	Nil	48	TRUE	FALSE	Fizz
5	FALSE	TRUE	Buzz	49	FALSE	FALSE	Nil

Gate 2:

Column 1	Divisible By 2	Divisible By 7	Answer	Column 2	Divisible By 2	Divisible By 7	Answer
4	TRUE	FALSE	Ba	13	FALSE	FALSE	Bu
5	FALSE	FALSE	Bu	14	TRUE	TRUE	Be
6	TRUE	FALSE	Ba	15	FALSE	FALSE	Bu
7	FALSE	TRUE	Bi	16	TRUE	FALSE	Ba
8	TRUE	FALSE	Ba	17	FALSE	FALSE	Bu
9	FALSE	FALSE	Bu	18	TRUE	FALSE	Ba
10	TRUE	FALSE	Ba	19	FALSE	FALSE	Bu
11	FALSE	FALSE	Bu	20	TRUE	FALSE	Ba
12	TRUE	FALSE	Ba	21	FALSE	TRUE	Bi
13	FALSE	FALSE	Bu	22	TRUE	FALSE	Ba

Gate 3:

Column 1	Divisible By 5	Divisible By 10	Answer	Column 2	Divisible By 5	Divisible By 10	Answer
49	FALSE	FALSE	Eswah	23	FALSE	FALSE	Eswah
50	TRUE	TRUE	Kattu	24	FALSE	FALSE	Eswah
51	FALSE	FALSE	Eswah	25	TRUE	FALSE	Oong
52	FALSE	FALSE	Eswah	26	FALSE	FALSE	Eswah
53	FALSE	FALSE	Eswah	27	FALSE	FALSE	Eswah