Problem G
Couple-Bachelor-Spinster Numbers

Input: standard input
Output: standard output
Time Limit: 2 seconds

Can any number be expressed as a subtraction of two squares? The numbers, which can be expressed in such a way, are called **square-couple** numbers. Your job is to find out

a) If a number is **square couple** number.
b) If the number is **square couple** then find that format.
c) Find out how many square couple numbers are there within a certain range (including the terminal numbers).

Input

Each set of input is given in a single line. Each input set may contain one or two signed 32 bit integer numbers. Input is terminated by end of file.

Output

If there is only a single number **N** in a single line then print two non-negative integer numbers **a** and **b,** such that **a*a-b*b = N**. If the number cannot be expressed in such a format then print the line **"Bachelor Number."** in a single line if such number is even and print the line **"Spinster Number."** if the number is odd.

If there are two numbers **n1** and **n2** in the input then print how many bachelor numbers are within **n1** and **n2** (including **n1** and **n2**). Note that (**n1**<**n2** and (**n1**- **n2**)<1000000).

Sample Input:

```
6
12
3
```

Sample Output:

```
Bachelor Number.
4 2
2 1
```

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"If all the sides of a cube were identical, how could we tell which side is face up?"