A. Stepping Numbers

Description

A number is called a stepping number if all adjacent digits have an absolute difference of 1, e.g. ‘321’ is a Stepping Number while ‘421’ is not. Given two integers n and m, count the number of all the stepping numbers in range [N, M]. Note that the stepping numbers should have adjacent digits, which means that they consist of at least 2 digits.

Input

One line contains two integers, representing the values of N and M, respectively. The integers are separated by a space.

Note:

For 70% of the cases: $0<=N, M<=1*10^8$

For 100% of the cases: $0<=N, M<=3*10^8$

Output

One line contains an integer representing the number of stepping numbers in the range between N and M.

Sample Input:

```
2 21
```

Sample Output:

```
3
```

Hint: Stepping numbers between `2` and `21` are `10, 12` and `21.`

B. Nodes from the Root

Description

There is a binary tree with N nodes indexing from 0 to N-1, where 0 is the root. Each edge of the tree has an integer weight W. At first all the nodes could be reached from the root, through a sequence of edges.

An integer threshold X (X >= 0) is used to close the edge, which means that all the edges whose weights are less than X will be closed.

Given the tree and an integer Y, please find the **minimum** threshold X so that the number of nodes reachable from the root (including the root itself) is no more than Y.

Input

The first line contains one integer N, representing the number of nodes in the tree.

The second line contains one integer Y, representing the maximum number of nodes allowed to be reachable from the root.

Each of the following N-1 lines contains three integers U, V, W, representing that the edge between node U and node V has a weight W. The integers are separated by a space.

Note:

$2 <= N <= 2*10^4$
$1 <= Y <= N$
$1 <= W <= 10^7$

Output

One line with a single integer, representing the minimum threshold X.

Note:

X >= 0

Sample Input1

```
3
2
0 1 2
0 2 3
```

Sample Output1

```
3
```

Sample Input2

```
6
3
0 1 8
0 2 3
1 3 2
1 4 5
2 5 6
```

Sample Output2

```
4
```

Hint

In sample1, the closed edge is `(0, 1, 2)`
In sample2, the closed edges are `(0, 2, 3)` and `(1, 3, 2)`

C. Distinct Subsequences

Description

Given a string S and a string T, count the number of distinct subsequences of S which is equal to T.

A subsequence of a string is a new string which is formed from the original string by deleting some (can be none) of the characters without disturbing the relative positions of the remaining characters. (i.e., `"nus"` is a subsequence of `"njucs"` while `"nsu"` is not).

Input

The input contains two lines. The first line is the string S, and the second line is the string T.

Note: We denote the lengths of S and T as len(S) and len(T), respectively. There are restrictions as follows:

1 <= len(S) <= 10^4
1 <= len(T) <= 10^4

Output

The output is a single number which is the total number T of distinct subsequences of S.

Note:

0<= S <= 2^{32}-1

Sample Input

```
njnunju
nju
```

Sample Output

```
5
```

Hint: As shown below, there are 5 ways you can generate "`nju`" from S:

$\underline{\texttt{nj}}\texttt{n}\underline{\texttt{u}}\texttt{nju}$

$\underline{\texttt{nj}}\texttt{nunj}\underline{\texttt{u}}$

$\underline{\texttt{n}}\texttt{jnun}\underline{\texttt{ju}}$

$\texttt{nj}\underline{\texttt{n}}\texttt{un}\underline{\texttt{ju}}$

$\texttt{njnu}\underline{\texttt{nju}}$