

# Cherry Picking

Input file: *standard input*  
Output file: *standard output*  
Time limit: 2 seconds  
Memory limit: 512 mebibytes

Statistics expert Vladimir Borisovich periodically analyzes games of different chess players for interesting series. He considers a series interesting if it consists of 40 consecutive wins against opponents with ratings of at least 2900. In between, the player may have played any number of games against opponents with lower ratings: the important part is that 40 games against high rated opponents ended in a win.

Every time Vladimir Borisovich finds an interesting series, he shares it on social networks. Unfortunately, Vladimir Borisovich performs all operations manually, so it takes him a lot of time to search for interesting series. Help Vladimir Borisovich automate the process of finding interesting series by solving a more general problem.

You will be given the results and ratings of opponents in  $n$  consecutive games of a chess player. Your task is to find the maximum possible rating  $x$  such that, if you remove all games with opponent ratings strictly less than  $x$  from the sequence, there exists a series of  $k$  consecutive wins.

## Input

The first line of input contains two integers  $n$  and  $k$  ( $1 \leq k \leq n \leq 100\,000$ ). The second line contains  $n$  space-separated integers  $r_i$ : the ratings of the opponents ( $1 \leq r_i \leq 100\,000$ ). The third line consists of  $n$  characters which are zeros and ones: the  $i$ -th character is equal to “1” if the  $i$ -th game was a win, or “0” otherwise.

## Output

If the answer exists, output  $x$ . Otherwise, output 0.

## Examples

<i>standard input</i>	<i>standard output</i>
5 2 1 2 3 4 5 01101	2
5 2 3 4 5 2 1 10101	0