

3**Question 1**

Time limit:

The next line contains N space separated integers which represents the coins in each node.

Output Format

The maximum number of coins that you can get.

Sample Input

```
77  
12  
13  
24  
25  
36  
37  
24 6 2 2 6 8
```

Sample Output

```
11
```

Explanation

There are 7 nodes in this tree.
At t = 0, you are at the root which has 2 coins and the robber is at node 7 which has 8 coins. At t = 1, both you and the robber will goto to node 3 with 6 coins and will get 3 coins each. At t = 2, you will goto node 6 with 6 coins and the robber will goto the root with 0 coins.

The total coins collected by you in this approach is $3 + 3 + 6 = 11$. All other paths yield lesser number of coins

Maximize

```
#include <iostream>  
int main() {  
    // Enter your code here  
    // Finally, write  
    // cout << ans  
    // return 0;  
}
```

INPUT / OUTPUT

1. 2

Question 1

What's the maximum number of coins that you can aim get in this process?

Constraints

$2 \leq N \leq 100,000$

$-10,000 \leq C_i \leq 10,000$

The number of coins in each node is even.

Input Format

First line contains two integers N, R representing the number of nodes in the tree and the position of the robber at $t = 0$.

Next $N - 1$ lines contain two integers A, B denoting that there's an undirected edge between nodes A and B .

The next line contains N space separated integers which represents the coins in each node.

Output Format

The maximum number of coins that you can get.

Sample Input

77

12

13

24

25

36

37

2462268

Sample Output

Maximise

1

2

ROBBER ON TREE!

You are given a rooted tree of N nodes, numbered 1 to N , with root as 1. Each node in the tree has some number of coins denoted by C_i representing the number of coins the i^{th} node has.

At time $t = 0$, you are at the root node and there's a robber at one of the leaf nodes R . At each step, both you and robber take one step each and move to an adjacent node.

To prevent chaos, there's some restrictions on both your and robber's movements. You have to choose a leaf node and take the shortest path to that leaf node and stop once you reach that leaf node. The robber has to take the shortest path to the root node and stop once the robber reaches the root node.

A person reaching a node first gets to take all the coins in the node leaving it empty for anyone who visits it after that time. If 2 people reach the node at the same time, they each get half of the coins in that node.

What's the maximum number of coins that you can aim get in this process?

Constraints

$2 \leq N \leq 100,000$
 $-10,000 \leq C_i \leq 10,000$

The number of coins in each node is even

Input Format

Maximum

INPUT / OUTPUT

ASUS

4.3

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Question 4 of 4



Constraints

$1 \leq N \leq 10^5$

Input Format

The first line contains N , the number of steps

The second line contains N space separated
characters ('_ or * or S or D), '_' representing a clear
path, '*' representing an obstacle 'S' representing
starting point 'D' representing destination

Output Format

Signal string representing the path Bob should take.

Sample Input

```
12
S _ * * - - - * - * * D
```

Sample Output

```
WJWWJD
```

Explanation

Consider 1 indexing,

```
S _ * * - - - * - * * D
1 2 3 4 5 6 7 8 9 10 11 12
```

- 1-2: Walk
- 2-5: Jump
- 5-6: Walk
- 6-7: Walk
- 7-9: Jump
- 9-12: Jump

INPUT / OUTPUT

Maximize

4.2

Signals:

W:Walk

J:Jump

His favourite professor is not changing his location until he comes!! Please guide Bob in reaching the location

Constraints

$1 \leq N \leq 10^5$

Input Format

The first line contains N, the number of steps

The second line contains N space separated characters ('_ or * or S or D), '_' representing a clear path, '*' representing an obstacle 'S' representing starting point 'D' representing destination

Output Format

Signal string representing the path Bob should take.

Sample Input

```
12  
S _ * * - - - * * * D
```

Sample Output

```
WJWWJD
```

Explanation

Minimize

```
* - * * D  
9 10 11 12
```

Language: Help C

```
1 #include <iostream>  
2 int main() {  
3     // Click HELP  
4     // INPUT: std::  
5     // DEBUG: std:  
6     // OUTPUT: std  
7     // Write the co  
8     // format the "i  
9     // and finally,  
10    // IMPORTANT: Re  
11    return 0;  
12 }  
13 }  
14 }
```

INPUT / OUTPUT

4 . 1

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Question 4 of 4

Flag

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LOST IN THE WOODS

A college passout named Bob is returning to his own college for hiring candidates for the company he works for. Bob is very excited to go back to his college, but realizes after entering that his college has changed a lot. After becoming a university, there are a lot of new blocks getting constructed. Bob tries to go to TnP cell to meet his favourite professor who is the head of TnP cell, but there are various obstacles that come in his way. Can you help him meet his favourite professor by guiding him the correct way to roam in college? 

Language: Help

```
1 #include <lost.h>
2 int main() {
3     // Click HERE
4     // INPUT: s
5     // DEBUG: s
6     // OUTPUT: s
7
8     // Write the
9     // format the
10    // and finally
11    // IMPORTANT.
12    return 0;
13 }
14 }
```

You are given N space separated characters, the first one represents the current location of Bob, the last one representing the location Bob wants to reach to. There are obstacles in the way represented by *, you need to jump if the next step is an obstacle, and you cross all the adjacent obstacles on jumping. If there are no obstacles, Bob will walk through the path. You have to give Bob signals to tell him how to move.

Signals:

W:Walk

J:Jump

His favourite professor is not changing his location until he comes!! Please guide Bob in reaching the location.

Constraints



format

contains N, the number of steps

contains N space seperated

INPUT / OUTPUT

15

14

3 . 3

Question 3

the second one denoting the list of these skills
Sample Input

```
5 3
4
1 2 3 4
2
1 5
40 30 60
3
2 3 5
2
4 4
3
2 3 4
```

```
Help C++
#include <iostream>
int main() {
    // Read the input
    // IMPORTANT: read the first line
    // format the code
    // and finally
    // IMPORTANT: return 0;
    return 0;
}
```

Sample Output

```
60
```

Explanation

Required skills : [S1,S2,S3,S4]

Candidates skills: [S1,S5]

Books:

B1: Cost - 40, Skills: S2,S3,S5

B2: Cost - 30, Skills: S4

B3: Cost - 60, Skills: S2,S3,S4

Alice required to gain S2,S3,S4 from reading the books.

He already has S1 skill.

There are 2 ways he can get these skills.

Either by reading B1 and B2 OR by reading B3.

Just buying B3 optimises his cost to 60

INPUT / OUTPUT

Maximize

3.2

Question 3

get to the interview even after buying all the books,
output -1

Constraints

$1 \leq N \leq 15$
 $1 \leq M \leq 100$
 $1 \leq P \leq 100$

Input Format

The first line two space separated integers N and M , denoting the total number of skills and the total number of books respectively

The second line contains K , the number of skills required by the company.

The third line contains the space separated list of skills required by the company.

The fourth line contains L , the number of skills owned by Alice.

The fifth line contains the space separated list of skills owned by Alice.

The next line contains M space separated integers denoting the cost of the books.

Next M entries each of 2 lines, the first one denoting the number of skills gained by reading the book and the second one denoting the list of these skills

Sample Input

```
5 3  
4  
1 2 3 4  
2
```

Minimize

INPUT / OUTPUT

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

3.

1

Question 3

UPSKILLING CANDIDATES

UPSKILLING CANDIDATES

A candidate named Alice wants to get into Intuit. Intuit demands a required set of skills $X_i [X_1, X_2 \dots X_K]$ for a candidate to qualify for its interview process. Skills are numbered from 1 to N and represented by $S [S_1, S_2 \dots S_N]$.

Alice already has a skill set Y $[Y_1, Y_2 \dots Y_L]$ that might or might not be sufficient for qualifying for the process.

There are various books available in the market, and the books have skills associated with them. Each book helps the person reading the book gain at least 1 skill. Each book has a price P_i associated with it.

Books are numbered from 1 to M and the cost of the books are represented by $B_i [B_1, B_2 \dots B_M]$.

Help Alice interview for Intuit, by minimizing the cost he has to spend on buying the books. If Alice can't get to the interview even after buying all the books, output -1

Constraints

$$1 \leq N \leq 15$$

$$1 \leq M \leq 100$$

$$1 \leq P \leq 100$$

Input Format

Minimize

No space separated integers N and M, total number of skills and the total number of books respectively

Line 1 contains K, the number of skills required by the company.

Line 2 contains the space separated list of skills Alice has.

INPUT / OUTPUT

ASUS

Q · Q

Question 2

Output: 1

Explanation: Max subarrays count with distinct tanks for line size 1 is 1. Possible line - {1}, {2}
We choose {1} as it is lexicographically smallest.

Example 2

Input: 2 1

Output: 1 1

Explanation: The only possible line - {1, 1}

Example 3

Input: 2 2

Output: 1 2

Explanation: Possible lines: {1, 1}, {1, 2}, {2, 1}, {2, 2} Lines {1, 2} and {2, 1} has max count of subarrays with distinct tanks.

Help C

```
#include <stdio.h>
int main() {
    // Click HELP to see hints
    // INPUT: scanf("%d", &n);
    // DEBUG: printf("n = %d\n", n);
    // OUTPUT: printf("%d\n", ans);
    // Write the code to
    // format the result
    // and finally, write
    // IMPORTANT: Remove
    return 0;
}
```

INPUT / OUTPUT

Maximize

f4

Q.3

Question 2

array x if there exists an index i such that $x_i < y_i$, and $x_j = y_j$ for all $1 \leq j < i$. Less formally, at the first index i in which they differ, $x_i < y_i$.

Constraints

$1 \leq n \leq 100000$ $1 \leq m \leq 10000000$

Input Format

The only line contain space separated integer values n and m . where n is the size of good line m is the number of tank types

Output Format

Return a list of size n .

Sample Input

Example 1

Input: 1 2

Output: 1

Minimize

Max subarrays count with distinct
size 1 is 1. Possible line - (1), (2)

INPUT / OUTPUT

ASUS

Q. 1

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Question 2

Jump to Q5

KINGS DREAMS

Help C

```
#include <stdio.h>
int main() {
    // CLICK HELP above to see examples of handling command-line arguments.
    // INPUT: scanf("%d", &n);
    // DEBUG: printf("\n%d\n", n);
    // OUTPUT: printf("\n%d\n", result);

    // Write the code to solve the problem below.
    // format the "result" as specified in the problem statement.
    // and finally, write the result to standard output.
    // IMPORTANT: Remove all debug statements for final submission.
    return 0;
}
```

Once upon a time, a King saw a dream, where if his kingdom has `good line` of tanks, meaning `tanks` lined up side by side in a certain way, they will become invincible.

Now, since you are the advisor of the king, he has asked you to create a `good line` of tanks.

There are `m` types of tanks, numbered `1` through `m`, and we have infinite amount of tanks for each type.

Come up with a `good line` of size `n` tanks. If there are multiple `good line`s of size `n` tanks, return one which is lexicographically smallest.

`good line` is a configuration where tanks lined up in an array and the count of subarrays with only distinct tank types is maximum. e.g {3, 4, 4, 5} contains 6 subarrays with distinct tanks: {3}, {4}, {4}, {5}, {3, 4}, {4, 5}

Minimize

INPUT / OUTPUT

ASUS



Question 1 of 4

ROBBER ON TREE!

You are given a rooted tree of N nodes, numbered 1 to N , with root as 1. Each node in the tree has some number of coins denoted by C_i representing the number of coins the i^{th} node has.

At time $t = 0$, you are at the root node and there's a robber at one of the leaf nodes R . At each step, both you and robber take one step each and move to an adjacent node.

To prevent chaos, there's some restrictions on your and robber's movements. You have to choose a leaf node and take the shortest path to that leaf node and stop once you reach that leaf node. The robber has to take the shortest path to the root node and stop once the robber reaches the root node.

A person reaching a node first gets to take all the coins in the node leaving it empty for anyone who visits it after that time. If 2 people reach the node at the same time, they each get half of the coins in that node.

What's the maximum number of coins that you can aim get in this process?

Constraints

$2 \leq N \leq 100,000$

$1 \leq C_i \leq 10,000$

coins in each node is even.

Flag

Jump to Qs

Language: Help C

```
1 #include <stdio.h>
2 int main() {
3     // CLICK HELP above to see examples of handling
4     // INPUT: scanf("%d", &n);
5     // DEBUG: printf("%d\n", n);
6     // OUTPUT: printf("%d\n", result);
7
8     // Write the code to solve the problem below.
9     // format the "result" as specified in the question
10    // and finally, write the result to stdout
11    // IMPORTANT: Remove all debug statements for final
12    // result
13 }
14 }
```

INPUT / OUTPUT

ASUS