Profit Model for John

John has recently started stock trading. He has predicted share prices for a particular company, over the next N days. John wants to analyze this data to build a model which will predict the best day to buy and sell the shares to achieve a specific profit. If there are multiple approaches of buying and selling shares to achieve this profit, John would like to know which of these will achieve the profit the earliest.

Input format

The first line contains two integers N and D, where N is the number of days for which he is predicting the share values and D is the number of different profits he would like to achieve.

The next line contains N space separated integers, where N_i is the value of the share on the i+1th day.

The next D lines contain a single integer D_i, where D_i is the profit that needs to be made.

Constraints

- Only 1 share can be bought.
- Short selling is not allowed.
- $1 \leq N \leq 100000$
- $1 \leq D \leq 10$
- $1 \leq N_i, D_i \leq 1000000$

Output format

Print in the same line two space separated integers - the day on which the share was bought and the day on which the share was sold. The buy and sell days for different profits should be separated by ,. If it is not possible to achieve the desirable profit, print -1.

Examples

Example 1

Input

```
6 2
```

```
3 1 2 1 4 5

3

2
```

Output

```
4 5,3 5
```

i.e. To achieve a profit of 3, John can either buy on day 2 or day 4 and sell on day 5 or he can buy on day 3 and sell on day 6. The approach which takes the minimum number of days is where he buys on day 4 and sells on day 5. So, the answer is 4 5. To achieve a profit of 2, John can either buy on day 1 and sell on day 6 or he can buy on day 3 and sell on day 5. The approach which happens earliest is where John buys on day 3 and sells on day 5.

Example 2

Input

```
6 2

3 6 9 8 2 4

5

2
```

Output

```
1 4,2 4
```

i.e. To achieve a profit of 5, John can buy on day 1 when the price is 3 and sell on day 4 when the price is 8 for a profit of 5. To achieve a profit of 2, he has two options, buy on day 2 and sell on day 4 or buy on day 5 and sell on day 6. The approach which happens earliest is where John buys on day 2 and sells on day 4.


```python
def find_min_days(prices, profit):
    # Participants code will be here
    return ""

n, d = map(int, input().split())
prices = list(map(int, input().split()))
profit = list()
for i in range(d):
    profit.append(int(input().strip()))
```

```
answer = find_min_days(prices,profit)
# Do not remove below line
print(answer)
# Do not print anything after this line
```

Your submission History for Question 3

	Timestamp	Commit ID	Language	# Tests Passed	# Tests Failed	# Tests Timed out	Build Status
+	10/19/2020, 9:46:41 PM	6686bc5	CPLUSPLUS	90	0	0	Perfect
+	10/19/2020, 9:44:52 PM	4719ba2	CPLUSPLUS	0	90	0	Failed