

<https://docs.google.com/document/d/1MdW9XrMNwRqIq23Qev7FcLDtgGetUgR4YzjQD1XzLSA/edit?usp=sharing>

Input Format

1. The first line contains two integers N and M, representing the number of events and dependencies respectively.
2. The second line contains N integers h1,h2,,hN, where hi is the hype score of event i.
3. The next M lines each contain two integers u and v, indicating that event u must precede event v.
4. The next line contains an integer Q, representing the number of queries.
5. The next Q lines contain one integer per line indicating query type (1, 2, 3 or 4).

Constraints

In the doc

Output Format

In the doc

Sample Input 0

```
4 4
10 20 30 40
1 2
2 3
3 1
3 4
4
1
2
3
4
```

Sample Output 0

```
YES
2 3
NO
100
```

Sample Input 1

```
5 4
5 10 15 20 25
1 2
1 3
2 4
3 5
4
```

3
4
1
2

Sample Output 1

1 2 3 4 5
45
NO
5 1