Subnumber

You are given a large N digit number (base 10).

You must answer M queries. Each query contains two integers K and L. Among all subsequences of length K, print the L-th digit of the subsequence which is the largest by value.

Note that a subsequence is a sequence that can be derived from the given sequence by deleting zero or more elements without changing the order of the remaining elements.

Input:

- The first line contains the N digit number (in base 10).
- The second line contains a single integer M — the number of queries.
- The next M lines contain two integers each K and L — denoting the length of the subsequence and which digit to print.

Output:

On a single line, print M characters, not space separated — the answers to each query.

Constraints

- $1 \leq N, M \leq 10^5$
- $1 \leq L \leq K \leq N$

Subtasks

- **Subtask #1 (15 points):** $N = 20$, $M = 10^4$
- **Subtask #2 (25 points):** $N \cdot M \leq 5 \cdot 10^5$
- **Subtask #3 (60 points):** $N \leq 10^5$, $M \leq 5 \cdot 10^4$

Sample Input:

```
31415926
7
2 2
3 1
1 1
4 3
5 2
8 2
7 3
```

Sample Output:

```
6992511
```

EXPLANATION: