Problem I

Acedia

Now, you have a sequence with *n* integers, the *k*-th one of which is denoted by *a[k]*. You need to answer *m* queries. In a query, you are given the interval *[l,r]* and asked to consider each integer k from *1* to *10*. For each integer k, you should calculate the number of valid integers x.

Here we call an integer *x* valid associating with the integer k and the interval [l,r] if it satisfies the following conditions.

1. For each integer *i* from *x* to *x+k-1*, there exist at least one element in *{a[l], a[l+1], a[l+2, ..., a[r-1], a[r]}* which is equal to *i*.

2. But there is no element in the range *[l,r]* of the sequence which is equal to *x-1* or *y+1*.

Input

The input contains multiple test cases and the first line contains an integer *T* (1<=*T*<=10) denoting the number of test cases.

In each test case, the first line contains two numbers *n and m* (1<=*n, m*<=100000).

The second line contains n integers indicating *a[1] to a[n]* (0<=*a[i]*<=2000000000).

Each of the following m lines contains two integers *l and r* describing an interval indicating a query described above (1<=*l*<=*r*<=*n*).

Output

For each test case, output m lines for all queries.

In each query you should calculate 10 numbers, each one corresponding to an integer *k* from *1* to *10*. In order to compress the output, your programme should print each number mod *10* respectively without spaces, as a string of length *10* in a line.

Sample Input	Sample Output
2 5 5 1 2 4 5 6 1 5 1 2 3 4 3 5 4 5	0110000000 0100000000 0100000000 0010000000 0100000000 1100000000 1000000000 1000000000

8 9 2 3 3 3 3 6 6 6 1 8 2 3 4 5 6 8 1 2 3 4 5 6 3 8 5 5	1000000000 0100000000 1000000000 2000000000 2000000000 1000000000