Problem 1:

Pre-Implementation Notes:
This question requires a lot of different operations, so I started off with the Naive approach of just calculating everything upon request.

This was however too slow.

Upon further research I found that there exists a "Segment Tree" which I can utilise to store data about subsections of my entire array. I can modify the provided segment tree in the lecture slides by storing the following node in each index:

```
struct Node {
    long long sum;
    long long mx;
    long long lv;
    long long rv;
    bool inc;
    bool dec;
};
```

This way, I can find all of the information necessary with a single query.

After implementing this issue I still had gotten an incorrect solution. After more thorough debugging and coming up with test cases that test all edge cases of the provided specification I had made a mistake when it comes to the "descending" comparison, and after this fix my solution was accepted.

I could have proactively prevented this by better planning with data structures which could have been done by actually keeping up with lecture content and remembering important information.