GROUP 1

HAIDER AND ABHI

SORTING COMPETITION

Start

SCORING + CORRECTNESS

- 9TH PLACE
- RESULT 1 MEDIAN IS 2912.0 ms
- RESULT 2 MEDIAN IS 172.0 ms
- SUM OF MEDIANS IS 3084.0 ms
- SORTED CORRECTLY (NO CORRECTNESS ISSUES)

ALGORITHM WE CHOSE

The current method we use is radix sort, as we know the value range (0 and 1) and the fixed-length data (the dataset consists of between 1,000 and 5,000,000 strings of 0s and 1s). The algorithm assumes that both the strings and targets are of uniform length.

- The algorithm first calculates distances between each string and the target. It then uses counting sort to group strings by their distance values. Within each distance group, it applies radix sort (specifically for binary strings) to sort strings that share the same distance
- This approach is efficient because counting sort handles the primary distance-based ordering in O(n) time, while radix sort efficiently handles the secondary ordering within groups.

RUNNING TIME

- The actual running time of this algorithm is $O(n \times L)$, where L is the length of the strings.
- Even if strings are unevenly distributed, the total work remains the same. Therefore, both worst and expected time complexity are $O(n \times L)$.

HOW IS THE DATA STORED?

STORED AND PROCESSED IN ARRAYS

ALL THE DATA IS STORED IN ARRAYS :

- **String[ ] for the binary strings**
- **int[ ] for counts and distances**

THANK YOU