

Homework 2A

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Problem explanation

- Points for soccer teams: preliminary
- A soccer league has 20 teams, and each team plays 19 games, once with all other teams. Each team gets
- A points when it wins, represented by "W" (win),
- B points when it ties, represented by "T" (tie), and
- 0 points when it is defeated, represented by "L" (lose),
- where A and B are integers satisfying $0 < B < A < 10$.
- Then, results are represented by the 20 by 20 matrix shown in the next slide.
- Calculate each team's score sorted in descending order.

Solution explanation

```
XTWTTTTTTTTTTTTTTTTTTT
TXTTTTTTTTTTTTTTTTTTTT
LTXTTTTTTTTTTTTTTTTTTT
TTTXTTTTTTTTTTTTTTTTTT
TTTTXTTTTTTTTTTTTTTTTT
TTTTTXTTTTTTTTTTTTTTTT
TTTTTTXTTTTTTTTTTTTTTT
TTTTTTTXTTTTTTTTTTTTTT
TTTTTTTTXTTTTTTTTTTTTT
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TTTTTTTTTTTXTTTTTTTTTT
TTTTTTTTTTTTXTTTTTTTTT
TTTTTTTTTTTTTTXTTTTTTT
TTTTTTTTTTTTTTTTXTTTTT
TTTTTTTTTTTTTTTTTTXTTT
TTTTTTTTTTTTTTTTTTTTXTT
TTTTTTTTTTTTTTTTTTTTXT
TTTTTTTTTTTTTTTTTTTTTX
```

- The input data of 20 by 20 matrix is like that. And A and B will be given.
- To solve this problem, I can think every single row is each team.
- So, I'll get every row as a string and calculate the score.

Solution explanation

XTWTTTTTTTTTTTTTTTTTT
TXTTTTTTTTTTTTTTTTTT
LXTTTTTTTTTTTTTTTTTTT
TTTXTTTTTTTTTTTTTTTTT
TTTTXTTTTTTTTTTTTTTTTT
TTTTTXTTTTTTTTTTTTTTT
TTTTTTXTTTTTTTTTTTTTT
TTTTTTTXTTTTTTTTTTTTT
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TTTTTTTTTXTTTTTTTTTTT
TTTTTTTTTTXTTTTTTTTTT
TTTTTTTTTTTTXTTTTTTTT
TTTTTTTTTTTTTTXTTTTTT
TTTTTTTTTTTTTTTTXTTTT
TTTTTTTTTTTTTTTTTTXTT
TTTTTTTTTTTTTTTTTTTTXT
TTTTTTTTTTTTTTTTTTTTTX

- To solve this problem, I can think every single row is each team.
- So, I'll get every row as a string and calculate the score. I added the score to the score array.

```
char Matrix[20][20];
int Score[20];
int A,B;
for(int i=0; i<20; i++) Score[i]=0;

//Win : A points, Tie : B points, Lose : 0 point
// 0<B<A<10
scanf("%d %d",&A, &B);
for(int i=0; i<20;i++) scanf("%s",&Matrix[i]);

for(int i=0; i<20;i++){
    for(int j=0;j<20;j++){
        if(Matrix[i][j]=='W') Score[i]+=A;
        else if(Matrix[i][j]=='T') Score[i]+=B;
    }
}
```

Solution explanation

XTWTTTTTTTTTTTTTTTTTT
TXTTTTTTTTTTTTTTTTTT
LTXTTTTTTTTTTTTTTTTT
TTXTTTTTTTTTTTTTTTTT
TTTTXTTTTTTTTTTTTTTT
TTTTTXTTTTTTTTTTTTTT
TTTTTTXTTTTTTTTTTTTT
TTTTTTTXTTTTTTTTTTTT
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TTTTTTTTTTTTTTXTT
TTTTTTTTTTTTTTXT
TTTTTTTTTTTTTTXT

- And I used bubble sort for sorting

```
void b_sort(int arr[], int n){
    int temp;
    for(int i=0; i<n; i++){
        for(int j=0; j<n-1-i; j++){
            if(arr[j]>arr[j+1]){
                temp = arr[j];
                arr[j]=arr[j+1];
                arr[j+1]=temp;
            }
        }
    }
}
```