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CSE-221.

1.(a)

In this Problem 5 numbers are given and we need to find the of it's odd or even. So, we take input a as a text file. In my program, I take a input and output file where in the input file it will only read. On the output file it will write. Then by readline() we take the integer and find how many number are there. Then In a for loop we run the loop for that total times. Inside the loop we do readline() So that in every iteration it can come up to a new number. Then we give one if condition. where it will tell if it's odd or even. If the condition is satisfied then it will write the following output. and finally we close the input and output files.

1(b)

In this Problem by readline() we see how many total inputs are there then in a for loop I did readline and then split that line then we can find an array of that string.

in if elif we set the signs +, -, /, * and see if that matches at index [2] if it matches then the numbers of index [1] and [3] are completed calculation under that sign and finally written in the output file.

(2)

Here my task was to get the best case Scenario $\Theta(n)$. In the code I can ensure that the array is sorted as per by initializing checker to true. If no swap are made then we can say its already sorted. So we set the checker to false. to break the loop. So in the best case scenario the array is sorted and the inner loop will run only once which will results in $\Theta(n)$ time complexity.

(3)

In this code I splited the lines to get the IDs and the marks and by using a for loop I inserted them in two lists. Then I used a modified version of Selection Sorting

to get a better time complexity. And we can find the output as desired by using some if and else condition and sorting 2 lists at a time..

(4)

In this task I use bubble sort two times to organize departure time based on the criterias that's mentioned in the question. In the first stage the trains name are sorted lexicographically If the names were same then time was sorted. So in this code firstly ~~we~~ I sorted by names and then if the name was same then the time in the second sort. Its better to mention 1 parameter and took out the train name, destination and time as a list in a list. so it becomes easy to track the sorting.