

Lab 1 : f_in and f_out will be used for epr/w operations in all Tasks.

TASK 1a

- the variable 'read' : scans entire text file and assigns it as a list
- the first for loop adds each of the numbers as an individual element to the list 'x'.
- the second loop takes all numbers from the first number (x[1::]) to avoid 05) as iteration and puts 'if statements' to output to text file.

TASK 1b

- Similar to previous task, x takes each line, strips the empty elements, and splits them into a list by the (\n) new line command
- the for loop runs similar to Task 1a and checks the operation element (+/-/%) which is the 2nd index of each element.
- the 'Calculation' is a temporary variable which takes each line and turns it into a list for ease of indexing.

Task 2

- # Best case for bubble sort is: the input being sorted by default, hence running the loop once.
- # This is achieved by using a flag to check if the input is already sorted. This makes the loop run once so $O(n) = \Omega(n) = \Theta(n)$.

Task 3

- Similar to the previous task it assigns scan entire text and assigns each variable (id, marks, num student).
- the first for loop assigns id with consecutive
- recursive function sorts by marks and then id

Task 3 • id and marks are taken as element of nested list: MARKSHEET

• Selection sort is imposed by the function

• it takes index as max, scans rest of the list for bigger marks swaps if found, if same, compares id

Task 4

- Similar to task 2, the schedule is assigned as an array followed by two recursive ~~alg~~ functions, the first sorts by name, ~~and~~ ^{and} sorts by time for same names.