Lab 13
Sorting

2019. 06. 13

lab 13. Sorting

Lab 13-1. Merge Sort

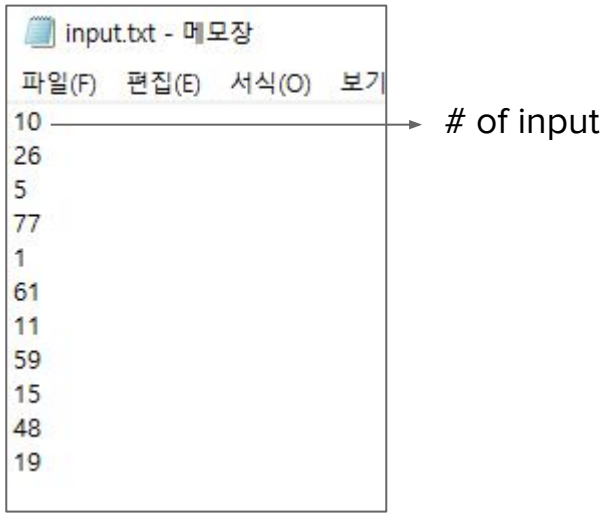
Lab 13-2. Quick Sort

lab 13-1. Merge Sort

- **Input**
  - First line represents the number of input values.
  - Others represent each value.
  - You have to sort values using two methods.
    - Iterative
    - Recursive
  - You should represent every step.
- **You have to use file I/O like the previous assignment.**

lab 13-1. Merge Sort

input



output

```
jee@ubuntu:~$ ./a.out input13-1.txt
input :
26 5 77 1 61 11 59 15 48 19

iterative :
5 26
1 77
11 61
15 59
19 48
1 5 26 77
11 15 59 61
19 48
1 5 11 15 26 59 61 77
19 48
1 5 11 15 19 26 48 59 61 77

recursive :
5 26
5 26 77
1 61
1 5 26 61 77
11 59
11 15 59
19 48
11 15 19 48 59
1 5 11 15 19 26 48 59 61 77
```

lab 13-1. Merge Sort

- Submission
  - Project directory name : lab13
  - Source file name : p13_1.c
  - Executable file name : p13_1.out
  - You should upload in the hconnect (Gitlab) server.

lab 13-2. Quick Sort

- **Input**
  - Each test data consists of 3 lines.
  - The option for pivot value is given in first line.
    - leftmost : select leftmost pivot.
    - rightmost : select rightmost pivot.
    - middle : select middle pivot. (number of value is always odd.)
  - The number of value is given in second line.
  - The third line represent values.
  - Each number is separated by a space.
- **You have to use file I/O like the previous assignment.**

lab 13-2. Quick Sort

input

input.txt - 메모장

파일(F) 편집(E) 서식(O) 보기(V) 도움말

```
leftmost
13
73 21 578 109 410 53 51 1 3216 2002 15 9 24
rightmost
13
73 21 19 109 410 57 51 1 3216 7000 15 9 24
middle
13
73 21 64 109 39 53 51 1 3216 2002 15 9 24
```

output

```
jee@ubuntu:~$ ./a.out input13-2.txt
leftmost:
<1 21 24 9 15 53 51 ><73 ><3216 2002 410 109 578 >
<><1 ><21 24 9 15 53 51 >
<9 15 ><21 ><24 53 51 >
<><9 ><15 >
<><24 ><53 51 >
<51 ><53 ><>
<578 2002 410 109 ><3216 ><>
<410 109 ><578 ><2002 >
<109 ><410 ><>

result
1 9 15 21 24 51 53 73 109 410 578 2002 3216

rightmost:
<9 21 19 15 1 ><24 ><51 410 3216 7000 109 73 57 >
<><1 ><21 19 15 9 >
<><9 ><19 15 21 >
<19 15 ><21 ><>
<><15 ><19 >
<51 ><57 ><3216 7000 109 73 410 >
<73 109 ><410 ><3216 7000 >
<73 ><109 ><>
<3216 ><7000 ><>

result
1 9 15 19 21 24 51 57 73 109 410 3216 7000

middle:
<24 21 9 15 39 1 ><51 ><53 3216 2002 109 64 73 >
<1 ><9 ><21 15 39 24 >
<><15 ><21 39 24 >
<21 24 ><39 ><>
<><21 ><24 >
<53 73 64 109 ><2002 ><3216 >
<53 64 ><73 ><109 >
<><53 ><64 >

result
1 9 15 21 24 39 51 53 64 73 109 2002 3216
```

lab 13-2. Quick Sort

input

output

Make each function for leftmost,rightmost,middle.
we will check your code.

lab 13-2. Quick Sort

- Submission
  - Project directory name : lab13
  - Source file name : p13_2.c
  - Executable file name : p13_2.out
  - You should upload in the hconnect (Gitlab) server.

DeadLine

Wednesday, 19 June, 23 : 59 pm