

IEEE CP SMP 2018

Assignment 2

Time Complexity

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1. Stacks

top() :- $O(1)$
push() :- $O(1)$
pop() :- $O(1)$
size() :- $O(1)$

2. Queues

front() :- $O(1)$
back() :- $O(1)$
push() :- $O(1)$
pop() :- $O(1)$
size() :- $O(1)$

3. Vectors

push_back() :- $O(1)$
search() :- $O(1)$
erase() :- $O(\text{number of elements erased}) + O(\text{number of elements after the last deleted element})$
size() :- $O(1)$

4. Array

lower_bound() :- $O(n)$
upper_bound() :- $O(n)$
next_permutation() :- $O(n!)$

5. Pair

make_pair() :- $O(1)$
first() :- $O(1)$
second :- $O(1)$

6. Priority Queue

top() :- $O(1)$
size() :- $O(1)$
push(), pop() :- $O(\log n)$

7. Map

insert() :- $O(\log_2 n)$
find() :- $O(\log_2 n)$
end() :- $O(1)$
begin() :- $O(1)$

8. Set

insert() :- $O(\log_2 \underline{n})$
size() :- $O(1)$
begin() :- $O(1)$
erase() :- $O(1)$

9. MultiSet

begin() :- $O(1)$
empty() :- $O(1)$
end() :- $O(1)$
size() :- $O(1)$
clear() :- $O(n)$
insert(), find() :- $O(\log n)$

10. Double Ended Queue

push_back() :- $O(1)$
begin() :- $O(1)$
end() :- $O(1)$
push_front() :- $O(1)$
pop_front() :- $O(1)$
pop_back() :- $O(1)$
size() :- $O(1)$