

Answer Sheet for Problem 2 and Problem 4.

Asymptotic Analysis for List-based Dictionary

Operation	Best case time cost	Worst case time cost	Average case time cost
clear	$O(1)$	$O(1)$	$\Theta(1)$
insert	$O(1)$	$O(n)$	$\Theta(n)$
remove	$O(1)$	$O(n)$	$\Theta(n)$
removeAny	$O(1)$	$O(n)$	$\Theta(n)$
find	$O(1)$	$O(n)$	$\Theta(n)$
size	$O(1)$	$O(n)$	$\Theta(n)$

Asymptotic Analysis for Double List-based Dictionary

Operation	Best case time cost	Worst case time cost	Average case time cost
clear	$O(1)$	$O(1)$	$\Theta(1)$
insert	$O(1)$	$O(n)$	$\Theta(n)$
remove	$O(1)$	$O(n)$	$\Theta(n)$
removeAny	$O(1)$	$O(n)$	$\Theta(n)$
find	$O(1)$	$O(n)$	$\Theta(n)$
size	$O(1)$	$O(n)$	$\Theta(n)$