

COP 4530 / CGS 5425

Data Structures, Algorithms, and Generic Programming

Summary of time complexities

Give good asymptotic time complexities for each of the following operations on the data structures given below, except for cells marked x.

Av.: Average, Amort.: amortized, WC: Worst case, AvAm.: Average amortized time

	<i>pop</i>	<i>push</i>	<i>push front</i>	<i>push back</i>	<i>pop front</i>	<i>pop back</i>	<i>search</i>
<i>Sorted vector</i>		Amort:	x	x	x	x	
<i>vector</i>	x	x		Amort:			
<i>Circular array</i>	x	x	Amort:	Amort:			x
<i>stack</i>		Amort:	x	x	x	x	x
<i>queue</i>		Amort:	x	x	x	x	x
<i>BST</i>		WC: Av:	x	x	x	x	WC: Av:
<i>doubly linked list</i>	x	x					
<i>AVL tree</i>	x		x	x	x	x	
<i>heap</i>			x	x	x	x	x
<i>hash table</i>	x	AvAm:	x	x	x	x	Av:
<i>doubly linked list</i>	x	x					