ADVANCED PROGRAMMING
JAVA COLLECTIONS
ASSIGNMENT # 2

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ArrayList Vs Vectors

ArrayList	Vector
Non-Synchronized Multiple threads at a time can access the code	**Synchronized** Only one thread at a time can access the code
Faster ArrayList is faster, since it is non-synchronized	**Slower** Since synchronous, threads can lock vector making others to wait.
50% Data Growth Expands dynamically 50% of current size on growth.	**100% Data Growth** Expands dynamically 100% of current size on growth.
Traversal Enumerator and iterator both.	**Traversal** Only iterator.

Note: ArrayList is preferable to use if Vector not specified explicitly.

HashSet Vs Sorted Set

Hash Set	Sorted Set
Ordering Unsorted	**Ordering** Sorted
Contiguous Yes	**Contiguous** No.
Lookup Efficiency Key: O(1)	**Lookup Efficiency** Key: O(log n).
c Efficiency Key: O(1)	**Manipulate Efficiency** Key: O(log n).

HashSet Vs Tree Set

Hash Set	Tree Set
Unsorted No order maintained	**Sorted** Comparable and comparators Ascending by defult
Faster Hashset is faster, takes constant time for insert, delete and search.	**Slower** Tree set is slower, takes O(Logn) for insert, delete and search.
Implementation: Hash table Expands dynamically 50% of current size on growth.	**Implementation: BST** Expands dynamically 100% of current size on growth.
Support Null Nulls are allowed	**Null Exception** Nulls not allowed because of comparator etc.

Array Vs List

Array	List
Size Fixed in size	**Size** Dynamic
Initialization Need to specify capacity	**Initialization** Not necessarily need to specify capacity.
Data Types Primitive as well as objects	**Data Types** Only objects .
Homogeneous Holds values of same data type	**Heterogeneous** Can hold multiple data types within one list.
Insertion Equals operators to assign elements.	**Insertion** Add() function to assign elements

Set Vs List

Set	List
Order Unordered generically	**Order** Ordered
Access by Index Not possible	**Access by Index** Possible
Duplicates Not allowed	**Duplicates** Allowed
Implementation classes • ArrayList • LinkedList • Vector	**Implementation classes** • HashSet (unordered) • LinkedHashSet (ordered) • TreeSet (ordered by natural order or by provided comparator)

Navigable Set Vs Navigable Map

Navigable Set	Navigable Map
Parent Sorted Set Interace	**Parent** Sorted Map Interace
Elements Single element	**Elements** Key, value pairs
Duplicates Not allowed	**Duplicates** Allowed for values, not for keys