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CSIS 252

Advanced Storage Lab Assignment

**Problem Summary**

Utilizing the program from Lab 4, store people in different data structures.

**Problem Requirements**

* Store people who have names, email addresses, and social security numbers
* Compare and sort people by their social security numbers
* Add two additional data structures (BST and one of the ones in Chapter 7 or another pre-approved). The one from chapter 7 will be another list (unsorted, sorted, or indexes using a different base structure. It needs to implement one of the same interfaces you used in previous lab)
* Do a detailed analysis of the work done in your lessons learned

**System Design**

|  |  |
| --- | --- |
| UnsortedList extends List | SortedList extends List |
|  |  |
| +UnsortedList()  +UnsortedList(int initSize)  +add(Object element)  +remove(Object element): boolean found | +SortedList()  +SortedList(int initSize)  +add(Comparable element) |

|  |  |
| --- | --- |
| SSNGenerator | <<Interface>>  IOInterface |
| #random: int |  |
| #getRandom(): int random | getInt(int port)  getInt()  getString()  getStringLn()  writeString(String str)  writeStringLn(string str)  writeString(String str, int x, int y)  makeSound(String str)  turn(int direction)  move() |

|  |  |
| --- | --- |
| List | Person |
| #DEFCAP: int  #origCap : int  #list: Object[]  #numElements: int  #currentPos: int  #found: boolean  #location: int  #compares: int | -name: String  -email: String  -SSN: int |
| +List()  +List(int origCap)  #enlarge()  #find(Object target)  +size(): int numElements  +contains(Object element): boolean found  +remove(Object element): boolean found  +toString(): String listString  +reset()  +getNext(): Object next | +Person(int SSN, String name, String email)  +Person(String name, String email)  -getName(): String name  -getSSN(): int SSN  -getEmail(): String email  +compareTo(Person inc): int  +equals(Person inc): boolean  +toString(): String |

|  |  |
| --- | --- |
| <<interface>>  BSTInterface | BinarySearchTree  Implements BSTInterface |
| #INORDER: int  #PREORDER: int  #POSTORDER: int | #root: BSTNode  #found: boolean  #inOrderQueue: ArrayBndQueue  #preOrderQueue: ArrayBndQueue  #postOrderQueue: ArrayBndQueue |
| +isEmpty(): Boolean  +size(): int  +contains(Comparable element): boolean  +remove(Comparable element): boolean  +get(Comparable element): Comparable  +add(Comparable element): void  +reset(int orderType): int  +getNext(int orderType): Comparable | +BinarySearchTree()  +isEmpty(): boolean  +size(): int  +size2(): int  +contains(Comparable element): boolean  +remove(Comparable element): boolean  +get(Comparable element): Comparable  +add(Comparable element): void  +reset(int orderType): int  +getNext(int orderType): Comparable  -getPredecessor(BSTNode tree): Comparable  -removeNode(BSTNode tree): BSTNode  -inOrder(BSTNode tree): void  -preOrder(BSTNode tree): void  -postOrder(BSTNode tree): void |

|  |  |
| --- | --- |
| BSTNode | Queue |
| #BSTNode: left  #BSTNode: right  #Comparable: info | #head:int  #tail:int  #queue:Object[]  #MAX:int  #origCap:int  #elements:int |
| +BSTNode(Comparable info)  +setInfo(Comparable info): void  +getInfo(): Comparable  +setLeft(BSTNode link): void  +setRight(BSTNode link): void  +getLeft(): BSTNode  +getRight(): BSTNode | +Queue()  +enqueue(Object item)  +dequeue():Object item  +grow()  +isEmpty():boolean |

**Testing Report**

**Testing Instructions**

**Management Report**

SDR: completed over the weekend of 3/28/15, 2 hours

Lab: Estimated 5 hours

**Lessons Learned**

**Future Improvements**

**Appendix**

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