IB Computer Science

Abstract Data Structures

Student_____

Date: _____

Binary Search Trees

Notes:

This file has been created to help you practice with binary trees using the Stations from class. The first stations doesn't translate well to a practice activity, so skip question 1, but review all of the stations from the handout, paying particular attention to the problems that you missed some or part of. Review your answers with a classmate.

Directions:

Record you starting station number here:_____

Read the directions for each station carefully. Complete each station in order, beginning with the starting station you have been assigned. When you have completed Station 10, continue to Station 1. This is like a circular queue.

Station 1

How many cards must you view in order to determine whether there is an [8] in the tree?

This tree was created as a binary search tree.

Record the number of cards you turned over _____.

Could you have completed this task in few steps? _____

Please return the cards the way that you found them, in the same order and face down.

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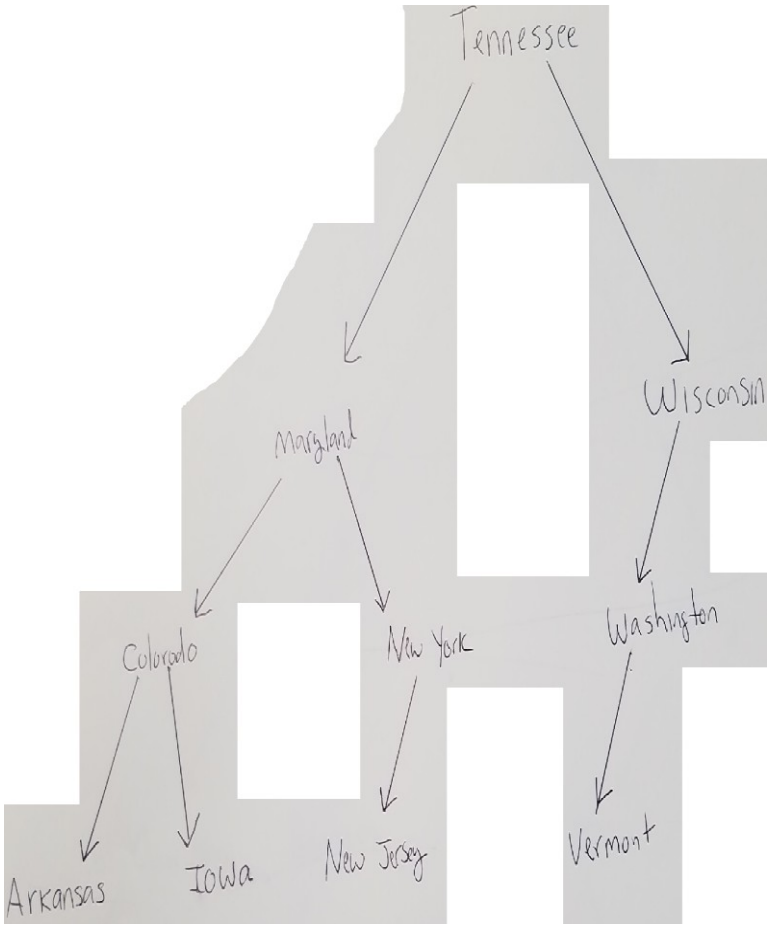
Binary Search Trees

Student_____

Date: _____

Station 2

Record the results on a **preorder** traversal of the tree shown.



preorder traversal

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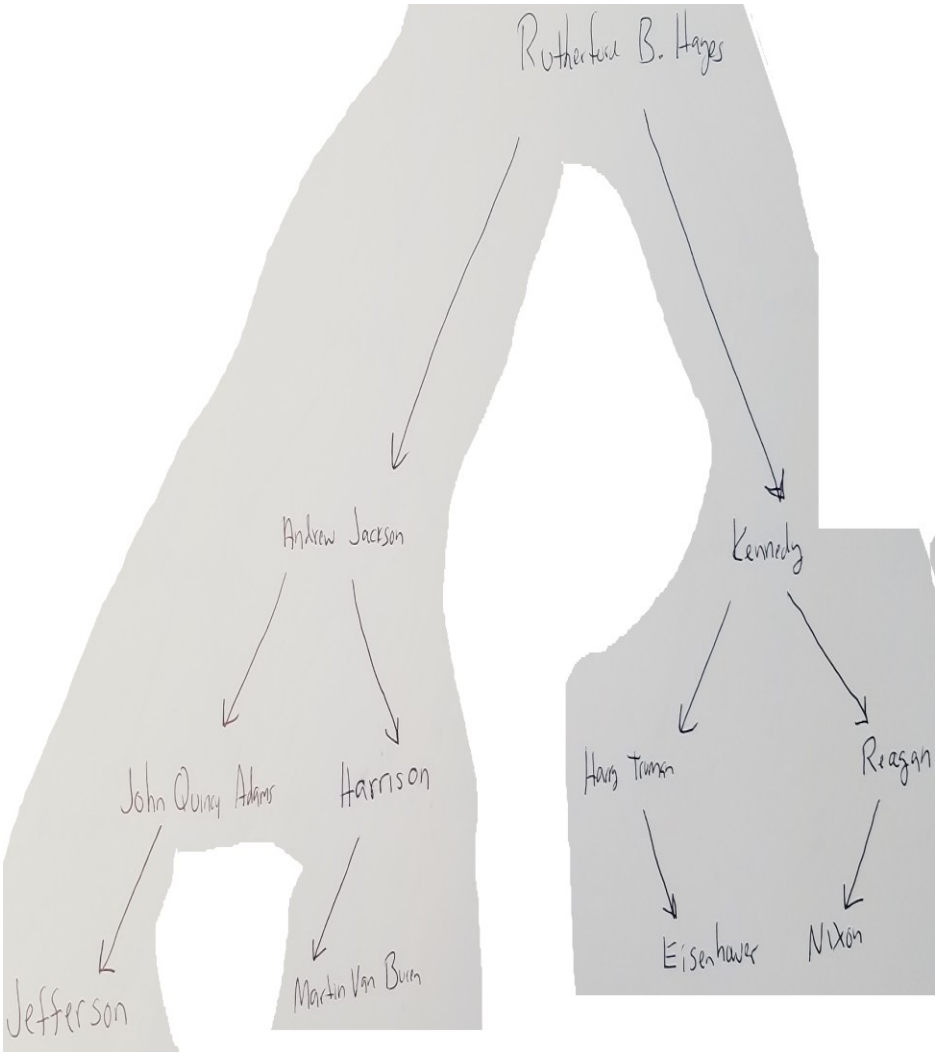
Binary Search Trees

Station 3

Record the results of an **inorder** traversal of the tree shown



inorder traversal

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Student_____

Date: _____

Binary Search Trees

Station 4

Draw a binary search tree created by inserting the State Nick Name listed in Station 4, into a empty tree.
[An empty tree has no nodes]

Keystone State
Bay State
Pelican State
The Last Frontier
Cornhusker State
Granite State
Silver State
Aloha State
Peach State
Lone Star State
Treasure State

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Binary Search Trees

Station 5

Record your results of a **postorder** tree traversal of the tree shown in Station 2.

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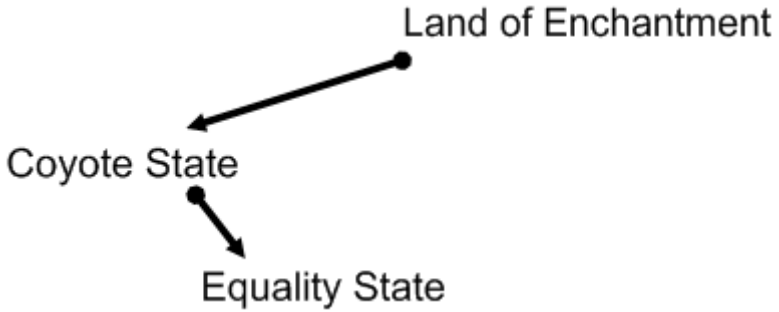
Date: _____

Binary Search Trees

Station 6

Draw a binary search tree created by inserting the State Nick Name listed (from Station 4), into the binary search tree shown here:



Keystone State
Bay State
Pelican State
The Last Frontier
Cornhusker State
Granite State
Silver State
Aloha State
Peach State
Lone Star State
Treasure State

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Binary Search Trees

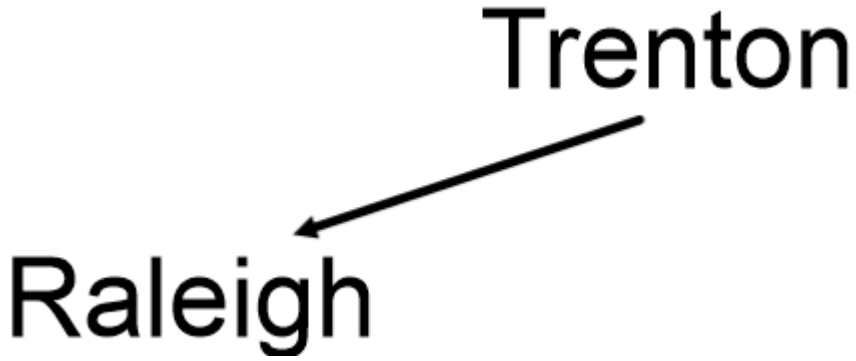
Student_____

Date: _____

Station 7

Draw a binary search tree created by inserting the state capitols listed (from Station 10) into the tree below:

Montpelier
Olympia
Albany
Madison
Denver
Tallassee
Topeka
Nashville
Richmond
Salem
Sacramento
Boise
Harrisburg



IB Computer Science

Abstract Data Structures

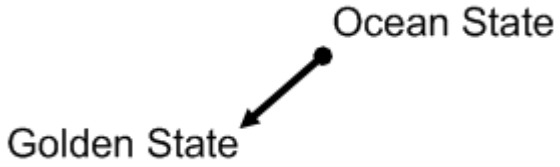
Student_____

Date: _____

Binary Search Trees

Station 8

Draw a binary search tree created by inserting the state capitols listed at Station 4 into the tree below:



Keystone State
Bay State
Pelican State
The Last Frontier
Cornhusker State
Granite State
Silver State
Aloha State
Peach State
Lone Star State
Treasure State

IB Computer Science

Abstract Data Structures

Student_____

Date: _____

Binary Search Trees

Station 9

Draw a binary search tree created by inserting the state capitols listed (from Station 10) into the tree below:

Montpelier
Olympia
Albany
Madison
Denver
Tallassee
Topeka
Nashville
Richmond
Salem
Sacramento
Boise
Harrisburg

Juneau

IB Computer Science

Abstract Data Structures

Student_____

Date: _____

Binary Search Trees

Station 10

Draw a binary search tree created by inserting the state capitols listed into an empty tree.
[An empty tree has no nodes]

Montpelier
Olympia
Albany
Madison
Denver
Tallassee
Topeka
Nashville
Richmond
Salem
Sacramento
Boise
Harrisburg