Project 11 - User Document

A binary search tree (BST) is a binary tree for which each node is greater than all the keys in the left subtrees and less than all the ones in the right subtrees. This is often used to represent an ordered list and can allow for easy implementations of ordered data such as an inventory. This program manipulates an inventory that is held in an ordered list. The client program in this project allows the user to perform multiple operations on the ordered list such as searching to see if an item is present, inserting a new item and removing an item from the inventory. This program allows the user to continue to do the manipulations on the inventory until they enter the quit option in the menu. This program also uses files to read data from an existing inventory.

The program is split up into three files.

The program files that needs to be compiled and run is BST.h, BST.cpp main.cpp. These file is located in the project11 folder underneath the programs folder.

To compile and link the files, enter:

g++ BST.h BST.cpp main.cpp

To run the program, enter a.out and respond to the program’s prompts for user input. This program will terminate after the list from the file are outputted to the terminal or a file that is not available is attempted to be opened.

After compiling the program and entering a.out an example run of the program would look something like this:

If a data file invent.dat is this:

8262 wrench 25 10.50

1173 bucket 15 12.95

4483 chair 40 70.75

4489 desk 12 220.25

3882 stapler 23 9.50

1106 mug 75 5.50

then a run of the program might look like this:

This program responds to the following commands to

manipulate an inventory, which is initially empty.

The commands prompt for additional information, if necessary.

f -- Read an inventory from a file.

i -- Insert an item into the inventory.

r -- Remove an item from the inventory.

e -- Report if the inventory is empty.

a -- Report an item's information.

v -- Report the inventory's total value.

p -- Print the inventory to the terminal.

h -- See this menu.

q -- Quit the program.

--> f

Enter inventory file name: invent.dat

--> e

The inventory is NOT empty.

--> p

Number Name Quantity Price

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1106 mug 75 5.50

1173 bucket 15 12.95

3882 stapler 23 9.50

4483 chair 40 70.75

4489 desk 12 220.25

8262 wrench 25 10.50

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--> r

Item number to remove: 3882

--> p

Number Name Quantity Price

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1106 mug 75 5.50

1173 bucket 15 12.95

4483 chair 40 70.75

4489 desk 12 220.25

8262 wrench 25 10.50

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--> v

The inventory's total value is 6342.25.

--> i

Enter the description of an item:

Number: 2774

Name: monitor

Quantity: 18

Price: 250.75

--> a

Item number to report: 4483

Name: chair

Quantity: 40

Price: 70.75

--> a

Item number to report: 2522

Item not found.

--> p

Number Name Quantity Price

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1106 mug 75 5.50

1173 bucket 15 12.95

2774 monitor 18 250.75

4483 chair 40 70.75

4489 desk 12 220.25

8262 wrench 25 10.50

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--> q