Programmer’s Guide and Report for Project 1-sets

Source: COP3503su14\_Proj1\_WenlanT.cpp

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Date last modified: 05-31-2014

**Problem Statement**

This program is used to test a system for entering, storing, manipulating and printing sets of various sorts. The program will maintain a current set and a current verbose state. There are 15 commands with different functions in this program.

**Organization of Code**

This program defined a class Set, and 15 functions are included corresponding to the 15 commands.

The main loop prompts for user input (if not silent), and reads the user input into a temporary integer variable. There are 0-15 commands. If the input is a number out of this range, an error message is output, however, if the input is not a number, the program will be quitted immediately.

**Functions, Methods, Procedures**

inputFile()-open and read a list from a file to the current list.

reset()-reset current set to the empty set

printToFile()-output file <filename>: open and write the current set to a file

print()-print current set to the console

unionSets()-open and union a set from a file with the current set

subtractSets()-open and subtract set from a file from the current set

differenceSets()-open and find the difference between a set from a file and the current set

intersectSets()-open and find the intersection between a set from a file and the current set

findItem()-test if <item name> is in the current set

insertItem()-add <item name> to the current set if it is not already in it

deleteItem()-remove <item name> from the current set if it is in it

verboseOutput()-cause the current state of output prompt to remain verbose until changed

help()-ouput commands to the console

**Known Bugs**

The reset() does not work perfectly. If the subtract, difference, intersect run at the beginning, it can work correctly. However, if they were called after either of the other two, the function will not run wrong.

Messages are output to the console every time insertItem(), deleteItem(), findItem() are called.

Enter a command other than a number in the prompt will exit the program directly.

**Testing**

Testing was done by using two files: f1 and f2. Script of testing session follows.

[f1]

banana

apple

pineapple

grapefruit

orange

pear

grape

lime

lemon

[f2]

banana

mango

guanabana

lychee

avocado

lime

nispero

guava

carambola

UFs-MacBook-Pro:Project1 tianwenlan$ ./COP3503su14\_Proj1\_WenlanT

Welcome to use my first program!!

There are 0-15 different numbers with different functions

Would you like to see a list of the numbers and how they are to be used? y/n

y

=================================================================

The numbered commands are as follows:

0. exit

1. input file <filename>: open and read a list from a file to the current list

2. union file <filename>: open and union a set from a file with the current set

3. subtract file <filename>: open and subtract set from a file from the current set

4. difference file <filename>: open and find the difference between a set from a file and the current set

5. intersect file <filename>: open and find the intersection between a set from a file and the current set

6. reset current set to the empty set

7. output file <filename>: open and write the current set to a file

8. print current set to the console

9. find <item name>: test if <item name> is in the current set

10. insert <item name>: add <item name> to the current set if it is not already in it

11. delete <item name>: remove <item name> from the current set if it is in it

12. verbose output

13. normal output

14. silent output

15. help

=================================================================

> 8

> 1 f1

Item banana not found

Item banana inserted

Item apple not found

Item apple inserted

Item pineapple not found

Item pineapple inserted

Item grapefruit not found

Item grapefruit inserted

Item orange not found

Item orange inserted

Item pear not found

Item pear inserted

Item grape not found

Item grape inserted

Item lime not found

Item lime inserted

Item lemon not found

Item lemon inserted

New Set Loaded

> 9 banana

Item banana found

> 9 lemon

Item lemon found

> 9 kiwi

Item kiwi not found

> 8

banana

apple

pineapple

grapefruit

orange

pear

grape

lime

lemon

> 10 kiwi

Item kiwi not found

Item kiwi inserted

> 8

banana

apple

pineapple

grapefruit

orange

pear

grape

lime

lemon

kiwi

> 11 apple

Item apple found

Item apple deleted

> 8

banana

pineapple

grapefruit

orange

pear

grape

lime

lemon

kiwi

> 9 apple

Item apple not found

> 9 kiwi

Item kiwi found

> 14

8

banana

pineapple

grapefruit

orange

pear

grape

lime

lemon

kiwi

12

0 - exit; 1 - input <file>; 2 - union <file>; 3 - subtract <file>;

4 - difference <file>; 5 - intersect <file>; 6 - reset current set

7 - write <file>; 8 - print; 9 - find <item>; 10 - insert <item>;

11 - delete <item>; 12 - verbose; 13 - normal; 14 - silent; 15 - help;

> 2 f2

Item banana not found

Item banana inserted

Item mango not found

Item mango inserted

Item guanabana not found

Item guanabana inserted

Item lychee not found

Item lychee inserted

Item avocado not found

Item avocado inserted

Item lime not found

Item lime inserted

Item nispero not found

Item nispero inserted

Item guava not found

Item guava inserted

Item carambola not found

Item carambola inserted

New Set Loaded

Item banana found

Item bananaalready in set

Item mango not found

Item mango inserted

Item guanabana not found

Item guanabana inserted

Item lychee not found

Item lychee inserted

Item avocado not found

Item avocado inserted

Item lime found

Item limealready in set

Item nispero not found

Item nispero inserted

Item guava not found

Item guava inserted

Item carambola not found

Item carambola inserted

Union Completed!

> 13

> 8

banana

pineapple

grapefruit

orange

pear

grape

lime

lemon

kiwi

mango

guanabana

lychee

avocado

nispero

guava

carambola

> 6

Reset completed

> 8

> 1 f2

Item banana not found

Item banana inserted

Item mango not found

Item mango inserted

Item guanabana not found

Item guanabana inserted

Item lychee not found

Item lychee inserted

Item avocado not found

Item avocado inserted

Item lime not found

Item lime inserted

Item nispero not found

Item nispero inserted

Item guava not found

Item guava inserted

Item carambola not found

Item carambola inserted

New Set Loaded

> 8

banana

mango

guanabana

lychee

avocado

lime

nispero

guava

carambola

> 3 f1

Item banana found

Item bananaalready in set

Item apple not found

Item apple inserted

Item pineapple not found

Item pineapple inserted

Item grapefruit not found

Item grapefruit inserted

Item orange not found

Item orange inserted

Item pear not found

Item pear inserted

Item grape not found

Item grape inserted

Item lime found

Item limealready in set

Item lemon not found

Item lemon inserted

New Set Loaded

Item banana found

Item banana deleted

Item mango found

Item mango deleted

Item guanabana found

Item guanabana deleted

Item lychee found

Item lychee deleted

Item avocado found

Item avocado deleted

Item lime found

Item lime deleted

Item nispero found

Item nispero deleted

Item guava found

Item guava deleted

Item carambola found

Item carambola deleted

Item apple not found

Item apple not in set

Item pineapple not found

Item pineapple not in set

Item grapefruit not found

Item grapefruit not in set

Item orange not found

Item orange not in set

Item pear not found

Item pear not in set

Item grape not found

Item grape not in set

Item lemon not found

Item lemon not in set

Subtraction Completed!

> 8

> 6

Reset completed

> 1 f1

Item banana not found

Item banana inserted

Item apple not found

Item apple inserted

Item pineapple not found

Item pineapple inserted

Item grapefruit not found

Item grapefruit inserted

Item orange not found

Item orange inserted

Item pear not found

Item pear inserted

Item grape not found

Item grape inserted

Item lime not found

Item lime inserted

Item lemon not found

Item lemon inserted

New Set Loaded

> 4 f2

Item banana found

Item bananaalready in set

Item mango found

Item mangoalready in set

Item guanabana found

Item guanabanaalready in set

Item lychee found

Item lycheealready in set

Item avocado found

Item avocadoalready in set

Item lime found

Item limealready in set

Item nispero found

Item nisperoalready in set

Item guava found

Item guavaalready in set

Item carambola found

Item carambolaalready in set

New Set Loaded

Item banana found

Item banana found

Item banana deleted

Item mango not found

Item mango not found

Item mango inserted

Item guanabana not found

Item guanabana not found

Item guanabana inserted

Item lychee not found

Item lychee not found

Item lychee inserted

Item avocado not found

Item avocado not found

Item avocado inserted

Item lime found

Item lime found

Item lime deleted

Item nispero not found

Item nispero not found

Item nispero inserted

Item guava not found

Item guava not found

Item guava inserted

Item carambola not found

Item carambola not found

Item carambola inserted

Item apple found

Item apple found

Item apple deleted

Item pineapple found

Item pineapple found

Item pineapple deleted

Item grapefruit found

Item grapefruit found

Item grapefruit deleted

Item orange found

Item orange found

Item orange deleted

Item pear found

Item pear found

Item pear deleted

Item grape found

Item grape found

Item grape deleted

Item lemon found

Item lemon found

Item lemon deleted

Difference Completed!

> 8

mango

guanabana

lychee

avocado

nispero

guava

carambola

> 0

Hope to see you again! BYE!!

Test for subtraction separately:

UFs-MacBook-Pro:Project1 tianwenlan$ ./COP3503su14\_Proj1\_WenlanT

Welcome to use my first program!!

There are 0-15 different numbers with different functions

Would you like to see a list of the numbers and how they are to be used? y/n

n

> 8

> 1 f2

Item banana not found

Item banana inserted

Item mango not found

Item mango inserted

Item guanabana not found

Item guanabana inserted

Item lychee not found

Item lychee inserted

Item avocado not found

Item avocado inserted

Item lime not found

Item lime inserted

Item nispero not found

Item nispero inserted

Item guava not found

Item guava inserted

Item carambola not found

Item carambola inserted

New Set Loaded

> 8

banana

mango

guanabana

lychee

avocado

lime

nispero

guava

carambola

> 3 f1

Item banana not found

Item banana inserted

Item apple not found

Item apple inserted

Item pineapple not found

Item pineapple inserted

Item grapefruit not found

Item grapefruit inserted

Item orange not found

Item orange inserted

Item pear not found

Item pear inserted

Item grape not found

Item grape inserted

Item lime not found

Item lime inserted

Item lemon not found

Item lemon inserted

New Set Loaded

Item banana found

Item banana deleted

Item apple not found

Item apple not in set

Item pineapple not found

Item pineapple not in set

Item grapefruit not found

Item grapefruit not in set

Item orange not found

Item orange not in set

Item pear not found

Item pear not in set

Item grape not found

Item grape not in set

Item lime found

Item lime deleted

Item lemon not found

Item lemon not in set

Subtraction Completed!

> 8

mango

guanabana

lychee

avocado

nispero

guava

carambola

> 6

Reset completed

> 1 f1

Item banana not found

Item banana inserted

Item apple not found

Item apple inserted

Item pineapple not found

Item pineapple inserted

Item grapefruit not found

Item grapefruit inserted

Item orange not found

Item orange inserted

Item pear not found

Item pear inserted

Item grape not found

Item grape inserted

Item lime not found

Item lime inserted

Item lemon not found

Item lemon inserted

New Set Loaded

> 4 f2

Item banana found

Item bananaalready in set

Item mango not found

Item mango inserted

Item guanabana not found

Item guanabana inserted

Item lychee not found

Item lychee inserted

Item avocado not found

Item avocado inserted

Item lime found

Item limealready in set

Item nispero not found

Item nispero inserted

Item guava not found

Item guava inserted

Item carambola not found

Item carambola inserted

New Set Loaded

Item banana found

Item banana found

Item banana deleted

Item apple found

Item apple found

Item apple deleted

Item pineapple found

Item pineapple found

Item pineapple deleted

Item grapefruit found

Item grapefruit found

Item grapefruit deleted

Item orange found

Item orange found

Item orange deleted

Item pear found

Item pear found

Item pear deleted

Item grape found

Item grape found

Item grape deleted

Item lime found

Item lime found

Item lime deleted

Item lemon found

Item lemon found

Item lemon deleted

Item mango not found

Item mango not found

Item mango inserted

Item guanabana not found

Item guanabana not found

Item guanabana inserted

Item lychee not found

Item lychee not found

Item lychee inserted

Item avocado not found

Item avocado not found

Item avocado inserted

Item nispero not found

Item nispero not found

Item nispero inserted

Item guava not found

Item guava not found

Item guava inserted

Item carambola not found

Item carambola not found

Item carambola inserted

Difference Completed!

> 8

mango

guanabana

lychee

avocado

nispero

guava

carambola

> 0

Hope to see you again! BYE!!

UFs-MacBook-Pro:Project1 tianwenlan$