COP3503 su14

Project 3

July 20, 2014

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Program Documentation

This program consists of five files, a Project3.cpp, a Project3.h, a main.cpp, tinyxml2.cpp, and tinyxml2.h, the last two of which were not written by me but rather were taken from www.grinninglizard.com/tinyxml2/index.html. All credit for those two files goes to them. The main runs the menu, while the Project3.cpp houses the recipe book, inventory list and handler which is the intermediary between the two classes and the main menu.

The Handle Class:

This class does little more than communicate with the main and the cooking class, its main purpose is to handle opening files. While it does have a lot of functions, the majority of them only call functions in the cooking class, so explanations for these will be omitted.

The main Class:

This class serves as the link between the user and the program. The user can select any of the 22 options in order to interact with the cooking class through the handle class.

The Cooking Class:

This class the most amount of code and is responsible for the recipe book, inventory list and menu. It has many helper functions to help facilitate the actioned asked by the handler.

The following are a list of the helper functions and what they do:

recipeBook is a pointer that points to a XMLDocument. It is responsible for the storage of recipes.

Inventorylist is a pointer that points to a XMLDocument. It is responsible for the storage of equipment and ingredients.

compareNodes function that returns a pointer to an XMLNode and takes in two XMLNode pointers. Its purpose is to determine if two nodes are equal.

Menu is a XMLNode pointer vector that holds the recipes that the user asked to be put to the current menu.

addToEquipmentList is a void function that takes in and XMLNode pointer. Its purpose is to aid in adding to the equipment list of the inventory.

findEquipment is a function that returns an XMLNode pointer and takes in a string and an XMLNode pointer. Its purpose is any equipment in an XMLNode and any subnodes it might have.

findItem is a function much like findEquipment, except its more flexible and can search for any almost any name in a node and its subnodes.

findRecipe is a function much like findEquipment, except this finds recipes rather than equipment

nodeIngredientShoppingList is a recursive function that helps facilitate the making of the shopping list for the user.

nodeEquipmentShoppingList is a recursive function that helps facilitate the making of the equipment list for the user.

CopySubTree will copy a subtree of nodes from one XMLDocument to another.

adjustInventoryValues changes the values in the inventory tree as a result of adding or subtracting from it.

AdjustIngredientValues changes the values of the ingredients based on how much is needed.

printIngredientsFromMenu finds all the ingredients in a recipe from the current menu.

findAllEquipment will look through a subtree and add any equipment nodes it finds to an XMLDocument's node.

Testing:

example.txt

```
<cookbook>
  <recipe>
         <title>Hippie Pancakes</title>
         <ingredientlist>
                <ingredient>
                       <quantity>1</quantity>
                       <unit>C.</unit>
                       <fooditem>unbleached wheat blend flour</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>2</quantity>
                       <unit>tsp.</unit>
                       <fooditem>baking powder</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>1</quantity>
                       <unit>tsp.</unit>
                       <fooditem>unrefined sugar</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>.25</quantity>
                       <unit>tsp.</unit>
                       <fooditem>coarse kosher salt</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>1</quantity>
        <fooditem>free-range egg</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>1.25</quantity>
                       <unit>C.</unit>
                       <fooditem>hormone-free milk</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>1</quantity>
                       <unit>tsp.</unit>
                       <fooditem>organic vegetable oil</fooditem>
                </ingredient>
         </ingredientlist>
         <preparation>
      <step>Pre-heat griddle over medium heat. Combine dry ingredients in a </step>
                <equipment>mixing bowl</equipment>
      <step>. Stir in egg, milk and oil. Use a large spoon or gravy ladle to
transfer pancake batter to the</step>
                <equipment>griddle</equipment>
      <step>. Pancakes are ready to flip when large bubbles can be seen on
top.</step>
         </preparation>
  </recipe>
  <recipe>

  </recipe>
</cookbook>
```

example3.txt

```
<inventory>
       <equipmentlist>
              <equipment>mixing bowl</equipment>
              <equipment>spatula</equipment>
              <equipment>oven</equipment>
       </equipmentlist>
       <ingredientlist>
              <ingredient>
                       <quantity>3</quantity>
                       <unit>tsp.</unit>
                       <fooditem>baking powder</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>.5</quantity>
                       <unit>tsp.</unit>
                       <fooditem>unrefined sugar</fooditem>
                </ingredient>
                <ingredient>
                       <quantity>10</quantity>
                       <unit>cups</unit>
                       <fooditem>coarse kosher salt</fooditem>
                </ingredient>
       </ingredientlist>
</inventory>
```

```
> 1 example
> 2 example3
> 4 Hippie Pancakes
> 7 output22
> 8
Hippie Pancakes
> 9 Hippie Pancakes
Hippie Pancakes
  Ingredients
        1 C. unbleached wheat blend flour
        2 tsp. baking powder
        1 tsp. unrefined sugar
        .25 tsp. coarse kosher salt
        1 free-range egg
        1.25 C. hormone-free milk
        1 tsp. organic vegetable oil
  Preparation
        Pre-heat griddle over medium heat. Combine dry ingredients in a
        . Stir in egg, milk and oil. Use a large spoon or gravy ladle to transfe
r pancake batter to the
        . Pancakes are ready to flip when large bubbles can be seen on top.
  equipment
        mixing bowl
        griddle
> 10 baking powder[3]
> 12 oven
ovenis already in the inventory!
> 13 oven
> 12 oven
> 14
  ingredient list
        6 tsp. baking powder
        .5 tsp. unrefined sugar
        10 cups coarse kosher salt
> 15
  equipment list
        mixing bowl
        spatula
        oven
> 16
ingredientlist
        1 C. unbleached wheat blend flour
        2 tsp. baking powder
        1 tsp. unrefined sugar
        .25 tsp. coarse kosher salt
        1 free-range egg
        1.25 C. hormone-free milk
        1 tsp. organic vegetable oil
> 17
Ingredients
        1 C. unbleached wheat blend flour
        0.5 tsp. unrefined sugar
        1 free-range egg
        1.25 C. hormone-free milk
        1 tsp. organic vegetable oil
> 18 output67
> 19
  equipment list
        mixing bowl
        griddle
> 20
  Equipmentlist
        griddle
> 21 output 62
> invalid command
=================================================================================
The numbered commands are as follows :
0.  exit
1.  input a recipe file <filename>
2.  input an inventory file <filename>
3.  subtract recipes that match those from input file <filename>
4.  add a recipe to the menu <recipe name>
5.  remove a recipe from the menu <recipe name>
6.  reset current menu
7.  output menu to a XML file <filename>
8.  print menu to console
9.  print a recipe if stored already <recipe name>
10. increase inventory item <ingredient inventory item>
11. reduce inventory item <ingredient inventory item>
12. insert equipment item <equipment inventory item>
13. delete equipment item <equipment inventory item>
14. print ingredient inventory to console
15. print equipment inventory to console
16. print ingredients needed for all recipes
17. print ingredients missing for all recipes
18. output ingredients missing for all recipes to XML <filename>
19. print equipment needed for all recipes
20. print equipment missing for all recipes
21. output equipment missing for all recipes to XML <filename>
22. help
=================================================================================

> 21 output223
> 22
=================================================================================
The numbered commands are as follows :
0.  exit
1.  input a recipe file <filename>
2.  input an inventory file <filename>
```

```
3.  subtract recipes that match those from input file <filename>
4.  add a recipe to the menu <recipe name>
5.  remove a recipe from the menu <recipe name>
6.  reset current menu
7.  output menu to a XML file <filename>
8.  print menu to console
9.  print a recipe if stored already <recipe name>
10. increase inventory item <ingredient inventory item>
11. reduce inventory item <ingredient inventory item>
12. insert equipment item <equipment inventory item>
13. delete equipment item <equipment inventory item>
14. print ingredient inventory to console
15. print equipment inventory to console
16. print ingredients needed for all recipes
17. print ingredients missing for all recipes
18. output ingredients missing for all recipes to XML <filename>
19. print equipment needed for all recipes
20. print equipment missing for all recipes
21. output equipment missing for all recipes to XML <filename>
22. help
================================================================================

> 3 example3
> 5 Hippie Pancakes
> 6
>
```