

CS 400 Team Project - Food Query & Meal Analysis

d-team 42

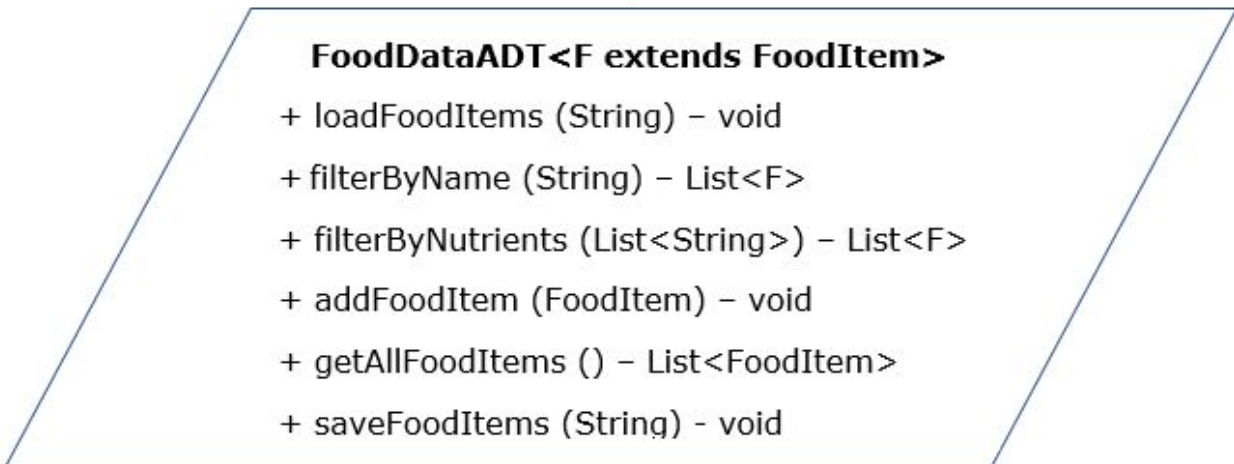
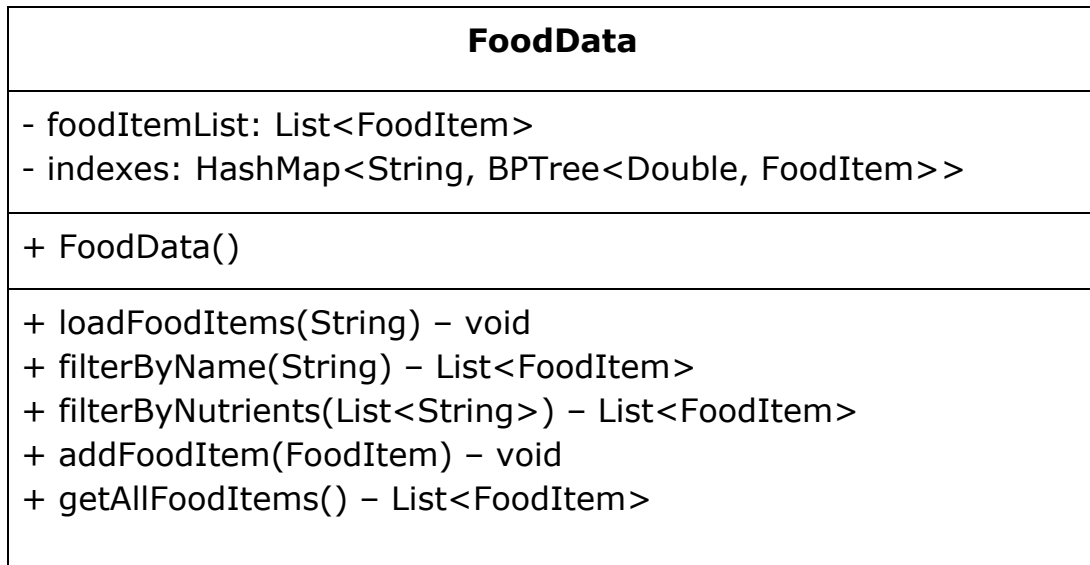
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Class Summary

<i>enum, interface, class, abstract class</i>	<i>Name of the type</i>	<i>Description of use or purpose of this type</i>
interface	BPTreeADT.java	defines required operations for the B+ tree data structure
class	BPTree.java	Implements BPTreeADT class
interface	FoodDataADT.java	Defines required operations for food list
class	FoodData.java	Implements FoodDataADT class
class	FoodItem.java	Representation of one food item
enum	Nutrient.java	Represents and contains all the nutrients.
enum	Comparator.java	Represents the comparators.
class	Main.java	Base class that extends

		the Application and launches the program.
class	FoodListGUI.java	A visual representation of the food items from the file in a tabular listing.
class	MealListGUI.java	A visual representation of the meal.
class	MealItem.java	Represents a meal item (The underlying POJO for meal analysis GUI view).
class	MealAnalysisGUI.java	A visual representation of the analysis of the different food items in the meal list.
class	AddFoodItemGUI.java	PopupWindow for adding a new food item to the food list.
class	HomePage.java	The main screen of the application. Contains the Stage and Scene.
class	NutrientQueryGUI.java	Visual representation for creating and adding a nutrient query.

Class Diagrams



BPTree.LeafNode(private inner class of BPTree)
<ul style="list-style-type: none"> - values: List<V> - next: LeafNode - previous: LeafNode
+ BPTree.LeafNode()
<ul style="list-style-type: none"> + getFirstLeafKey() - K + isOverFlow() - boolean + insert(K, V) - void + split() - Node + rangeSearch(K,String) - List<V>



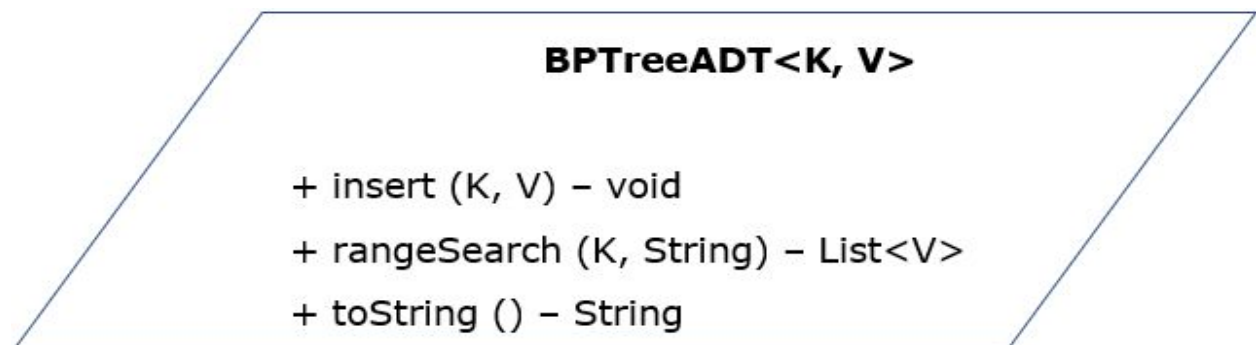
BPTree.Node (inner abstract class of BPTree)
<ul style="list-style-type: none"> - keys: List<V>
+ BPTree.Node()
<ul style="list-style-type: none"> + getFirstLeafKey() - K + isOverFlow() - boolean + insert(K, V) - void + split() - Node + rangeSearch(K,String) - List<V> + toString() - String



BPTree.InternalNode(private inner class of BPTree)
<ul style="list-style-type: none"> - children: List<Node>

+ BPTree.InternalNode()
+ getFirstLeafKey() - K + isOverflow() - boolean + insert(K, V) - void + split() - Node + rangeSearch(K,String) - List<V>

BPTree
- root : BPTree.Node - branchingFactor: int
+ BPTree(int)
+ insert(K, V) - void + rangeSearch(K, String) - List<V> + toString() - String



FoodItem
<ul style="list-style-type: none"> - name: String - id: String - nutrients: HashMap<String, Double>
+ FoodItem(String, String)
<ul style="list-style-type: none"> + getName() – String + getID() – String + getNutrients() – HashMap<String, Double> + addNutrient(String, double) – void + getNutrientValue(String name)– double

<<enumeration>> NUTRIENT
<ul style="list-style-type: none"> calories carbs fat protein fiber

<<enumeration>> COMPARATOR
<ul style="list-style-type: none"> <= >= ==

FoodListGUI
- foodItems: List<FoodItem> - foodData: FoodData
+ FoodListGUI (String) + setFoodItems (List<FoodItem>) - void + getFoodItems () - List<FoodItem> + setFoodData (FoodData foodData) - void + getFoodData () - FoodData

MealListGUI
-mealItems: list<FoodItem>
+MealListGUI(String) +setMealItems (List<FoodItem>) - void +getMealItems () - List<FoodItem>

Main
+ <u>main</u> (String[] args): void

MealItem
<ul style="list-style-type: none"> - foodItem: String - calories: double - carbs: double - fat: double - protein: double - fiber: double
<ul style="list-style-type: none"> + setFoodItem (String) - void + getFoodItem () - String + setCalories (double) - void + getCalories() - double + setCarbs (double) - void + getCarbs () - double + setFat(double) - void + getFat () - double + setProtein (double) - void + getProtein() - double + setFiber (double) - void + getFiber () - double

MealAnalysisGUI
<ul style="list-style-type: none"> - mealItems: List<MealItem> - mealAnalysisTableId: String
<ul style="list-style-type: none"> + MealAnalysisGUI (String) + setMealItems (List<MealItem>) - void + getMealItems () - List<MealItem> + getMealAnalysisTableId () - String

AddFoodItemGUI

- foodItemsTable: FoodListGUI
- addFoodItemGUIWindow: PopupWindow
- addFoodItemGUIWindowId: String

- + AddFoodItemGUI (FoodListGUI)
- + setFoodItemsTable (FoodListGUI) - void
- + getAddFoodItemGUIWindow () - PopupWindow
- + getAddFoodItemGUIWindowId () - String

NutrientQueryGUI

- foodItemsTable: FoodsListingGUI
- nutrientQueryGUIWindow: PopupWindow
- nutrientQueryGUIWindowId: String
- NUTRIENT VALUE QUERY REGEX: String

- + NutrientQueryGUI (FoodsListingGUI)
- + setFoodItemsTable (FoodsListingGUI) - void
- + getNutrientQueryGUIWindow () - PopupWindow
- + getNutrientQueryGUIWindowId() - String

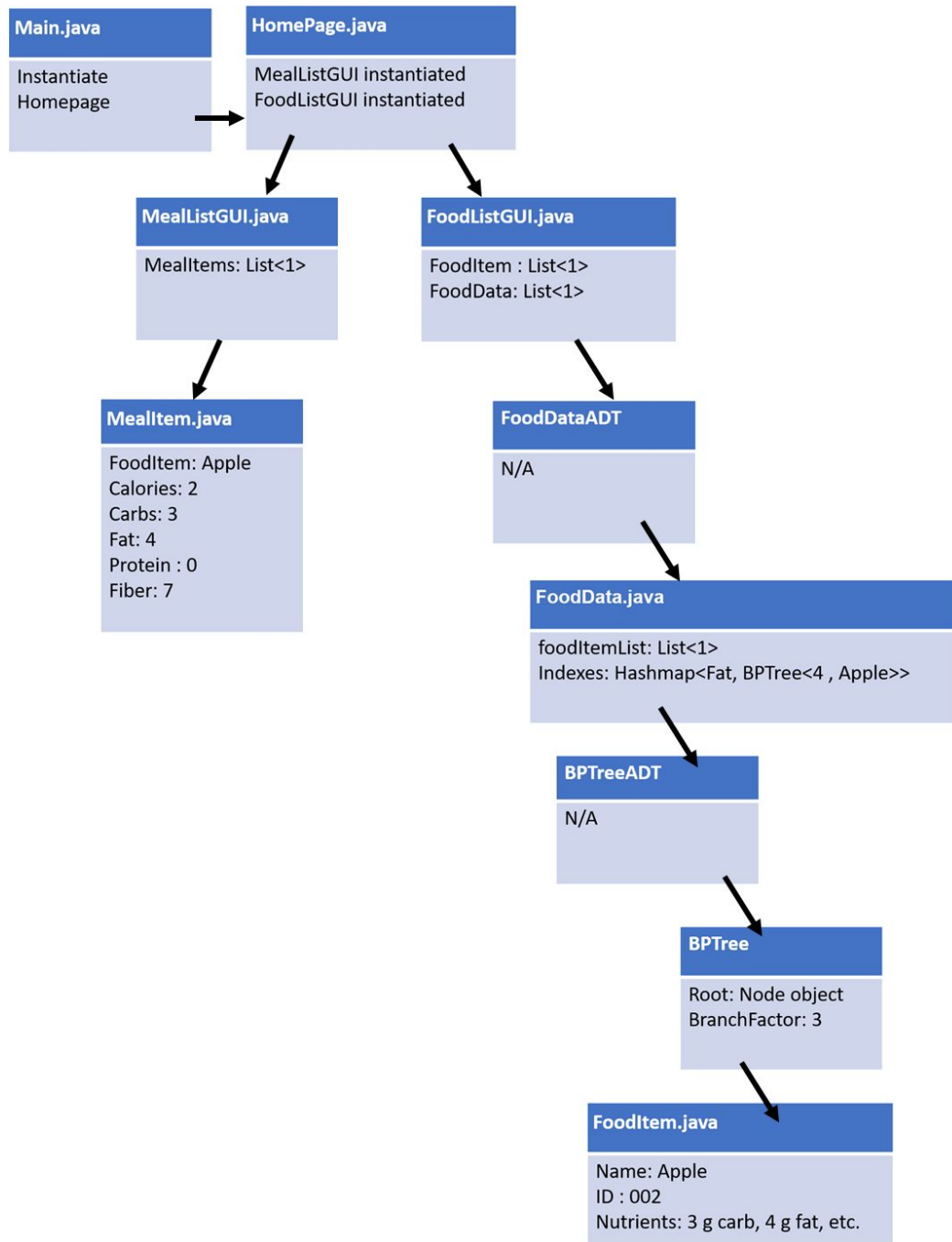
HomePage

- foodsList: FoodsListingGUI
- mealList: MealListGUI
- mealAnalysisGUI: MealAnalysisGUI
- nutrientQueryGUI: NutrientQueryGUI
- addFoodItemGUI: AddFoodItemGUI
- inputDataFilePath: String

- + HomePage(String)
- + createFoodsList(List<FoodItem>) – FoodsListingGUI
- + createMealsList(List<FoodItem>) – MealListGUI
- + createMealAnalysisGUI(List<MealItem>) – MealAnalysisGUI
- + createAddFoodItemGUI(FoodListGUI) – AddFoodItemGUI
- + createNutrientQueryGUI(FoodListGUI) – NutrientQueryGUI
- + getFoodsListGUI() – FoodsListingGUI
- + getMealListGUI() – MealListGUI
- + getNutrientQueryGUI() – NutrientQueryGUI
- + getMealAnalysisGUI() – MealAnalysisGUI
- + getAddFoodItemGUI() – AddFoodItemGUI

Object Diagrams

This is an object diagram of when the user starts up the program, given that the Food List only contains one item, an apple, and that the MealList contains that one same apple.



GUI Sketches

HOME PAGE

MY MEAL LIST

☒ Food 1

☐ Food 2

☐ Food 3

Remove Analyze

FOOD LIST

Search By Name:

Add File FILTER BY NUTRITION

☒ Food

☐ Food

☐ Food

ACTIVE FILTERS

Protein > 30g

Carbs > 10g

Clear Filters

Add to Food List Add to my meal Plan

This will be the pop up after clicking "Analyze" button (Meal Analysis) ↓

	Calories	Protein	Carbs	Fiber	Fat
Food 1	625	3g	5g	4g	3g
Food 2	625	5g	7g	1g	2g
Food 3	100	1g	7g	7g	7g
Total	1350	9g	19g	12g	12g

This will be the pop up window after clicking "Add to Food List" button ↓

A hand-drawn sketch of a pop-up window titled "ADD TO FoodLIST". The window contains four input fields labeled "NAME", "Calories", "Fat", and "Protein". A "SUBMIT" button is located at the bottom right of the window.

This will be the filter page (Nutrient Query GUI) that pops up ↓

A hand-drawn sketch of a pop-up window titled "FILTER". The window contains a "NUTRIENTS:" section with radio buttons for "Calories", "Protein", "Fiber", "Fat", and "Carbs". Below this is a "COMPARATOR:" section with radio buttons for "<", ">", "<=", ">=", and "=". A "VALUE:" input field is provided. A "CREATE FILTER" button is on the left. A "CREATED FILTERS" section shows two filters: "PROTEIN > 50" and "CALORIES ≤ 3000". An "APPLY!" button is at the bottom.

Alternate (simpler) home page design

The sketch is drawn on a spiral-bound notebook and is divided into several functional areas:

- My MEAL LIST:** A vertical table on the left side with four rows. Each row has a checkbox in the first column. The first checkbox is checked.
- FOOD LIST:** A section on the right side containing:
 - Two search input fields: "SEARCH: BY NAME" and "SEARCH: BY NUTRITIONS".
 - An "ADD FILE" button with a circular icon containing a question mark.
 - A table with three columns: a checkbox column, a "Food" column, and a "Description" column. The first row has a checked checkbox and the word "Food" in both the Food and Description columns. The next two rows have unchecked checkboxes and the word "Food" in the Food column, with empty Description cells.
- Counter:** A section at the bottom center with two buttons: "Add to my meal plan" and "Add to Food List".
- Bottom Left:** Two buttons labeled "Remove" and "ANALYZE".