

Class Summary

enum, interface, class, abstract class	Name of the type	Description of use or purpose of this type
interface	FoodDataADT	The public interface for loading and processing food items
interface	BPTreeADT	The public interface for BPTree insert, range search of nutrient values and print the tree with toString.
class	FoodData	The back-end for filtering food items by name and nutrient values, and adding and loading food items. It also contains the list of food items read from the file or entered by users and BPTrees for each nutrient.
class	BPTree	Each nutrient has its own BPTree, and with keys relate to nutrient's value. Inserting and range search which is used for filtering certain nutrient by its value
class	FoodItem	Get food's information including name, id, adding and getting nutrients and their values
class	MealData	Add food item to mealList, remove food item from mealList, print summary with dialog box and charts
class	Main	One stage, one scene, handles css styling, initialization of the borderpane, and setup windowing for GUI
class	GUI	Setup for layout of overall borderpane, scrollpane for both foodList and mealList. Dialog box for "add food item" form, Dialog box for "add rule" Buttons: "add to meal", "apply query", "view meal analysis", "reset filter" Menu bar: file(load food file, save foodList), foodList(add food item, add new rule, remove rule)

Class Diagrams

BPTree

Type	Name	Parameters	Description
Constructor	BPTree	Int branchingFactor	Constructs a new BPTree with given branchingFactor
void	insert	K key, V value	Inserts the key and value in the appropriate nodes in the tree. Key-value pairs with duplicate keys can be inserted into the tree.
List<V>	rangeSearch	K key, String comparator	Gets the values that satisfy the given range search arguments. Value of comparator can be one of these: "<=", "==", ">="
String	toString	N/A	Returns a string representation for the tree.

FoodItem

Type	Name	Parameters	Description
Construct or	FoodItem	String id, String name	Constructs a new FoodItem with the given id and name
String	getName	N/A	Gets the name of the food item and returns it
String	getID	N/A	Gets the unique id of the food item and returns it
HashMap <String, Double>	getNutrients	N/A	Gets the nutrients of the food item and returns it
void	addNutrient	String name, double value	Adds a nutrient and its value to this food. If nutrient already exists, updates its value.
double	getNutrientValue	String name	Returns the value of the given nutrient for this food item. If not present, then returns 0.

FoodData

Type	Name	Parameters	Description
Constructor	FoodData	N/A	Construct a new foodData
void	loadFoodItems	String filePath	Load food from a file
List<FoodItem>	filterByName	String substring	Filter food by name and return a list of food items
List<FoodItem>	filterByNutrients	List<String> rules	Filter food by a nutrient and return a list of food items
void	addFoodItem	FoodItem foodItem	Add a food to food list
List<FoodItem>	getAllFoodItems()	N/A	Return a list of all food

MealData

Type	Name	Parameters	Description
Constructor	MealData	N/A	Initializes a new MealData object
void	addFood	FoodItem foodItem	Inserts given FoodItem into the object
void	removeFood	FoodItem foodItem	Remove given FoodItem from MealData
void	printSummary	N/A	Displays food and associated nutritional information for all FoodItems in the object.

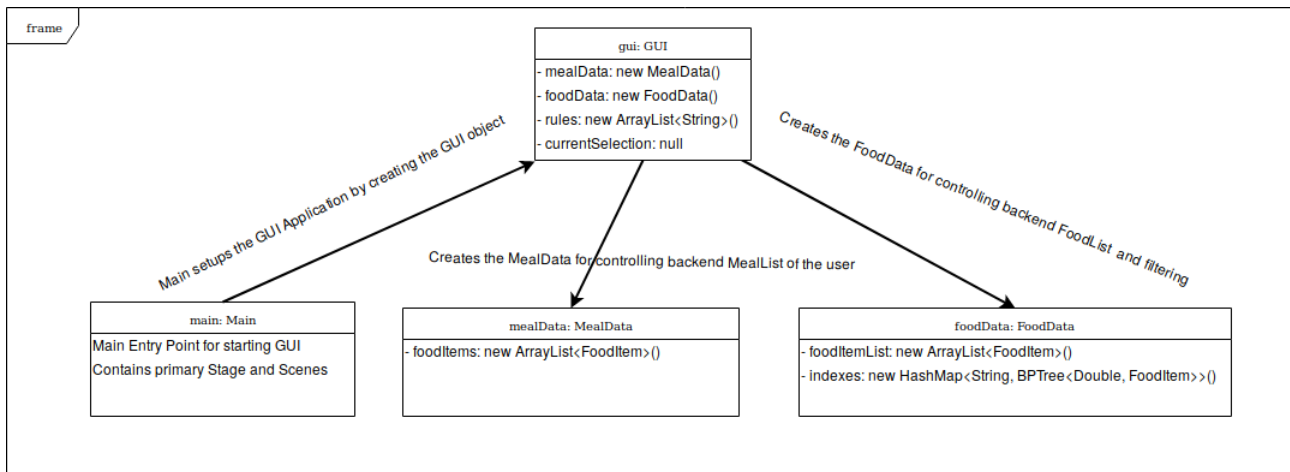
Main

Type	Name	Parameters	Description
void	main	String[] args	
void	start	Stage(primaryStage)	Initialize the borderpane and setup windowing for GUI

GUI

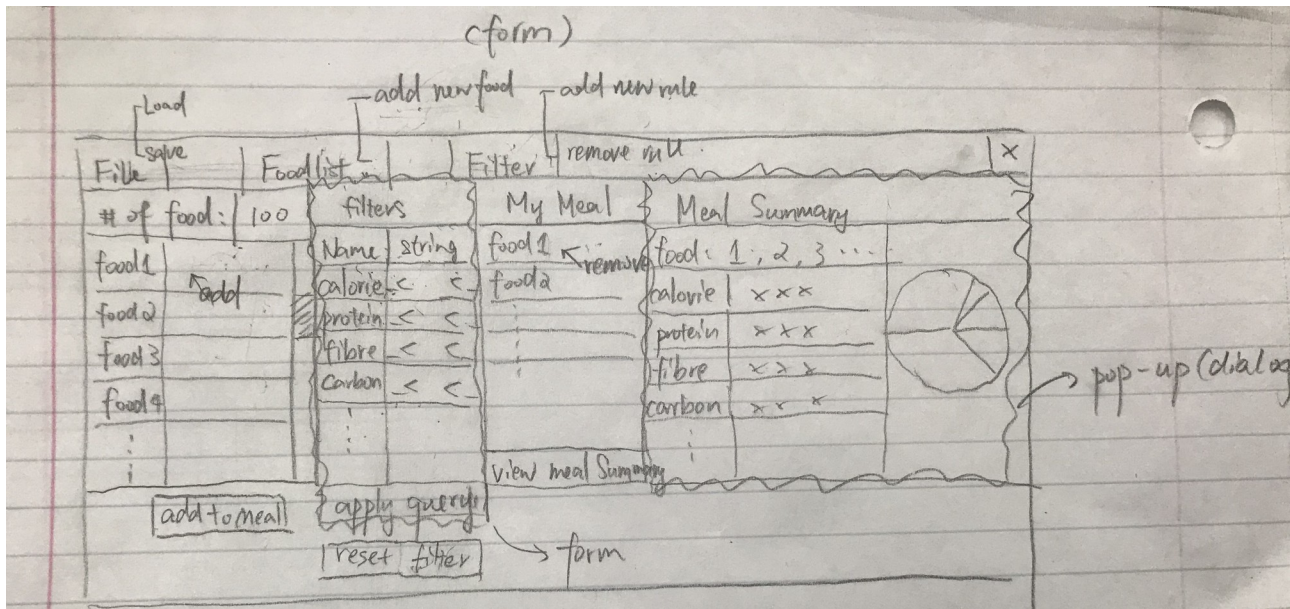
Type	Name	Parameters	Description
BorderPane	setup	BorderPane root	Sets up the GUI by creating scroll panes, buttons, and a menu
void	load	String fileName	Loads a file of given fileName
void	save	String fileName	Saves a file of given fileName
void	addNewFood	N/A	Adds a new user defined food item to food data
void	addNewRule	N/A	Adds a new user defined rule
void	removeRule	N/A	Removes the selected rule
void	addToMeal	N/A	Adds selected food item to meal
void	applyQuery	N/A	Uses selected rules to filter food items
void	resetFilter	N/A	Remove all applied rules from the list of filters
void	mealSummary	N/A	Displays a summary of all food items in the meal
void	removeFood	N/A	Removes selected food item from meal

Object Diagram



GUI Layout Sketch

Initial thought:



Final design:

