Criterion B: Solution Overview

Design Overview

Data:

- Data Structures used:
  - Static 1D String arrays containing information regarding meals of latest 3 days
  - Pages and Rows (Dynamic): to contain the data
- Variable types:
  - String for mealName and mealLabel
  - Integer for calories
  - Use the DATETIME data type that is inbuilt to SQL
- 2 tables: one table for all the meal types, and one table for meals eaten

Table 1 - Meal types

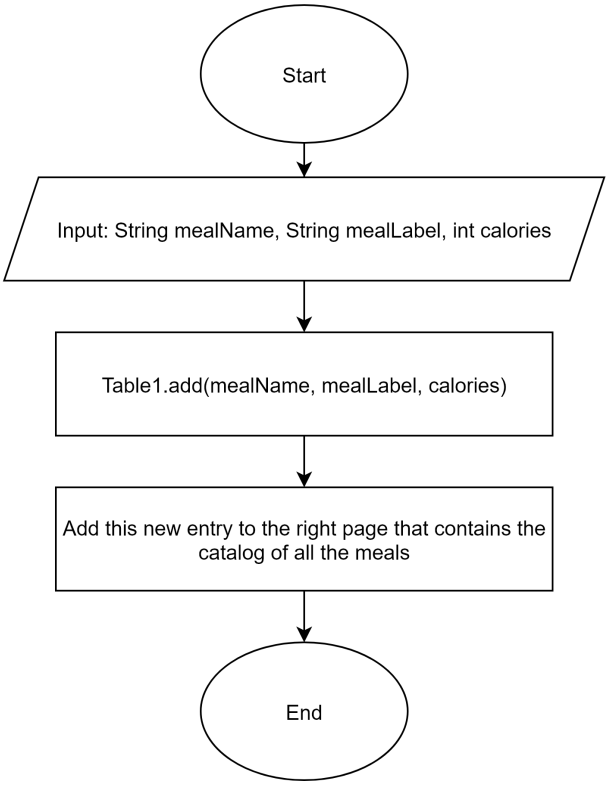
Name of food	Meal Label	Approx. Nutritional Info (kcal per serving) [optional]	Image (optional)
Hamburger	Lunch + Dinner	120	
	...		...

Table 2 - Meals Eaten (entries that are older than 6 months are deleted)

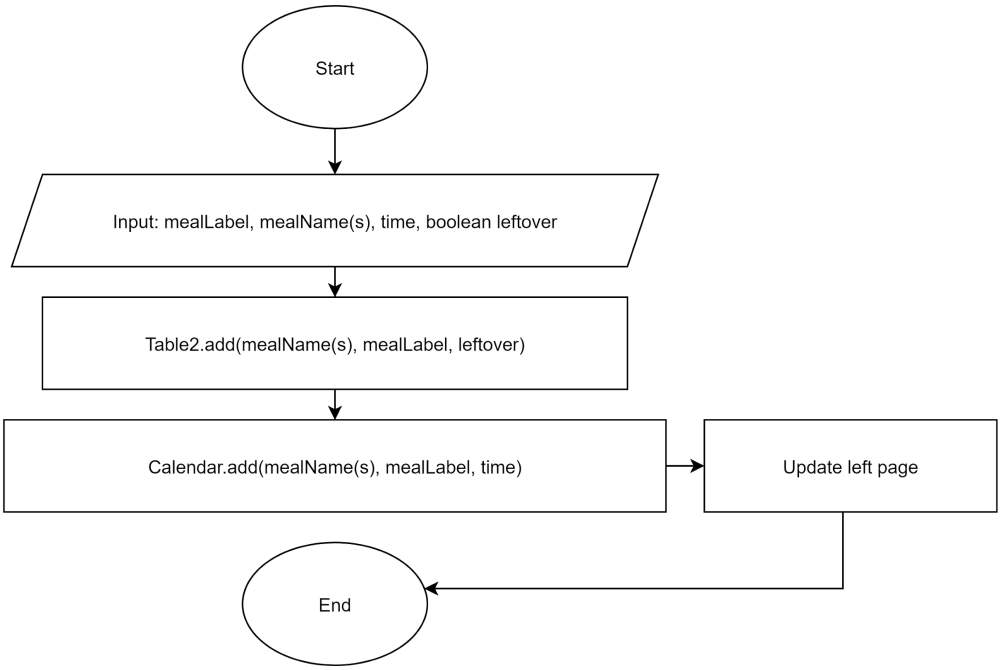
Food Types included	Meal Label	Leftover?
eg: 1. Rice 2. Lentils	Lunch	No

Algorithms/Processes/Methods:

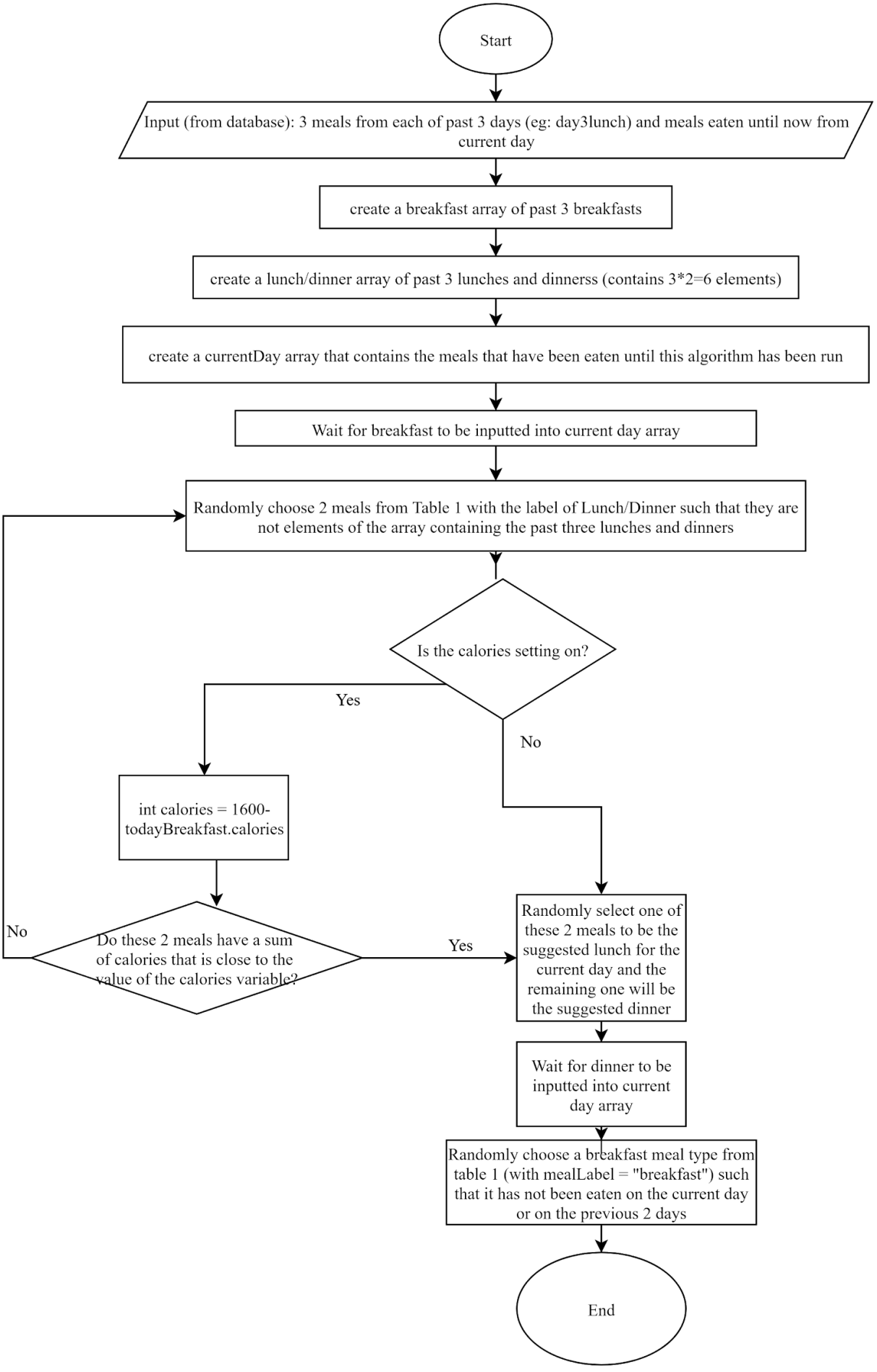
Input New Meal Type flowchart (runs when submit button is clicked)



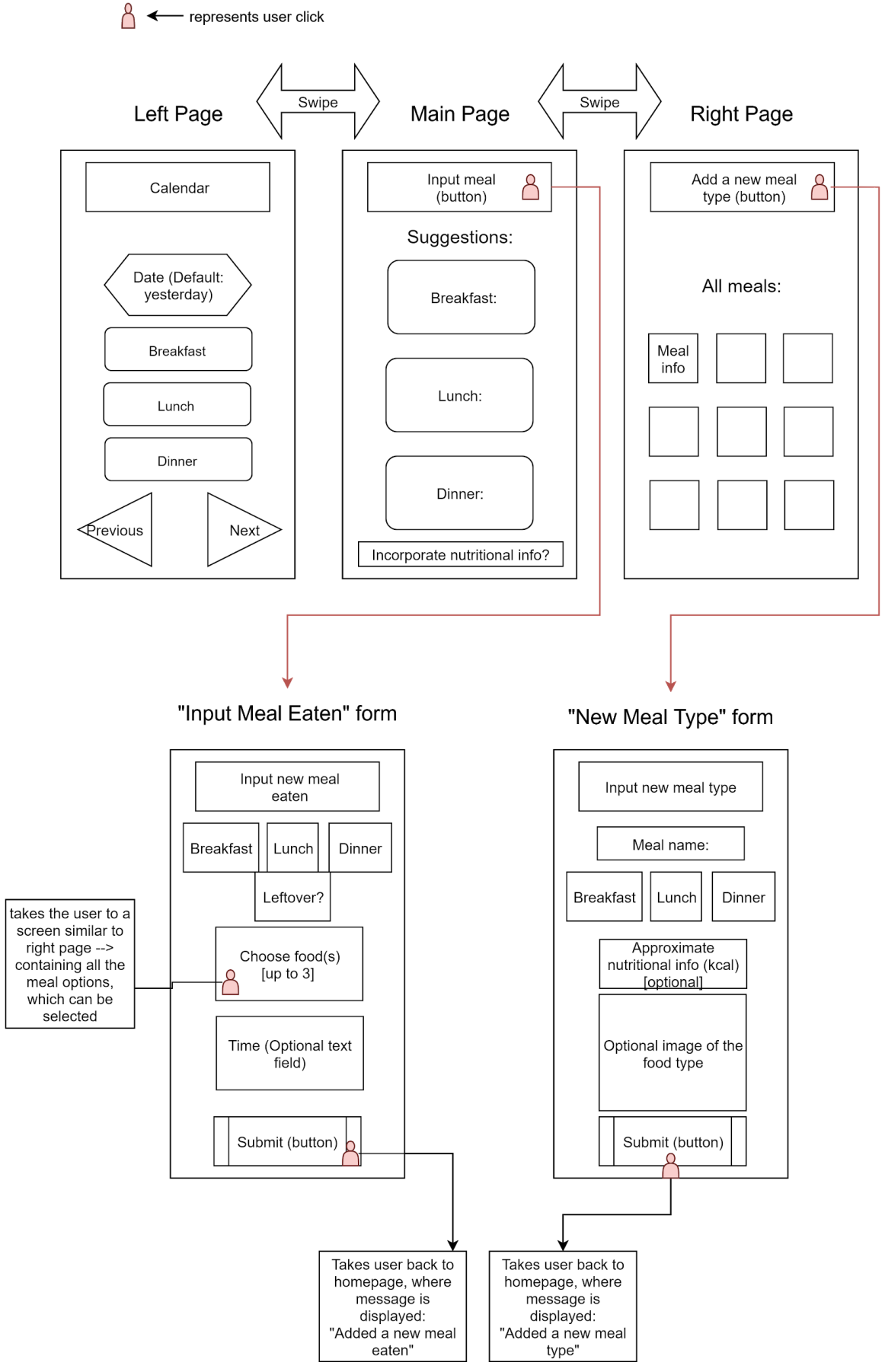
Input Meal Eaten flowchart (runs when submit button is clicked)



Recommender algorithm flowchart



Visualization:



Testing Plan

Criteria for Success	**Description**	**Input**	**Expected Output**
Home Page = Default page	Suggestions and button to input which meal was just eaten	App is opened	Home page appears
Right Page	See all meals included in the database and have the ability to add a new meal type	Swiping right-to-left from home page	Right Page appears
Left Page	Calendar format to see previous meals (day format)	Swiping left-to-right from home page	Left page appears
Should be able to quickly and efficiently input a meal after it has been eaten	A button on the homepage that takes the user to another screen where they can input the meal they just had into a form	Contents of the form; submit button	On submission, the meal that was just eaten gets added to the calendar
Include 3 supported meals	When inputting meals, there is an option to choose which meal was just eaten (Breakfast, Lunch, or Dinner)	Choose a label for the meal (Breakfast, Lunch, Dinner)	Label applied to meal
Should be able to add in combinations of foods	For instance: rice + lentils. That is, when inputting meals, combinations of foods should be allowed	On the ‘Input Meal’ form, allow the user to choose a combination of different foods	The combined meal gets incorporated into the algorithm
Ability to add a new meal type	Button (on right page) and a form that lets user input a new meal type along with nutritional information	Button Clicked to fill out form, form’s text fields are filled out, and form is submitted	New meal appears on right page

Include at least 21 different meal options	Over 1st week, collect a set of different meals before beginning prediction	Above test case is used to add new meals in with a button/form system	New meals added to database
Timing of lunch recommendation is appropriate	The recommendation for lunch appears after breakfast is inputted	'Input Meal' form is completed, with a label of "Breakfast"	Current day's lunch recommendation appears
Timing of dinner recommendation is appropriate	The recommendation for lunch appears after lunch is inputted	'Input Meal' form is completed, with a label of "Lunch"	Dinner recommendation appears
Timing of breakfast recommendation is appropriate	The recommendation for next day's breakfast appears after current day's dinner is inputted	'Input Meal' form is completed, with a label of "Dinner"	Next day's Breakfast recommendation appears
Include a leftovers option, that will factor into the algorithm that suggests the next few meals	Leftovers option, that will factor into the algorithm that suggests the next few meals (it may be suggested as one of the meals for the next day)	In the 'Input Meal' form, allow user to label meal as a leftover (along with meal type)	Leftover shows up a suggestion for one of the meal's on the next day
Provide suggestions for next day's breakfast	After breakfast of the current day is complete, show suggestions for next day's breakfast	'Input Meal' form is completed with a label of breakfast	Next day's breakfast is shown on home page
Provide suggestions for next day's lunch and dinner	After breakfast of the current day is complete, show suggestions for next day's lunch and dinner	'Input Meal' form is completed with a label of dinner	Next day's suggested lunch and dinner are shown on home page
Choice of next meal should be based both on repetitiveness and also on nutritional	Recommender algorithm will base the decision of future meals on the repetitiveness of	Meal inputted	Recommendations shown on home page

information.	meals over the last week, along with nutritional information		
Timings+date of meals should be shown	Every time a meal eaten is inputted, the time is logged	‘Input Meal’ form is completed	Log time when an entry is made
Calendar on left page should display the past meals	Based on the time log of entries, the calendar enters a new entry with the label of the meal	‘Input Meal’ form is completed	Calendar displays the inputted meal
Nutritional information option to turn on	If this setting is ‘on’, nutritional info factors into the algorithm	Turned on	nutritional info factors into the algorithm
Nutritional information option to turn off	If this setting is ‘off’, nutritional info doesn’t factor into the algorithm	Turned off	nutritional info doesn’t factor into the algorithm