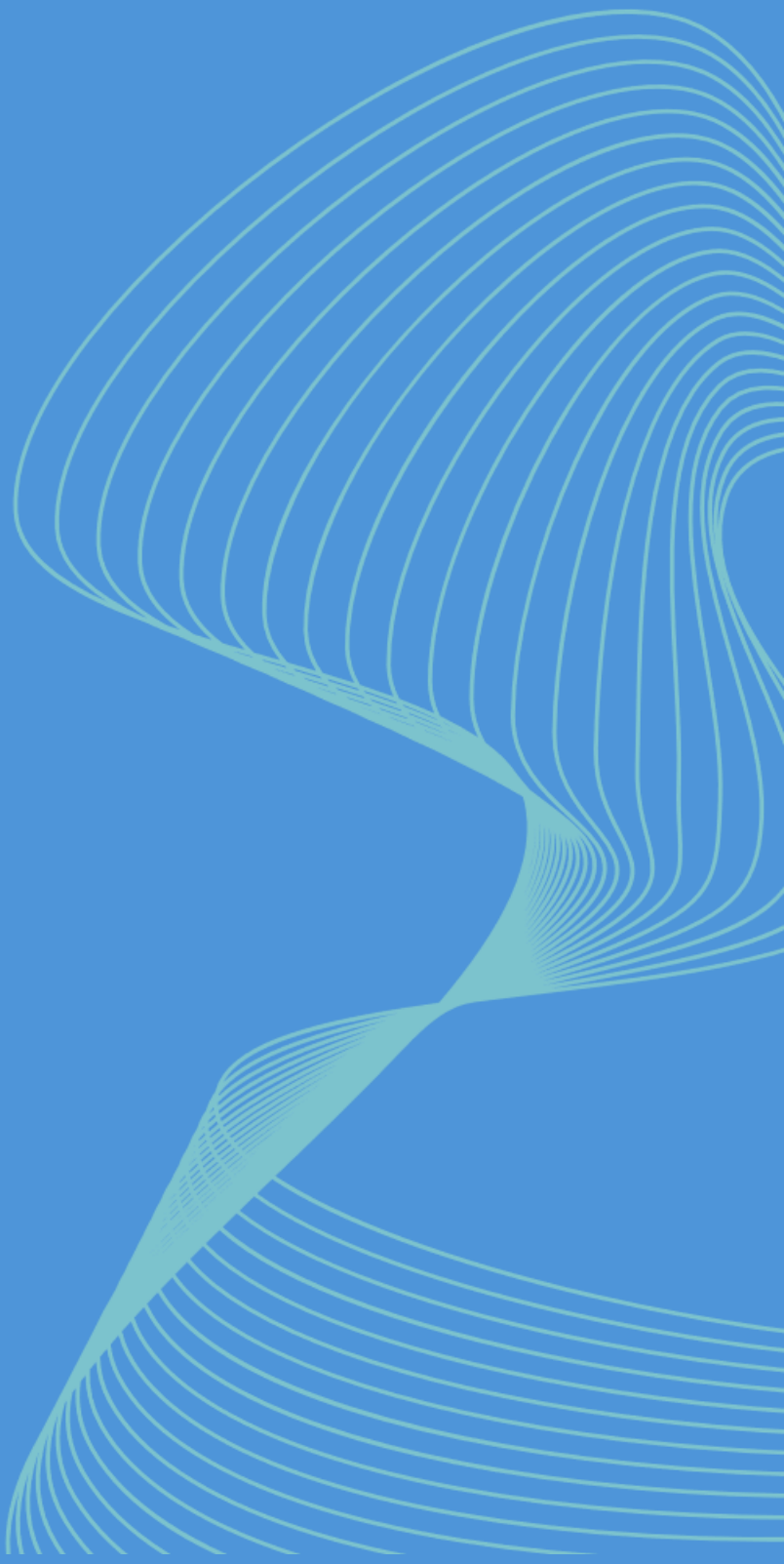
Project Proposal

Web Services



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Contents

Data model design

ER Diagram: https://miro.com/app/board/uXjVKiid68U=/

Table List/Design:

Food Table

The food table consists of essential/common details about each food item. The Food_id is the unique identifier for the table. We can view things like the category (eg. dairy,meat) and service size to help determine the food's nature.

Food_id	Name	Category	Calories	Serving_size	Content (g)

Nutrition Facts

The nutritional facts table contains information about various foods (pulled from the food table). Each record has an ID to refer to the nutrition number and its corresponding food item. This pair is then accompanied by details on the specific food such as the amount of protein,fat, fibre, sugar, sodium and cholesterol (g).

Nutrition_id	Food_id	Protein (g)	Fat (g)	Fibre (g)	Sugar (g)	Sodium (g)	Cholesterol (g)	Description

Exercise

Our exercise table lists different types of exercises (identified by an ID), and crucial information related to the movement. Each record specifically has the name,type, the amount of calories burned per minute, the equipment (if any) and the muscles targeted

Exercise_id	name	type	Calories_burned (per min)	equipement	difficulty	muscles_targeted

Workout Recommendations

The workout recommendations table is meant to link specific food and exercises. Its identifiers consist of an ID associated to the recommendation, an ID used as a reference to the associated food, and another ID referring to the exercise. Aside from the identifiers, each

recommendation includes the duration (in minutes), the recommended repetitions, sets, difficulty and additional notes concerning the paired recommendation.

Recommendation_id	Food_id	exercise_id	Duration (minutes)	reps	sets	distance	difficulty	notes

Diet

The diet table provides essential information about common types of diets. Each entry has an ID to identify the unique diet, the name of the diet, the description, the caloric goal, the protein goal, the carbohydrates goal and the vegetarian or gluten_free status.

diet_id	name	description	calorie_goal	protein_goal	Carbohydrates (goal)	vegetarian	Gluten free

Country

This table introduces information about various countries that are later referred to elsewhere as reference in our data set. Each record provides a unique ID, the country's name, the population, the amount of vegetarians (%), the average calorie intake, the food culture as well as commonly found nutritional deficiencies and popular dishes.

Country_id	name	population	Vegetarians (%)	daily_calorie_intake	Food_culture	nutritional_deficiency	consumed_dishes

Food Guideline Recommendation

Our final table incorporates the food guideline recommendations for different countries (sourced/pulled from the country table). Having an entry in this table is defined by having a food guideline_id as as identifier, a country id to the country it applies to and the recommended intakes for calories, protein,fats, and carbs. It also includes the recommended food groups, daily servings and any additional notes.

guideline_id	country_id	calorie_intake	Protein (g)	Fats (g)	Carbohydrates (g)	food_groups	notes	Servings (per day)

List of resources

Food

#	Resource URI & Description	HTTP Operations	Filtering & Pagination
1)	/foods A **collection** resource that returns a list of all foods in the API. It can be filtered, sorted, and paginated through the request's filtering criteria. Resource representation: JSON, XML.	- GET - POST	- Category - Calories: minimum & maximum - Serving size - Content size: minimum & maximum - page - pageSize
2)	*/foods/{food_id}* A **singleton** resource that returns the details of a specific food item. Resource representation: JSON, XML.	- GET - PUT - DELETE	N/A

Nutrition Facts

#	Resource URI & Description	HTTP Operations	Filtering & Pagination
1)	/foods/{food_id/{nutritionFacts} A **sub-collection** resource that returns the nutrition facts for a specific food item. Resource representation: JSON, XML.	- GET - POST: Add nutrition facts for a food.	N/A
2)	*/nutritionfacts/{nutritionId}* A **singleton** resource that returns the details of a specific nutrition fact. Resource representation: JSON, XML.	- GET - PUT - DELETE	N/A

Exercise

#	Resource URI & Description	HTTP Operations	Filtering & Pagination
1)	*/exercises* A **collection** resource that returns the list of exercises. Resource representation: JSON, XML.	- GET - POST	- Type - Difficulty - Muscles Targeted - Calories burned - Equipment - Page - pageSize
2)	*/exercises/{exerciseId}* A **singleton** resource that returns the details of a specific exercise. Resource representation: JSON, XML.	- GET - PUT - DELETE	N/A

Workout Recommendation

#	Resource URI & Description	HTTP Operations	Filtering & Pagination
1)	*/workoutRecommendations* A **collection** resource that returns the list of workout recommendations. Resource representation: JSON, XML.	- GET - POST	- Difficulty - Distance - Duration - Page - pageSize
2)	*/foods/{food_id}workoutRecommendation* A **sub-collection** resource that returns the workout recommendations of a specific food.	- GET	N/A

3)	*/exercises/{exerciseId}/workoutrecommendation* A **sub-collection** resource that returns the workout recommendations of a specific e**xercise**. Resource representation: JSON, XML.	- GET	N/A
4)	*/workoutRecommendations/{recommendationId}* A **singleton** resource that returns a specific workout recommendation. Resource representation: JSON, XML.	- GET - POST - DELETE	N/A

Diet

#	Resource URI & Description	HTTP Operations	Filtering & Pagination
1)	*/diets* A **collection** resource that returns the list of diets. Resource representation: JSON, XML.	- GET - POST	- Is gluten free - Is vegetarian - Protein goal - Carb goal - Calorie goal - Diet name - Page - PageSize
2)	*/diets/{dietId}* A **singleton** resource that returns the details of a diet. Resource representation: JSON, XML.	- GET - PUT - DELETE	N/A

Country

#	Resource URI & Description	HTTP Operations	Filtering & Pagination
1)	*/countries* A **collection** resource that returns the list of countries. Resource representation: JSON, XML.	- GET - POST	- Food Culture - Vegetarian % - Country name - Page - PageSize
2)	*/countries/{countryId}* A **singleton** resource that returns the details of a specific country. Resource representation: JSON, XML.	- GET - PUT - DELETE	N/A

Food Guideline Recommendation

#	Resource URI & Description	HTTP Operations	Filtering & Pagination
1)	*/countries/{countryId}guidelines* A **collection** resource that returns the list of food guidelines for a specific country. Resource representation: JSON, XML.	- GET - POST	- Food Groups - Calorie intake - Protein - Fats - Carbs - Page - PageSize
2)	*/guidelines/{guidelineId}* A **singleton** resource that returns the details of a food guideline. Resource representation: JSON, XML.	- GET - PUT - DELETE	N/A

HTTP response codes

Resource name : /foods

HTTP Response codes	Description of the status code	Operation method(s)	Service request example
200 OK	The request was successful and data was returned	GET, PUT,DELETE	Get the list of all the foods
406 Not Acceptable	The server does not accept the request because it couldn't match the list of acceptable values	GET,	The request asks for a response in Spanish but the server doesn't support that language
400 Bad request	Invalid query parameter	GET,POST,PUT,DELETE	Invalid filter requested
404 Not found	The request does not exist in the API.	GET,POST,PUT,DELETE	If a specific food (by ID or by name) is requested but doesn't exist in the API
201 Created	The resource was successfully created.	POST	Creating a new food record
409 Conflict	The state of the resource doesn't permit the request	POST,PUT,DELETE	Trying to create a resource with a name that already exists in the API
403 Forbidden	The user agent is not allowed to perform this operation on the resource	DELETE	The user attempts to delete a resource that is a foreign key in another table

Resource name : /NutritionFacts

HTTP Response codes	Description of the status code	Operation method(s)	Service request example
200 OK	The request was successful and data was returned	GET, PUT,DELETE	Return the list all nutrition facts in the API
204 No content	The request was successful, but the content is empty / null	POST,PUT,DELETE	Deleting a nutrition fact in the API
400 Bad request	Invalid query parameter	GET,POST,PUT,DELETE	Invalid food id in the URI (/food/{food_id}/nutrition)

404 Not found	The request does not exist in the API.	GET,POST,PUT,DELETE	Nutrition fact for a specific food id is not available
409 Conflict	The user agent is not allowed to perform this operation on the resource	DELETE	The user tries to update the API by adding a new nutrition fact with an already existing name
201 Created	The resource was successfully created.	POST	Client successfully added a nutrition fact in the API

Resource name : /exercices

HTTP Response codes	Description of the status code	Operation method(s)	Service request example
200 OK	The request was successful and data was returned	GET, PUT,DELETE	Return the list of all exercices in the API
204 No content	The request was successful, but the content is empty / null	POST,PUT,DELETE	Deleting a nutrition fact in the API
400 Bad request	Invalid query parameter	GET,POST,PUT,DELETE	The client tries to add an exercise with the POST operation without adding all the required fields
404 Not found	The request does not exist in the API.	GET,POST,PUT,DELETE	The client tries to update an exercise with an ID that doesn't exist
409 Conflict	The state of the resource doesn't permit the request	PUT	The user tries to update the API by adding a new nutrition fact with an already existing name
201 Created	The resource was successfully created.	POST	The client successfully added an exercise to the API

Resource name : /workout-recommendations

HTTP Response codes	Description of the status code	Operation method(s)	Service request example
200 OK	The request was successful and data was returned	GET, PUT,DELETE	Return the list of all workout recommendations in the API

204 No content	The request was successful, but the content is empty / null	POST,PUT,DELETE	Deleting a workout in the API
400 Bad request	Invalid query parameter	GET,POST,PUT,DELETE	Trying to get information about a specific exercise in the workout recommendation without giving the right ID
404 Not found	The request does not exist in the API.	GET,POST,PUT,DELETE	The client tries to update an exercise with an ID that doesn't exist
201 Created	The resource was successfully created.	POST	The client successfully added an exercise to the API

Resource name : /diets

HTTP Response codes	Description of the status code	Operation method(s)	Service request example
200 OK	The request was successful and data was returned	GET, PUT,DELETE	Return the list of all workout recommendations in the API
404 Not found	The request does not exist in the API.	GET,PUT,DELETE	Trying to retrieve information about a diet that doesn't exit in the API
400 Bad Request	Invalid query parameter	GET,PUT,DELETE,POST	Missing a the diet name when trying to create a new diet in the API
404 Not found	The request does not exist in the API.	GET,PUT,DELETE,POST	Missing a the diet name when trying to update it
201 Created	The resource was successfully created	POST	Client was able to create a diet data

Resource name : /countries

***User shouldn't be able to add new countries*

HTTP Response codes	Description of the status code	Operation method(s)	Service request example
200 OK	The request was successful and data was returned	GET, PUT	Return the list of all the countries in the API
404 Not found	The request does not exist in the API.	GET,PUT	Trying to retrieve information about a diet that doesn't exit in the API

400 Bad Request	Invalid query parameter	GET,PUT	Missing a field when trying to create a new country in the API
404 Not found	The request does not exist in the API.	GET,PUT	Trying to retrieve a country id that doesn't exist in the API
403 Forbidden	The user agent is not allowed to perform this operation on the resource	DELETE,POST	The user attempts to delete a resource data

Resource name : /foodGuidelineRecommendation

***Doesn't support POST because it would have conflicts with the Country table*

***Doesn't support DELETE*

HTTP Response codes	Description of the status code	Operation method(s)	Service request example
200 OK	The request was successful and data was returned	GET, PUT	Return the list of all the food guidelines recommendation in the API
404 Not found	The request does not exist in the API.	GET,PUT	Trying to retrieve information about a diet that doesn't exit in the API
400 Bad Request	Invalid query parameter	GET,PUT	Missing a field when trying to retrieve information about a specific country food guideline in the API
404 Not found	The request does not exist in the API.	GET,PUT	Trying to retrieve a country id that doesn't exist in the API
403 Forbidden	The user agent is not allowed to perform this operation on the resource	DELETE	The user attempts to delete a resource data

Composite Resource List

Nutrition and workout plan (Workout Recommendations)

This composite resource combines both dietary recommendations and exercises to create ideal workout plans, describing the suggested repetitions, sets and duration of each exercise. It is composite by making the parallel between food nutrition data and exercises.

Source 1: Nutrition: FoodData Central (usda.gov) (json format)

Source 2: Workout Plan: https://v2.rapidapi.com/justin-WFnsXH_t6/api/exercisedb

Country specific food guidelines (food guideline recommendations)

The second composite resource consists of meshing together a country's information with food specific guidelines. Generally, every country offers a dietary recommendation on what food groups to consume and to what degree. We would provide information about a certain country, accompanied by a its tailored food guideline recommendation.

Source 1: Country: REST Countries API — Public APIs

Source 2: Food guidelines: GHO OData API (who.int) (most information of food guidelines are found directly under the country's governmental website), as it may not be official, the previous API demonstrate country based information on their nutritional recommendations.

Food and nutritional facts

Our third composite resource is a representation of a food's nutritional profile. By combining a food's general information and its specific nutritional facts,(Food Table -> Nutrition facts table) we can create a composite resource that combines data from these tables to provide a detailed understanding of nutritional information concerning various different food items.

Source 1: Food: Introduction to Open Food Facts API documentation - Product Opener (Open Food Facts Server)

Source 2: Nutritional Facts: Food and Grocery Database API – Documentation – Edamam