

Distributed Assignment 2  
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## A Revolution in Nutritional Tracking: The 'SmartMeal' Application

In the digital age, maintaining a balanced diet requires innovative tools that adapt to our fast-paced lifestyles. 'SmartMeal' emerges as a cutting-edge application designed to revolutionize nutritional tracking. It offers a user-friendly platform for individuals to manage their meals, track nutrient intake, and maintain a healthy diet with ease and precision.

### Application Idea

SmartMeal is not just another meal-tracking application; it is an intelligent assistant that provides users with detailed nutritional insights into their daily food intake. By leveraging a robust backend written in Go, SmartMeal allows users to create meals, add ingredients, and view the nutritional content of each meal. The application's backbone consists of several RESTful API endpoints that handle meal and ingredient management, providing a seamless user experience.

### Novel Features

The standout feature of SmartMeal is the 'Nutrient Calculator,' which analyzes the ingredients of each meal and calculates the nutrient values per 100 grams, aligning with standardized nutritional labels. Furthermore, SmartMeal introduces a 'Meal Planning Assistant' that suggests meals based on users' nutritional needs and dietary restrictions. This feature uses machine learning algorithms to personalize meal recommendations, ensuring users receive balanced meal plans that adhere to their specific dietary goals.

### Challenges

A significant challenge in developing SmartMeal is ensuring data integrity and consistency when dealing with concurrent meal and ingredient updates. Additionally, keeping the user experience intuitive while providing detailed nutritional data poses a design challenge.

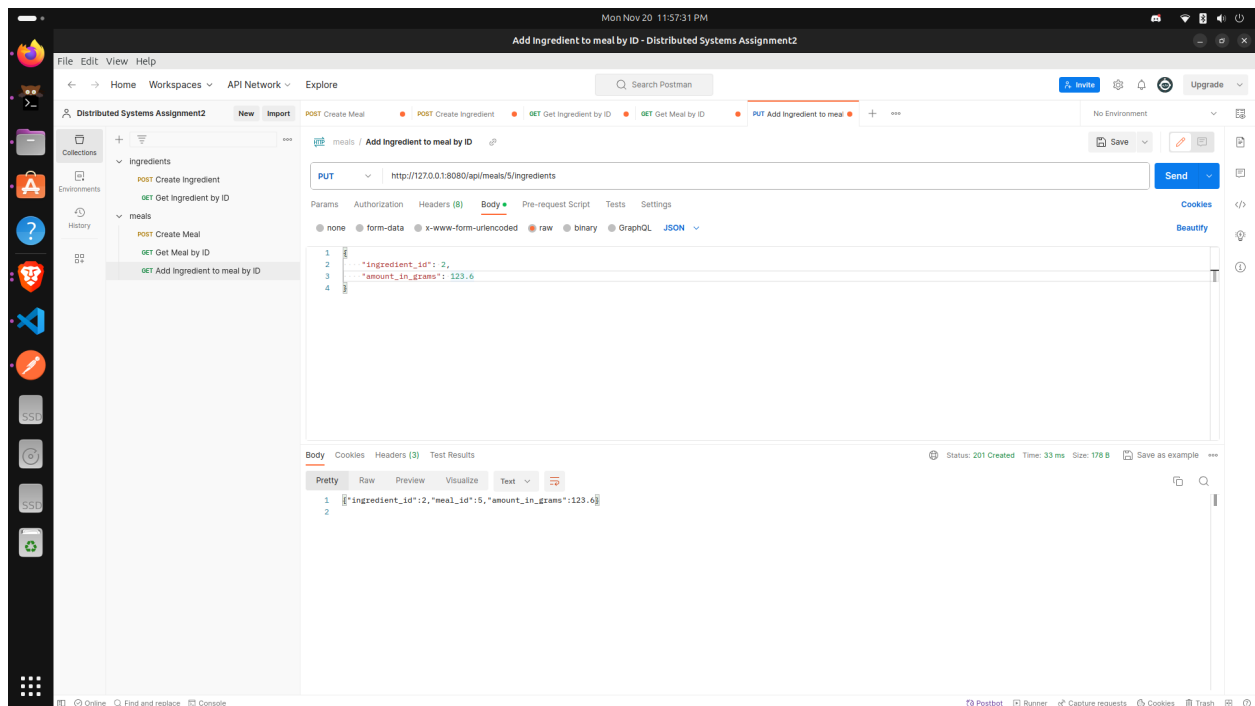
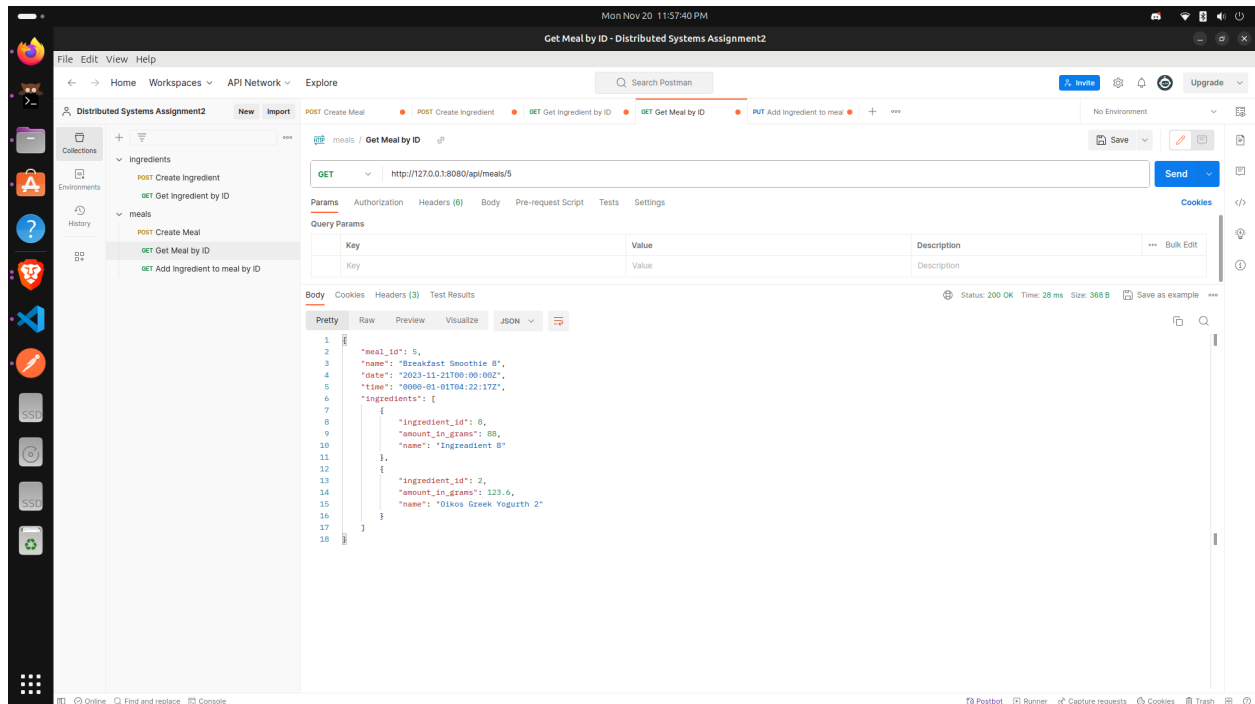
### Solutions

To address data consistency, we employ transactional operations within our API endpoints, ensuring atomicity in meal and ingredient modifications. For the user experience, SmartMeal will utilize a responsive front-end design that presents nutritional information in an easily digestible format, employing tooltips and a contextual help system for users unfamiliar with nutritional data.

### Conclusion

SmartMeal is set to be a breakthrough in dietary management. By focusing on personalization, ease of use, and detailed nutritional tracking, it caters to health-conscious individuals who value

accuracy and convenience in their dietary planning. As we continue to refine the application, our commitment to enhancing the well-being of our users remains our utmost priority.



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Get Meal by ID - Distributed Systems Assignment2

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meals / Get Meal by ID

GET http://127.0.0.1:8080/api/meals/5

Params Authorization Headers (6) Body Pre-request Script Tests Settings

Query Params

Key	Value	Description
Key	Value	Description

Body Cookies Headers (3) Test Results

Status: 200 OK Time: 23 ms Size: 293 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "meal_id": 5,
3   "name": "Breakfast Smoothie B",
4   "date": "2023-11-21T09:09:06Z",
5   "time": "0909-01-01T04:22:17Z",
6   "ingredients": [
7     {
8       "ingredient_id": 8,
9       "amount_in_grams": 88,
10      "name": "Ingredient B"
11    }
12  ]
13 }
```

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Create Meal - Distributed Systems Assignment2

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meals / Create Meal

POST http://127.0.0.1:8080/api/meals

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

```
1 {
2   "name": "Breakfast Smoothie B",
3   "date_time": "2023-11-21T04:22:17+09:00",
4   "ingredients": [
5     {
6       "ingredient_id": 8,
7       "amount_in_grams": 88
8     }
9   ]
10 }
```

Body Cookies Headers (3) Test Results

Status: 201 Created Time: 27 ms Size: 127 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "meal_id": 5
3 }
```

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Get Ingredient by ID - Distributed Systems Assignment2

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envs

Upgrade

Distributed Systems Assignment2 New Import

POST Create Meal POST Create Ingredient GET Get Ingredient by ID GET Get Meal by ID PUT Add Ingredient to meal

No Environment

Ingredients / Get Ingredient by ID

GET http://127.0.0.1:8080/api/ingredients/8

Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings

Query Params

Key	Value	Description
Key	Value	Description

Body Cookies Headers (3) Test Results

Status: 200 OK Time: 17 ms Size: 563 B Save as example

Pretty Raw Preview Visualize Text

```
1 [{"ingredient_id": 8, "name": "Ingredient B", "nutrients": [{"name": "protein", "amount_per_100g": 35.2}, {"name": "total_fats", "amount_per_100g": 4}, {"name": "saturated_fats", "amount_per_100g": 19.6}, {"name": "calories", "amount_per_100g": 45}, {"name": "carbohydrate", "amount_per_100g": 2}, {"name": "sugars", "amount_per_100g": 0}, {"name": "cholesterol", "amount_per_100g": 0.02}, {"name": "potassium", "amount_per_100g": 0.07}, {"name": "calcium", "amount_per_100g": 0.05}]}]
```

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Create Ingredient - Distributed Systems Assignment2

File Edit View Help

Home Workspaces API Network Explore

Search Postman

envs

Upgrade

Distributed Systems Assignment2 New Import

POST Create Meal POST Create Ingredient GET Get Ingredient by ID GET Get Meal by ID PUT Add Ingredient to meal

No Environment

Ingredients / Create Ingredient

POST http://127.0.0.1:8080/api/ingredients

Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

Beautify

```
1 {
2   "name": "Ingredient B",
3   "serving_size_in_grams": 500,
4   "nutrients": [
5     {
6       "name": "protein",
7       "amount": 176
8     },
9     {
10      "name": "total_fats",
11      "amount": 39
12    },
13    {
14      "name": "saturated_fats",
15      "amount": 98
16    },
17    {
18      "name": "calories",
19      "amount": 225
20    },
21    {
22      "name": "carbohydrate",
23      "amount": 10
24    },
25    {
26      "name": "sugars",
27      "amount": 0
28    }
29  ]
30 }
```

Body Cookies Headers (3) Test Results

Status: 201 Created Time: 42 ms Size: 142 B Save as example

Pretty Raw Preview Visualize Text

```
1 [{"ingredient_id": 0}]
```