

## CSC3170 Project

### 1. Project Description:

Constructing a database for a food recipe website. The website supports two roles: author of recipes (author) and writer of recipe reviews (reviewer). Authors can create and upload their own made recipes and check their history of uploaded recipes. Reviewers can search recipes in the database based on recipe categories and write reviews and ratings for recipes.

Populate the Database with Realistic Data from:

<https://www.kaggle.com/datasets/irkaal/foodcom-recipes-and-reviews/data>

### 2. Requirement Analysis:

Roles:

1. Review Writer
2. Recipe Author

Entities:

Authors, Reviewers, Recipes, Ingredients, Nutrients, Categories, Reviews & Ratings

Relationships:

Authors can create multiple Recipes.

Each Recipe can have multiple components of Ingredients.

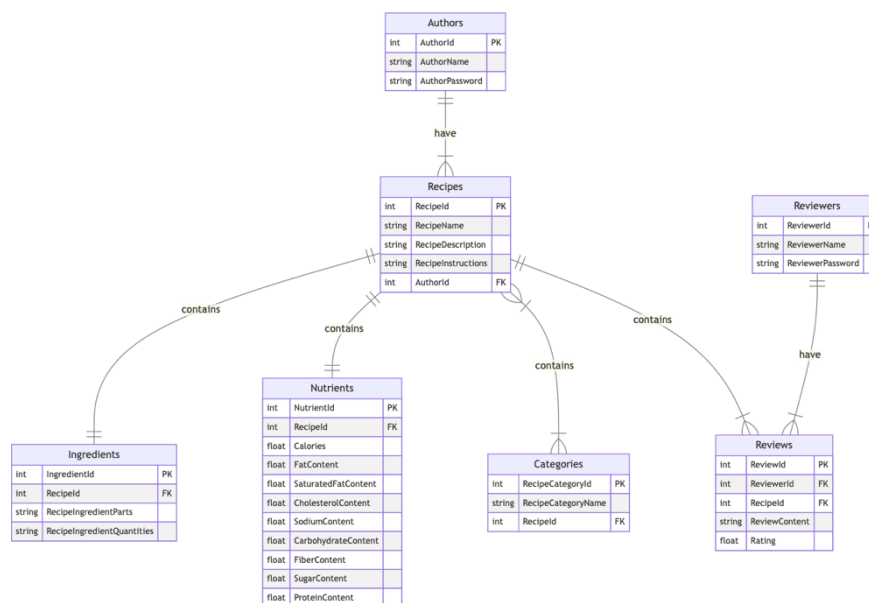
Each Recipe can have multiple components of Nutrients.

Recipes can belong to multiple Categories.

Reviewers can leave multiple Reviews & Ratings for Recipes.

### 3. The database and SQL design:

#### Schema Design:



Populate the Database with Realistic Data: (sample 5 rows)

Output postgres.public.authors

	authorid	authorname	authorpassword
1	1800365581	livelygrl70	123456
2	1800367146	Binas	123456
3	1533	Dancer	123456
4	1567	elly9812	123456
5	1566	Stephen Little	123456

Output postgres.public.reviewers

	reviewerid	reviewername	reviewerpassword
1	2001752722	Mary T.	654321
2	2001957150	Ginny G.	654321
3	2001957169	Jenny B.	654321
4	2001957212	bowking52	654321
5	2001957225	dpnta34	654321

Output postgres.public.recipes

	recipeid	recipeiname	recipedescription	recipeinstructions	authorid
1	38	Low-Fat Berry Blue Frozen Dessert	Make and share this Low-Fat Berry Blue Froz...	c("Toss 2 cups berries with sugar.", "Let stand ...	1533
2	39	Biryani	Make and share this Biryani recipe from Foo...	c("Soak saffron in warm milk for 5 minutes and p...	1567
3	40	Best Lemonade	This is from one of my first Good House Ke...	c("Into a 1 quart Jar with tight fitting lid, pu...	1566
4	41	Carina's Tofu-Vegetable Kebabs	This dish is best prepared a day in advance...	c("Drain the tofu, carefully squeezing out exces...	1586
5	42	Cabbage Soup	Make and share this Cabbage Soup recipe fro...	c("Mix everything together and bring to a boil..."	1538

Output postgres.public.ingredients

	ingredientid	recipeid	recipeingredientparts	recipeingredientquantities
1	1	38	c("blueberries", "granulated sugar", "vanilla yogurt", "lemon ...	c("4", "1/4", "1", "1")
2	2	39	c("saffron", "milk", "hot green chili peppers", "onions", "gar...	c("1", "4", "2", "2", "8", "1/4", "8", "1/2", "1", "1", "1/4", ...
3	3	40	c("sugar", "Lemons, rind of", "lemon, zest of", "fresh water", ...	c("1 1/2", "1", "1", "NA", "1 1/2", "NA", "3/4")
4	4	41	c("extra firm tofu", "eggplant", "zucchini", "mushrooms", "soy...	c("12", "1", "2", "1", "10", "1", "3", "2", "2", "2", "1", "2"...
5	5	42	c("plain tomato juice", "cabbage", "onion", "carrots", "celery...	c("46", "4", "1", "2", "1")

Output postgres.public.nutrients

	nutrientid	recipeid	calories	fatcontent	saturat...	cholester...	sodium...	carbohy...	fib...	sugar...	prote...
1	1	38	178.9	2.5	1.3	8	29.8	37.1	3.6	38.2	3.2
2	2	39	1118.7	58.8	16.6	372.8	368.4	84.4	9	28.4	63.4
3	3	40	311.1	0.2	0	0	1.8	81.5	0.4	77.2	0.3
4	4	41	536.1	24	3.8	0	1558.6	64.2	17.3	32.1	29.3
5	5	42	183.6	0.4	0.1	0	959.3	25.1	4.8	17.7	4.3

Output postgres.public.categories

	recipecategoryid	recipecategoryname	recipeid
1	349093	Pork	361999
2	349094	Chicken	362000
3	349095	African	362001
4	349096	Lunch/Snacks	362002
5	349097	Chicken Breast	362003

Output postgres.public.reviews

	reviewid	reviewerid	recipeid	reviewcontent	rating
1	2	2008	992	better than any you can get at a restaurant!	5
2	7	1634	4384	I cut back on the mayo, and made up the difference with sour cream to adjust the stiffness o...	4
3	9	2046	4523	i think i did something wrong because i could taste the cornstarch in the finished product.	2
4	13	1773	7435	easily the best i have ever had. juicy flavorful, not dry. the vegetables retain crispness...	5
5	14	2085	44	An excellent dish.	5

#### 4. Front and back-end design and implementation:

Requirements	The function that implements it	Function Introduction
Author/Reviewer Login	main	Read user input data (1. login)
	user_login (Front-end + Back-end)	Read user input data (login in as author or reviewer, Id, and password), hash and crypt password, encapsulate and pass to backend. Check whether user id in the database or not. If user id is not correct, ask user to enter id again. If user id is correct, redirect user to next step.
	check_password (Back-end)	Accepting packets sent from the front-end, unpacking and analyzing the operations to be implemented, check whether password is correct or not. If password is not correct, ask user to enter id and password again. If password is correct, redirect user to next step.
Author/Reviewer Register	main	Read user input data (2. Register)
	user_register (Front-end+Back-end)	Read user input data (Register as author or reviewer, Id, Name, and password) Check whether user id is 10 digits or not. Check whether user password is 6 digits or not. If not correct, ask user to enter information again. If correct, go to next step—check whether user id is unique or not. If user id already exists in the database, ask user to enter again. If user id does not exist in the database, hash user password

		and insert information into the table.
	is_id_unique (Back-end)	Check whether id that user entered exists in the database or not.
Author checks self-uploaded recipes	author_post_login	Read user input data (user need to choose 1. View your uploaded recipes)
	view_author_recipes	Return recipe id and recipe name based on author id
Author creates a recipe	author_post_login	Read user input data (user need to choose 2. Upload a new recipe)
	create_new_recipe	Read user input data: user entered Recipe Name, Description, Instructions, Ingredient parts, Ingredient quantities, nutrients (including calories, fat, sugar...). Generate recipe id, then insert all information into different tables.
Author checks recipe details	check_recipe_details	Read user input data (user can input 1-6, and recipe id)
	check_instruction_description	If user input 1, select information from recipe table. return recipe instruction and description based on recipe id that user entered.
	check_ingredient	If user input 2, join recipe table and ingredient table. return recipe ingredient parts and ingredient quantities based on recipe id that user entered.
	check_nutrient	If user input 3, join recipe table and nutrient table. return recipe nutrient based on recipe id that user entered
	check_category	If user input 4, join recipe table and category table. return category that the recipe belongs to base on recipe id that user entered

Author/Reviewer checks all reviews of a recipe	check_recipe_details	Read user input data: recipe id
	check_all_reviews	Join recipe table and reviews table. Return review contents, recipe id, and recipe name based on recipe id that user gives.
Author/Reviewer checks average rating of a recipe	check_recipe_details	Read user input data: recipe id
	check_average_rating	Join recipe table and review table. Calculate average rating based on all ratings that a recipe has. Return average rating, recipe id, and recipe name.
Reviewer checks self-reviewed recipes	reviewer_post_login	Read user input data: 1. View recipes I have reviewed
	view_reviewed_recipes_by_reviewer	Join reviewer table, reviews table, and recipes table. Return recipe id, recipe name, rating, reviews based on reviewer id that user gives.
System recommends recipes based on reviewer's choice of category	reviewer_post_login	Read user input data: 2. View new recipes by category
	view_recipes_by_category	Join category table and recipe table. Return recipe id, recipe name based on category name that user gives.
Reviewer checks recipe details	view_recipes_by_category	Read user input data: category name. Return recipe id, recipe name based on category name.
	check_recipe_details	Enter recipe id, then similar procedure as Author check recipe details
Reviewer writes reviews and ratings for a recipe	reviewer_post_login	Read user input data: 3. Write review for a recipe
	create_new_review	Read user input data: recipe id, review content, rating. Generate a new review id, then insert all information into reviews table.
Exit	main	Read user input data: Exit Kill the program.

## 5. How to use the system:

Welcome interface

```
Welcome to the Food Recipe Website!
```

- 1. Login
- 2. Register
- 3. Exit

```
Please choose your action (1, 2, or 3):
```

Choose to register

```
Please choose your action (1, 2, or 3): 2
```

- 1. Author registration
- 2. Reviewer registration
- 3. Go back to Last step

Choose to register as an author (register as a reviewer is similar, not show here)

- 1. Author registration
- 2. Reviewer registration
- 3. Go back to Last step

```
Please choose your role (1, 2, or 3): 1
```

```
Enter a 10-digit author ID: 2024110166
```

```
Enter a 6-digit author password:
```

```
Enter author name: november01
```

```
Author registered successfully!
```

```
Direct back to Login Page.
```

```
Welcome to the Food Recipe Website!
```

- 1. Login
- 2. Register
- 3. Exit

```
Please choose your action (1, 2, or 3):
```

Input needs to follow the requirement, or you will be redirect to re-enter

```
Enter a 10-digit author ID: 123456
```

```
Invalid ID. Please enter exactly 10 digits.
```

```
Enter a 10-digit author ID:
```

Log in as author and check self-uploaded recipes

```
Welcome to the Food Recipe Website!
```

- 1. Login
- 2. Register
- 3. Exit

```
Please choose your action (1, 2, or 3): 1
```

- 1. Author login
- 2. Reviewer login
- 3. Go back to Last step

```
Please choose your role (1, 2, or 3): 1
```

```
Enter author ID: 1284744356
```

```
Enter author password:
```

```
Welcome! yangjinglan
```

```
Login successful as author!
```

- 1. View your uploaded recipes
- 2. Upload a new recipe

```
Choose an option (1 or 2): 1
```

```
Recipes created by Author ID 1284744356:
```

```
Recipe ID: 541384, Recipe Name: KFC danta
```

Check recipe details, here we choose to see description and instructions (other details are similar)

```
Recipe ID: 541384, Recipe Name: KFC danta
1. View description and instruction for a specific recipe
2. View ingredient for a specific recipe
3. View nutrients for a specific recipe
4. View category for a specific recipe
5. View average rating for a specific recipe
6. View all reviews for a specific recipe
7. Return to Last step
Choose an option (1, 2, 3, 4, 5, 6, or 7): 1
Enter recipe ID: 541384
Recipe ID: 541384, Recipe Name: KFC danta
Recipe Description: a delicious danta
Recipe Instructions: go to KFC and buy one
```

Upload new recipe as an author

```
1. View your uploaded recipes
2. Upload a new recipe
Choose an option (1 or 2): 2
Enter Recipe Name: TestRecipe
Enter Recipe Description: a test for recipe creation
Enter Recipe Instructions: this is an instruction
Enter Recipe Ingredient Parts: water, flour
Enter Recipe Ingredient Quantities: 1,1
Enter Calories(a floating number): 100
Enter Fat Content(a floating number): 5
Enter Saturated Fat Content(a floating number): 5
Enter Cholesterol Content(a floating number): 5
Enter Sodium Content(a floating number): 5
Enter Carbohydrate Content(a floating number): 5
Enter Fiber Content(a floating number): 5
Enter Sugar Content(a floating number): 5
Enter Protein Content(a floating number): 5
Enter Recipe Category Name: Other
Recipe 'TestRecipe' successfully added!
Direct to Last Step
1. View your uploaded recipes
2. Upload a new recipe
Choose an option (1 or 2): █
```

Log in as a reviewer and view self-uploaded reviews

```
1. Author login
2. Reviewer login
3. Go back to Last step
Please choose your role (1, 2, or 3): 2
Enter reviewer ID: 1284744356
Enter reviewer password:
Welcome! yangjinglan
Login successful as reviewer!
What would you like to do?
1. View recipes I have reviewed
2. View new recipes by category
3. Write review for a recipe
4. Exit
Enter 1, 2, 3, or 4: 1
Recipes you have reviewed:
RecipeId: 541384, RecipeName: KFC danta
ReviewContent: very good!!!!, Rating: 5.0
```

View recipe details as a reviewer, here we view ingredient as an example.

```
1. View description and instruction for a specific recipe
2. View ingredient for a specific recipe
3. View nutrients for a specific recipe
4. View category for a specific recipe
5. View average rating for a specific recipe
6. View all reviews for a specific recipe
7. Return to Last step
Choose an option (1, 2, 3, 4, 5, 6, or 7): 2
Enter recipe ID: 541384
Recipe ID: 541384, Recipe Name: KFC danta
Recipe Ingredient Parts: eggs, sugar, flour
Recipe Ingredient Quantities: 2, 1/5, 1/2
```

Reviewer asks the system to recommend a recipe based on category name that user entered.

Here we enter "Chicken" as an example.

```
Login successful as reviewer!
What would you like to do?
1. View recipes I have reviewed
2. View new recipes by category
3. Write review for a recipe
4. Exit
Enter 1, 2, 3, or 4: 2
Enter a Recipe Category Name: Chicken
```

```
Recipes in the category matching 'Chicken':
RecipeId: 362000, RecipeName: Chicken With Cranberry Sauce
1. View details of a recipe
2. Write a review for a recipe
```

View details of a recipe is like previous steps.

Here we write a review for this recipe:

```
1. View details of a recipe
2. Write a review for a recipe
Choose an option (1 or 2): 2
Enter Recipe id: 362290
Enter Review Content: a delicious meal, easy to cook
Enter Rating(a float number): 5
Recipe id '362290' successfully reviewed!
```