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Upon analysis, it was realized that there were no redundancies or violations of the first three normal forms, therefore no normalization was necessary.

Assumptions:

• The user can exist and interact with the application without creating an account

The schemas are shown below.

Strong entities:

# user(user\_id)

* account(email, preferred\_calories, first\_name, last\_name, password\_hash)
* image(image\_name)
* food\_item(item\_id, calories, item\_name, in\_kitchen)
* recipe(recipe\_id, recipe\_name)
* meal\_plan(plan\_id, plan\_name, no\_of\_weeks)
* meal(meal\_id, meal\_name, calorie\_count)

Weak entities:

* shopping\_list(list\_id, total\_cost)

Derived entities:

* meal\_creation(meal\_id, user\_id, creation\_date)
* create\_account(user\_id, account\_id)
* create\_plan(plan\_id, user\_id, creation\_date)
* days(week\_number, day\_name, breakfast, lunch, dinner, snack)
* steps(recipe\_id, step\_number, step)
* items(list\_id, item\_id, quantity, price)
* ingredients(recipe\_id, item\_id, measurement)

# upload\_image(image\_name, meal\_id)

# meal\_recipe(meal\_id, recipe\_id)

**Data Dictionary for meal\_planner database**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table Name** | **Column** | **Type** | **Null** | **Default** |
| **users** | user\_id (Primary) | char(40) | No | NULL |
| **account** | email (Primary) | varchar(50) | No | NULL |
|  | first\_name | varchar(50) |  |  |
|  | last\_name | varchar(50) |  |  |
|  | password\_hash | char(40) |  |  |
| **image** | image\_name | varchar(80) |  |  |
| **food\_item** | item\_id (Primary) |  |  |  |
|  | calories |  |  |  |
|  | item\_name |  |  |  |
| **recipe** | recipe\_id |  |  |  |
|  | step\_number |  |  |  |
| **meal** |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **meal\_plan** |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **shopping\_list** |  |  |  |  |
| **meal\_creation** |  |  |  |  |
| **create\_account** |  |  |  |  |
| **create\_plan** |  |  |  |  |
| **days** |  |  |  |  |
| **steps** |  |  |  |  |
| **items** |  |  |  |  |
| **ingredients** |  |  |  |  |
| **upload\_image** |  |  |  |  |
| **meal\_recipe** |  |  |  |  |