Meal Planner Django Application

This project is a **Meal Planning and Nutrition Tracker** web application built with Django. Users can create meals, associate ingredients with calorie values, and assign meals to personalized meal plans. The application includes basic CRUD functionality, data reporting using both Django ORM and raw SQL queries (prepared statements), and admin views for management.

🚀 Features

- Add, edit, and delete meals
- Associate ingredients with meals (and specify quantity)
- Track total calories for each meal
- Create meal plans by date and assign meals
- View dynamic reports (average calories, most used ingredient, etc.)
- Admin interface for easy content management
- Uses both **Django ORM** and **prepared SQL statements** for data access

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🗃️ Database Schema Overview

Core Models:

- **User**: Tracks user who created meals or plans
- **Ingredient**: Ingredient name, calories per unit, and unit type
- **Meal**: Combines ingredients, records total calories
- **MealIngredient**: Many-to-many relationship between meals and ingredients with quantity
- **MealPlan**: Assigned to a user and a specific date
- **MealPlanMeal**: Connects meals to a meal plan

📈 Reports (Prepared Statement Queries)

- Average calories over time period
- Meal count per date range
- Average ingredients per meal

- Most frequently used ingredient

Accessible from `/demo/meal_report/`

🔐 Admin Interface

- Visit `/admin/`
- Add and edit meals, ingredients, users, and plans
- View and filter content by fields like date, user, or meal name

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📌 Setup Instructions

Clone the repository:
git clone <your-repo-url>

1. cd cs348project
2. Install dependencies:
   pip install -r requirements.txt

Apply migrations:
python manage.py makemigrations

3. python manage.py migrate
4. Create admin user:
   python manage.py createsuperuser
5. Start development server:
   python manage.py runserver
6. Access the app:
   - User interface: `http://127.0.0.1:8000/demo/`
   - Admin interface: `http://127.0.0.1:8000/admin/`

📄 Indexes Used

- Auto-generated indexes for all primary and foreign keys
- Suggested manual indexes:
  - `Meal.total_calories` (for range filters in reports)
  - `MealPlan.date` (for filtering by date)

- `Ingredient.name` (if used in search/autocomplete)

See `Index Documentation` for detailed explanations.

✍️ Author

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📝 License

This project is for academic purposes under Purdue University's CS348 course. Not intended for production use.

💬 Questions?

Please reach out via the course portal or contact the project author.