/Mealy

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├── /backend\_django # Django Backend (API Server)

│ ├── manage.py # Django management script

│ ├── /mealy\_backend # Main Django backend app (API, business logic)

│ │ ├── \_\_init\_\_.py

│ │ ├── admin.py

│ │ ├── apps.py

│ │ ├── models.py # Database models (PostgreSQL)

│ │ ├── serializers.py # DRF serializers for API responses

│ │ ├── views.py # API views (business logic)

│ │ ├── urls.py # URL routes for APIs

│ │ ├── ai\_meal\_suggestions.py # AI for meal suggestions, feedback, & market tracking

│ │ ├── voice\_control.py # Hands-free cooking (voice commands)

│ │ ├── family\_collaboration.py# Family collaboration (shared meals, lists, chat, recipe notes)

│ │ ├── seasonal\_meals.py # Seasonal meal suggestions based on market data

│ │ ├── ingredient\_tracker.py # Track ingredients, usage, & expiration dates

│ │ ├── smart\_shopping\_list.py # Generate smart shopping lists

│ │ ├── progress\_analytics.py # In-app analytics for tracking user progress (health, budget)

│ │ ├── recipe\_scaling.py # Scale recipes based on serving sizes

│ │ ├── outside\_meals.py # Log meals eaten outside, integrate restaurant menus

│ │ ├── video\_search.py # YouTube video search for recipe videos

│ │ ├── plate\_nutrition.py # Analyze nutrition from plate photos

│ │ ├── bill\_scanning.py # Scan bills to update ingredient inventory and track purchases

│ │ ├── dietary\_recommendation\_ai.py # AI for personalized dietary recommendations

│ │ ├── meal\_history.py # Meal history and insights tracking

│ │ ├── price\_tracking.py # Track grocery prices by region

│ │ ├── meal\_swap.py # Suggest meal alternatives based on availability

│ │ ├── habit\_reminders.py # Habit-building notifications

│ │ ├── food\_waste\_ai.py # Reduce food waste with ingredient suggestions

│ │ ├── community\_challenges.py # Manage community challenges & rewards

│ │ ├── iot\_integration.py # Integration with IoT kitchen devices

│ │ ├── multi\_language.py # Multi-language support for app content

│ │ ├── analytics\_dashboard.py # Backend logic for admin analytics

│ │ ├── app\_performance.py # Handle app optimization (minimizing size, increasing speed)

│ │ └── tests.py # Unit and integration tests for backend

│ ├── /community\_chat # Chat functionality for family & community (recipe sharing)

│ │ ├── models.py

│ │ ├── views.py

│ │ └── urls.py

│ ├── /mealy # Django project-wide settings (global configuration)

│ │ ├── \_\_init\_\_.py

│ │ ├── settings.py # Project configuration (PostgreSQL, Firebase, OAuth, etc.)

│ │ ├── urls.py # Project-wide URL configuration

│ │ └── wsgi.py # WSGI entry point for the web server

│ ├── /static # Static files (shared across the app)

│ │ ├── /css # Global stylesheets

│ │ │ └── styles.css # Main stylesheet

│ │ ├── /js # JavaScript files

│ │ │ └── scripts.js # General scripts

│ │ ├── /images # Shared images

│ │ │ ├── logo.png # App logo

│ │ │ ├── banner.jpg # Homepage banner

│ │ │ └── icons/ # Icon sets

│ │ ├── /fonts # Custom fonts

│ │ │ └── OpenSans.ttf # Example font

│ │ ├── /vendors # Third-party libraries (if applicable)

│ │ │ └── bootstrap.css # Example library

│ │ └── README.md # Guide to static files

│ ├── /media # Media files (uploaded during runtime)

│ │ ├── /uploads # General uploads

│ │ │ ├── user\_upload1.jpg # Example upload

│ │ ├── /profile\_pics # User profile pictures

│ │ │ └── user1\_profile.jpg # Example profile picture

│ │ ├── /recipes # Recipe images or videos

│ │ │ └── lasagna.mp4 # Example recipe video

│ │ ├── /receipts # Scanned bill receipts

│ │ │ └── receipt1.pdf # Example scanned receipt

│ │ ├── /temp # Temporary uploads

│ │ │ └── temp\_file.txt # Example temporary file

│ │ └── README.md # Guide to media files

│ ├── /migrations # Database migrations for Django models

│ └── requirements.txt # Python dependencies (Django, DRF, psycopg2, AI libraries, etc.)

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├── /firebase # Firebase Integration

│ ├── firebaseConfig.js # Firebase configuration for the project

│ ├── auth.js # Firebase authentication logic

│ ├── database.js # Firebase Realtime Database/Firestore integration

│ ├── storage.js # Firebase storage logic

│ ├── notifications.js # Firebase push notifications

│ └── analytics.js # Firebase analytics for app insights

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├── /frontend\_mobile # React Native Mobile App

│ ├── /android # Android-specific files

│ │ ├── build.gradle # Android Gradle build script

│ │ ├── AndroidManifest.xml # Android app manifest

│ │ └── MainActivity.java # Main activity for Android

│ ├── /ios # iOS-specific files

│ │ ├── AppDelegate.swift # Main entry point for iOS

│ │ ├── Info.plist # iOS configuration file

│ │ └── Podfile # CocoaPods dependencies

│ ├── /assets # Static assets for the app

│ │ ├── /images # App images (logo, splash screen, etc.)

│ │ │ ├── logo.png # App logo

│ │ │ └── splash.png # Splash screen

│ │ ├── /fonts # Custom fonts

│ │ │ └── OpenSans.ttf # Example font

│ │ └── README.md # Guide to assets

│ ├── /src # Source code for the mobile app

│ │ ├── /components # Reusable components

│ │ │ ├── Header.js # Header component

│ │ │ ├── Footer.js # Footer component

│ │ │ └── Button.js # Button component

│ │ ├── /screens # Mobile app screens

│ │ │ ├── HomeScreen.js # Home screen

│ │ │ ├── RecipeScreen.js # Recipe details screen

│ │ │ ├── AnalyticsScreen.js # Admin analytics dashboard

│ │ │ └── IotControlScreen.js # IoT device control screen

│ │ ├── /services # API services

│ │ │ └── api.js # General API service

│ │ ├── /hooks # Custom hooks

│ │ │ └── useAuth.js # Hook for authentication

│ │ ├── /context # React Context API

│ │ │ └── AuthContext.js # Authentication context

│ │ ├── /styles # App-wide styles

│ │ │ └── AppStyles.js # Common styles

│ │ └── App.js # Main entry point for the mobile app

│ ├── package.json # Node.js dependencies

│ └── .gitignore # Ignore unnecessary files

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├── /frontend\_web # ReactJS Web Frontend

│ ├── /public # Static public files

│ │ └── index.html # Main HTML file

│ ├── /src # Source code for the web app

│ │ ├── /components # Reusable components

│ │ │ ├── Header.js # Header component

│ │ │ ├── Footer.js # Footer component

│ │ │ └── RecipeCard.js # Recipe card component

│ │ ├── /pages # Web app pages

│ │ │ ├── HomePage.js # Main home page

│ │ │ ├── LoginPage.js # Login/Signup page

│ │ │ ├── AnalyticsPage.js # Admin analytics page

│ │ │ └── IotControlPage.js # IoT control page

│ │ ├── /services # API services

│ │ │ └── api.js # General API service

│ │ ├── /hooks # Custom hooks

│ │ │ └── useAuth.js # Hook for authentication

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│ ├── package.json # Node.js dependencies

│ └── .gitignore # Ignore unnecessary files

│

└── README.md # Project documentation

Here is the **comprehensive list of features** for the **Mealy App**, covering all functionalities we have discussed and incorporated:

**Features of Mealy App**

**1. Personalized Meal Planning**

* Generate meal plans based on:
  + Fitness goals (e.g., weight loss, muscle gain).
  + Dietary preferences (vegan, gluten-free, allergen-free).
  + Available ingredients.

**2. AI-Powered Meal Suggestions**

* Suggest meals dynamically based on:
  + User history and preferences.
  + Available ingredients and pantry items.
  + Seasonal availability and market trends.

**3. Ingredient Tracking and Expiration Alerts**

* Keep track of ingredient inventory.
* Notify users about:
  + Expiration dates.
  + Ingredients nearing expiry and suggest recipes to use them.

**4. Smart Shopping Lists**

* Automatically generate shopping lists based on:
  + Meal plans.
  + Pantry items already available.
* Share shopping lists in real time with family members.

**5. Bill Scanning and Receipt Management**

* Scan grocery receipts to:
  + Automatically update ingredient inventory.
  + Track spending and manage grocery budgets.

**6. Hands-Free Cooking (Voice Control)**

* Enable users to:
  + Navigate recipes using voice commands.
  + Ask real-time cooking questions.
* AI responds with step-by-step guidance.

**7. Nutritional Analysis**

* Calculate nutritional information for:
  + Uploaded plate photos (AI-powered).
  + Recipes in the app.
* Track calorie, protein, and other nutrient intakes.

**8. Outside Meals Logging**

* Log meals eaten outside:
  + Estimate nutritional values.
  + Incorporate data into daily calorie tracking.

**9. Collaborative Family Features**

* Add family members to a shared Mealy account.
* Allow family collaboration on:
  + Meal planning.
  + Grocery lists.
  + Recipe sharing and voting.
* Individual dashboards for tracking personal progress.

**10. Recipe Management**

* Save, edit, and share recipes:
  + Add family recipes and attach notes.
  + Upload videos for step-by-step cooking tutorials.
  + Search recipes via YouTube integration.

**11. Ingredient Substitution Suggestions**

* Suggest alternative ingredients:
  + For missing or unavailable items.
  + Based on health goals or dietary preferences.

**12. Seasonal and Market-Based Meal Suggestions**

* Recommend recipes based on:
  + Seasonal availability of ingredients.
  + Current market prices.

**13. Health and Medicine Reminders**

* Set reminders for:
  + Medication timings.
  + Hydration goals and meal timings.

**14. Budget and Price Comparison Tools**

* Compare prices across local grocery stores.
* Suggest cost-effective options for meal preparation.

**15. AI-Powered Community Features**

* Share recipes and cooking tips with the community.
* Participate in challenges like:
  + Cooking with limited ingredients.
  + Trying global cuisines.

**16. Progress Analytics**

* Track user progress for:
  + Calorie intake.
  + Nutritional goals.
  + Grocery spending.

**17. IoT Integration**

* Integrate with IoT-enabled kitchen devices:
  + Control smart ovens, fridges, or scales.
  + Automate cooking processes.

**18. Quick Snack Suggestions**

* Provide easy-to-make snack options based on available ingredients.

**19. Waste Reduction Suggestions**

* AI analyzes pantry items to:
  + Suggest recipes that minimize waste.
  + Track leftover usage creatively.

**20. Meal Prepping Mode**

* Assist with bulk meal preparation:
  + Storage recommendations.
  + Multi-day meal plans.

**21. Multi-Language Support**

* Enable users to:
  + Choose preferred app language.
  + Access localized recipes and cooking instructions.

**22. Cooking Video Transcription**

* Upload personal cooking videos:
  + AI transcribes and organizes steps for reuse.
  + Saves them as recipes in the app.

**23. Leftover Management**

* Suggest creative recipes using leftovers.
* Reduce food waste effectively.

**24. Dietary Goals and Adjustments**

* Adjust meal plans dynamically based on fitness tracker data (e.g., Fitbit).
* Offer recommendations for calorie and nutrient adjustments.

**25. In-App Challenges and Rewards**

* Gamify the experience:
  + Unlock badges for milestones like "Zero Waste" or "Master Chef."
  + Participate in community events.

**26. Smart Notifications**

* Notify users about:
  + Expiring ingredients.
  + Grocery deals in nearby stores.
  + Personalized meal reminders.

**27. Admin Analytics Dashboard**

* For app administrators:
  + Track user engagement.
  + Analyze food trends, app performance, and feedback.

**Advanced Features**

**1. AI Chat Assistant**

* Users can:
  + Ask meal-related queries.
  + Get recipe recommendations and tips.

**2. Social Media Integration**

* Share achievements, recipes, or meals on platforms like Instagram or Facebook.

**Future Possibilities**

* Expand IoT capabilities for fully automated cooking.
* Advanced AI to predict future preferences based on trends.

Here’s why **Mealy** is unique, how it’s helpful, who it’s for, and why someone should choose it:

**Why Mealy is Unique**

1. **Comprehensive Features:**
   * Combines meal planning, nutritional tracking, grocery management, and cooking assistance in one app.
   * AI-driven features like meal suggestions, nutritional analysis, and waste reduction make it smarter than typical meal planners.
2. **Customization:**
   * Personalized meal plans tailored to dietary goals, preferences, and ingredient availability.
   * Family collaboration and individual dashboards allow shared yet personalized usage.
3. **Hands-Free and Interactive:**
   * Voice-controlled cooking assistance and AI chat for real-time help during meal preparation.
   * IoT integration enables remote management of smart kitchen devices.
4. **Eco-Friendly and Budget-Conscious:**
   * Waste reduction through creative leftover management and eco-friendly suggestions.
   * Budget tracking, price comparison tools, and smart shopping lists help users save money.
5. **Future-Ready:**
   * IoT integration and real-time analytics make it a step ahead of traditional meal planning apps.
   * Multi-language support makes it accessible globally.

**How Mealy is Helpful**

1. **Saves Time and Effort:**
   * Automatically plans meals based on fitness goals and pantry items.
   * Generates grocery lists and tracks what’s already available, reducing duplicate purchases.
2. **Improves Health:**
   * Provides accurate nutritional information.
   * Helps users stick to dietary goals like weight loss, muscle gain, or allergy management.
3. **Enhances Family Life:**
   * Shared meal planning and recipe collaboration bring families together.
   * Allows children or other family members to cook independently using detailed instructions and AI assistance.
4. **Reduces Waste and Saves Money:**
   * Tracks ingredient expiration and suggests recipes to use them before they go bad.
   * Provides budget-friendly meal options and tracks grocery spending.
5. **Simplifies Cooking:**
   * Hands-free voice control and step-by-step video transcription for recipes.
   * Suggests quick snacks or meals for busy users.
6. **Engages the Community:**
   * Challenges and community features encourage creativity and interaction.
   * Recipe sharing builds a sense of belonging among users.

**Who Should Use Mealy**

1. **Health-Conscious Individuals:**
   * People aiming for weight loss, muscle gain, or balanced nutrition.
   * Users with specific dietary needs like veganism, gluten-free diets, or allergy management.
2. **Busy Families:**
   * Parents who want to streamline meal planning and grocery management.
   * Families looking to collaborate on meal choices or teach kids to cook independently.
3. **Budget-Conscious Shoppers:**
   * Anyone looking to save on groceries by tracking spending and finding affordable meal options.
4. **Sustainability Advocates:**
   * Users passionate about reducing food waste and adopting eco-friendly habits.
5. **Tech-Savvy Home Cooks:**
   * Early adopters of IoT devices for smart kitchens.
   * Users who enjoy experimenting with AI-driven suggestions and features.
6. **Working Professionals and Students:**
   * People who want quick, nutritious meal solutions without spending too much time.

**Why You Should Use Mealy**

1. **Efficiency:** Simplifies meal planning, grocery shopping, and cooking into one seamless process.
2. **Smarter Choices:** AI ensures you’re always eating healthily, within budget, and sustainably.
3. **Community and Fun:** Challenges, social sharing, and community recipes make cooking enjoyable.
4. **Future-Proof:** Designed for smart kitchens and evolving lifestyles.
5. **Value for Money:** By saving time, reducing waste, and optimizing shopping, it pays for itself.

**In Summary**

**Mealy** is not just a meal planner—it’s a **lifestyle app** designed for people who value health, convenience, and innovation. Whether you’re a busy professional, a parent, a student, or a tech enthusiast, Mealy has something to make your life easier, healthier, and more enjoyable.

**Backend (Django)**

1. **Django REST Framework (DRF):** For building RESTful APIs.
2. **PostgreSQL:** As the primary database.
3. **Firebase (for specific tasks):**
   * Authentication.
   * Real-time database for collaborative features.
   * Notifications.
4. **AI/ML Libraries:**
   * **OpenCV** (for plate nutrition analysis via image recognition).
   * **TensorFlow/PyTorch** (for AI-based meal suggestions and ingredient substitution).

**Frontend (ReactJS for Web)**

1. **ReactJS:** For building a dynamic and interactive user interface.
2. **Axios:** For API calls to the backend.
3. **React Context API/Redux:** For state management.
4. **Tailwind CSS/Material-UI:** For styling (pick one based on your preference).

**Deployment**

1. **Backend:** Deploy on Heroku/AWS/GCP.
2. **Frontend (Web):** Host on Netlify/Vercel.
3. **Database:** Host PostgreSQL on AWS RDS or Heroku.

**Additional Tools**

1. **GitHub:** For version control.
2. **Postman:** For testing APIs.
3. **CI/CD Tools:** GitHub Actions for automating builds and tests.
4. **Docker (Optional):** To containerize the app for consistent deployments.