**How Frontend And Backend will Communicate:**

With the help of DRF( Django Rest Framework ) Frontend Will Communicate With Django ( Python) .

**Why We Need this Communication :**

Because Django ( Python ) is best to perform as backend for big applications and also for those where AI models are using , Also Django using PostgreSql Database that Follow ORM Object Rational Model this is best for rational databases   
So we are using Django as backend   
Flutter is best for frontend   
**How it will Work**

**Plant Recommendation:**

Let suppose I open my mobile app and enter into the page where Plants Recommendations are shown   
  
Flutter will request to backend through apis with the parameters Latitude and Longitude of Users Current Location.   
  
In Backend :   
Python will process this Request   
To OpenMeteo Wether APIs we will fetch Wether Info according to this latitude and Longitude   
In python Plant Recommendation Model Will Loaded and Process These Weather Parameters And Show Some Plants That will suteable for this location   
These plants list will be returned in json form response to the Flutter side   
  
**Cultivation:**user will click o a plant   
There will be request generate in Flutter side for backend parameter will be plant ID   
In Python :   
 According to this Requested Plant ID AI model generate Cultivation Plan Of the Plant   
and send in response to Flutter   
**How Kitchen Data Store**

**Product Data Through Manually / Scan / Voice :**

At frontend side user will enter data Through Scanning , Manually or through Voice ,  
This data Will Be pass to the backend Django Through APIS with in body Parameters   
in Python:  
This Data Will process and Enter into the PostgreSQL Database   
  
  
**NOTE :**

Same Like upper way all Products Will Store into the database   
and Also Product CRUDS Operations Will perform through this way   
Also For Kitchen Products Also For Garden Products This way will be followed   
  
  
**How Push Notifications Will Work:**We Need firebase for push notifications   
because firebase is the best way to deal with push notifications   
Firebase perform Good to show notifications to the user when user close mobile app also   
also whenever user’s screen will close only it need internet and it will display push notification to user in smooth way   
  
at backend in Django there will be celry task running all time to check expiry date of kitchen Product   
so whenever Kitchen product expired Django will push data to firebase in notifications with user device ID   
Firebase will push notification send to the User with its device ID

**Sequence Flow:**

 **Plant Recommendation**:

* User (Flutter) → Backend (Django) → Weather API → AI Model → Backend (Django) → User (Flutter)

 **Cultivation Plan**:

* User (Flutter) → Backend (Django) → AI Model → Backend (Django) → User (Flutter)

 **Product Data Entry**:

* User (Flutter) → Backend (Django) → Database (PostgreSQL) → User (Flutter)

 **Push Notifications**:

* Backend (Django) → Celery → Database (PostgreSQL) → Firebase → User (Device)