**1. Demand Analysis**

**Background of the project** :

* **Project Name** : Crop Yield Estimation App
* **Target users** : Farmers, insurance companies, governments
* **Project goal** : To provide a user-friendly yield visualization interface and yield estimation function for target crop production areas

**Requirements Collection** :

* **User interviews** : None
* **Literature and information review:**
  + Materials: Internet-related interviews, relevant academic articles
  + Topic: User's attention to crop yield and quick query
  + result:
    - Farmers want to know in advance the expected yield of all their farmland
    - Insurance companies hope to know the expected future returns of the target farmland in advance so as to provide loans
    - The government wants online visualization capabilities to monitor the total yield of target crops in its jurisdiction on a large scale
* **Competitive product analysis** :
  + **Analysis object** : Crop yield prediction in Senegal, Africa
  + **Analysis dimensions** : function list, user experience
  + **Analysis results** :
    - This is an application using open-source satellite images to identify the crops and estimate the yields for any given area
    - Competitors have the ability for users to draw areas of interest
    - Long response time for production forecast
    - URL: <https://www.omdena.com/blog/yield-prediction>

**Requirements organization and prioritization** :

* **Function classification** : basic functions, advanced functions
* **Prioritization** (using MoSCoW):
  + **Must-have: Crop visualization , yield query , value estimation**
  + **Should-have** : User-defined crop prices , yield statistics at the administrative district scale
  + **Could-have** : Determine the statistical area according to the crop yield statistical chart of the administrative area and the shapefile uploaded by the user,
  + **Won't-have** : Functions with low demand , high cost , or that do not conform to the objective situation (such as yield forecasts for the next five years, crop yield trend charts by year) are not considered for the time being.

**Requirements verification and implementation** :

* **Requirements verification** :
  + Discuss the technical feasibility and implementation difficulty of the requirements with team members
  + Verify the availability of key requirements through communication with instructors and classmates
* **Inter-departmental communication** :
  + Regularly communicate requirements with instructors and data teams to ensure consistent understanding
  + Organize weekly team meetings to confirm the priority and implementation plan of functions