Project Guideline: Idea Proposal Submission

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1. Project Idea:

- **Food Security Prediction Using machine Learning**

By using Food security Prediction using machine learning we are planning to forecast the future status of food security in a given area or population using Food and Agriculture Organization database. Our project aims to anticipate whether individuals, households, communities, or regions will have access to sufficient, safe, and nutritious food to meet their dietary needs in the coming days, months, or years

2. Relevance to Sustainable Development Goals (SDGs):

- **My project refer to SDG 2 "Zero Hunger"**

3. Literature Examples:

- Deléglise, H., Interdonato, R., Bégué, A., d'Hôtel, E. M., Teisseire, M., & Roche, M. (2022). Food security prediction from heterogeneous data combining machine and deep learning methods. *Expert Systems with Applications*, *190*, 116189.

The study focuses on integrating heterogeneous data sources to enhance the accuracy of food security predictions. In this article a variety of machine learning and deep learning methods employs to analyze diverse data types, such as agricultural productivity, climate patterns, economic indicators, and social demographics

- Alelign, M., Abuhay, T. M., Letta, A., & Dereje, T. (2021, November). Identifying risk factors and predicting food security status using supervised machine learning techniques. In *2021 International Conference on Information and Communication Technology for Development for Africa (ICT4DA)* (pp. 12-17). IEEE.

This article focus is on identifying risk factors and predicting food security status using supervised machine learning techniques. The study employs a variety of supervised machine learning methods to analyze factors influencing food security and predict the food security status of individuals, households, or communities.

4. Describe Your Data:

- The Food and Agriculture Organization of the United Nations
- https://www.fao.org/faostat/en/#data/FS
- File type: CSV and XLS

5. Approach (Machine Learning or Deep Learning):

- Machine Learning Approach:

Uses algorithms to learn patterns from data without explicit programming. Includes supervised learning (with labeled data), unsupervised learning (without labels), and

reinforcement learning (learning through interaction). Algorithms include linear regression, decision trees, clustering, and reinforcement learning methods.

- Deep Learning Approach:

Subset of machine learning, focuses on neural networks with multiple layers. Especially effective for tasks like image and speech recognition. Employs convolutional neural networks (CNNs), recurrent neural networks (RNNs), deep reinforcement learning, and generative adversarial networks (GANs).