

Project Design Phase-I
Solution Architecture

Date	14 November 2023
Team ID	Team-592200
Project Name	"Fruits and Vegetables Classification with Nutrition Analysis Using InceptionV3"
Maximum Marks	4 Marks

Solution Architecture:

1. Data Collection and Preprocessing:

- Diverse dataset of fruits and vegetables.
- Image preprocessing techniques, including augmentation.

2. InceptionV3 Model Training:

- Utilization of the pre-trained InceptionV3 model.
- Fine-tuning on the collected and preprocessed dataset.

3. Vitamins Dataset Integration:

- Integration of a vitamins dataset for nutritional analysis.
- Correlating nutritional data with each fruit and vegetable class.

4. Google Palm API Integration:

- Integration with the Google Palm API for extracting interesting facts.
- Incorporation of API responses into the final output.

5. User Interface Development:

- Creation of a user-friendly interface to interact with the system.
- Display of classified fruits or vegetables, nutritional insights, and interesting

facts.

6. Cloud-Based Hosting:

- Deployment on a cloud platform for scalability and flexibility.
- Dynamic allocation of resources based on demand.

7. Scalability Components:

- Parallel processing for model training and inference.
- Robust data pipelines for handling diverse datasets.
- Integration of external APIs for flexibility.

8. Continuous Improvement:

- Regular model retraining to adapt to evolving data and user needs.
- Version control for model updates and improvements.

9. Business Model Integration:

- Freemium and subscription model for revenue generation.
- Integration with external partners for data enrichment and advertising.

10. Security Measures:

- Encryption of sensitive data during transmission.
- Access controls to protect the integrity of the system.

Solution Architecture Diagram:

