Project Design Phase-II
Data Flow Diagram & User Stories

Date	10 November 2023
Team ID	Team-594379
Project Name	Green classify-deep-learning bases approach for vegetables image classification
Maximum Marks	4 Marks

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

LEVEL 0 DATA FLOW DIAGRAM :

PROCESSES -

- DATA COLLECTION
- DATA PROCESSING
- MODEL DEVELOPMENT
- MODEL EVALUTION
- DEPLOYMENT
- CONTINOUS IMPROVEMENT
- DOCUMENTATION
- SECURITY AND PRIVACY
- MAINTANANCE AND SUPPORT
- CLASSIFICATION,RESULTS

EXTERNAL ENTITIES -

- Resize, Normalize, Augment
- Segment Tea Leaves (if needed)
- Train, Validation, Test Sets
- Metrics (Accuracy, Precision, Recall, etc.)
- Ablation Studies
- Robustness Testing

- Implement User Interface
- Ensure Scalability and Monitoring
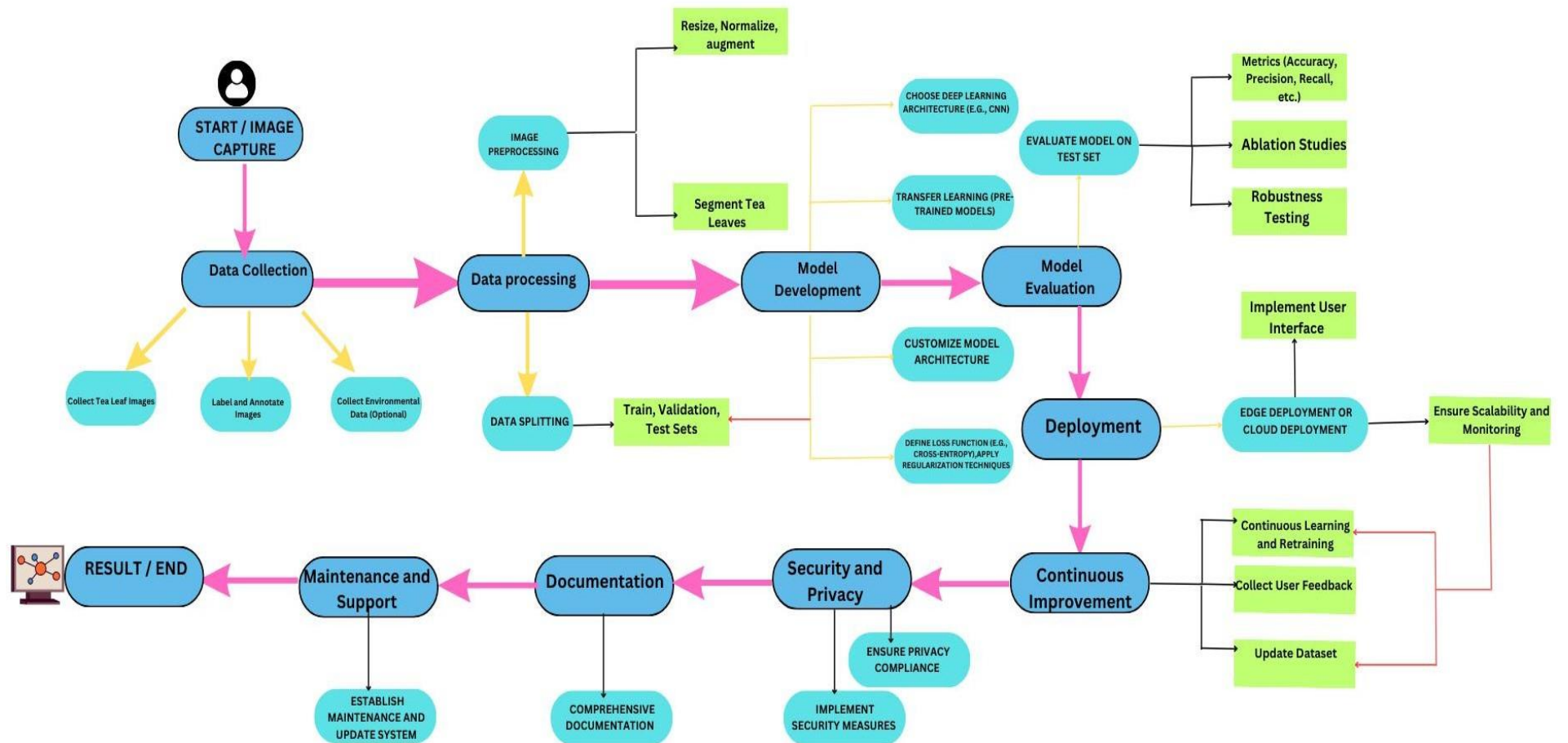
DATA STORE -
- Data warehouse
- Date lakes

LEVEL 1 DATA FLOW DIAGRAM :

PROCESSES -
- Image Preprocessing
- Data Splitting
- Choose Deep Learning Architecture (e.g., CNN)
- Transfer Learning (Pre-trained Models)
- Customize Model Architecture
- Define Loss Function (e.g., Cross-Entropy)
- Train the Model
- Apply Regularization Techniques
- Evaluate Model on Test Set
- Edge Deployment or Cloud Deployment
- Collect User Feedback
- Continuous Learning and Retraining
- Update Dataset
- Implement Security Measures
- Ensure Privacy Compliance
- Create Comprehensive Documentation
- Establish Maintenance and Update System

EXTERNAL ENTITIES -
- Normalization
- Testing
- Training
- Implementation

START / IMAGE CAPTURE

Data Collection
- Collect Tea Leaf Images
- Label and Annotate Images
- Collect Environmental Data (Optional)

Data processing
- IMAGE PREPROCESSING
  - Resize, Normalize, augment
  - Segment Tea Leaves
- DATA SPLITTING
  - Train, Validation, Test Sets

Model Development
- CHOOSE DEEP LEARNING ARCHITECTURE (E.G., CNN)
- TRANSFER LEARNING (PRE-TRAINED MODELS)
- CUSTOMIZE MODEL ARCHITECTURE
- DEFINE LOSS FUNCTION (E.G., CROSS-ENTROPY),APPLY REGULARIZATION TECHNIQUES

Model Evaluation
- EVALUATE MODEL ON TEST SET
  - Metrics (Accuracy, Precision, Recall, etc.)
  - Ablation Studies
  - Robustness Testing

Deployment
- EDGE DEPLOYMENT OR CLOUD DEPLOYMENT
  - Implement User Interface
  - Ensure Scalability and Monitoring

Continuous Improvement
- Continuous Learning and Retraining
- Collect User Feedback
- Update Dataset

Security and Privacy
- ENSURE PRIVACY COMPLIANCE
- IMPLEMENT SECURITY MEASURES

Documentation
- COMPREHENSIVE DOCUMENTATION

Maintenance and Support
- ESTABLISH MAINTENANCE AND UPDATE SYSTEM

RESULT / END

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user ,I need registration form that asks for the user's email, password, and other optional information, such as name, location, etc.	The app should be able to create and validate the user's account and profile, and allow the user to access and edit their information, preferences, and history. The app should also have a secure and user-friendly interface and a help section..	High	Sprint-1
		USN-2	As a user, I will receive confirmation emailonce I have registered for the application	I can receive confirmationemail & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the applicationthrough Social Media ads/promotion, Gmail/Outlook,Phone Number,	I can register & access thedashboard with Social media credentials or registered phone number, or continue with gmail/outlook.	Low	Sprint-2
	Login	USN-5	As a user, I can log into the application byentering email & password	I can login using the saved password with the help of chrome or microsoft edge or anyother software available	High	Sprint-1
	Dashboard	USN-6	I want to access in a easy way without much effort At any time	The app should be able to retrieve and analyze the user's diagnosis results, and display the summary and statistics of the images, diseases, treatments, and Detecte measures that the user has obtained from the app. The app should also have a user-friendly interface and a help section.	Medium	Sprint-1
Customer (Web user)	Registration	USN-7	I want to be able to register and login to the website using my email and password, so that I can create and access my personal account and profile.	The website should be able to create and validate the user's account and profile, and allow the user to access and edit their information, preferences, and history. .	High	Sprint-1
Researcher,	Report	USN-8	I want to be able to evaluate the performance and accuracy of the deep learning model using various metrics and benchmarks, such as precision, recall, F1-	The deep learning model should be able to demonstrate a high performance and accuracy in detecting and diagnosing the vegetables image classification, able to compare and contrast with other	Low	Sprint-1

			score, ROC curve, etc.	existing methods and models. The deep learning model should also have a clear report and a presentation section.		
Developer	Support	USN-9	I want to be able to access the deep learning model through an API and integrate it with various applications and platforms, such as mobile apps, web apps, chatbots, etc.	he API should be able to receive and process the vegetables image classification, and return the diagnosis result with a confidence score, as well as some suggestions for treatment and prevention.The API should also have a clear documentation and a support section.	Medium	Sprint-2
Programmer	Training	USN-10	I want to be able to train, test, and fine-tune the deep learning model using a large and diverse dataset of tea leaf images, along with their labels and annotations.	The deep learning model should be able to achieve a high accuracy and reliability in detecting and diagnosing the vegetables image classification, and be able tohandle various scenarios and conditions, such as different lighting, angles, backgrounds, etc. The deep learning model should also have a clear code and a comment section.	Medium	Sprint-1
Project manager	Communication	USN-11	I want to be able to monitor and manage the progress and quality of the project, such as setting goals, assigning tasks, tracking issues, reviewing code, etc.	The project should be able to achieve the desired outcomes and objectives, and meet the expectations and requirements of the stakeholders. The project should also have a clear plan and a communication section.	Low	Sprint-2
Tea consumer	Diagnosis	USN-12	I want to be able to use the deep learning model to check and verify the freshness and safety of the vegetables image that I buy or consume, and detecte any vegetables	The deep learning model should be able to detect the any vegetables images. The deep learning model should also have a user-friendly interface and a help section.	Low	Sprint-2