Project Design Phase-II
Data Flow Diagram

Date	23 October 2023
Team ID	Team-593135
Project Name	Ship Classification
Maximum Marks	4 Marks

Data Flow

Data collection: In this stage, a variety of ship images are gathered from many sources, including field surveys, image repositories, and other places. After that, the gathered photos are keptin a raw data repository.

Data Pre-processing: To get ready for model training, raw ship images are pre-processed. To increase dataset diversity, this may entail resizing photos, normalising pixel values, and using data augmentation techniques.
Model Training: During this phase, a deep learning model is trained to identify different types of ships using the pre-processed data. For later use, the trained model is stored.

Model Evaluation: To examine the trained model's accuracy, sensitivity, and specificity in classifying diseases, its performance is evaluated using a different dataset not utilized in training.

Model Deployment: In this step, the trained model is made available for real-world illness classification applications on local or cloud-based devices.

User Interaction: End users can submit ship images for type of identification and quicklyreceive results by interacting with the deployed model through a user-friendly application or API.

Flow in the model:

Data is obtained from the Data Repository and transformed into pre-processed data during the Data Pre-processing step.
The pre-processed data is passed on to the Model Training stage, where it is used to train the model. Classification can be performed using the learned model.
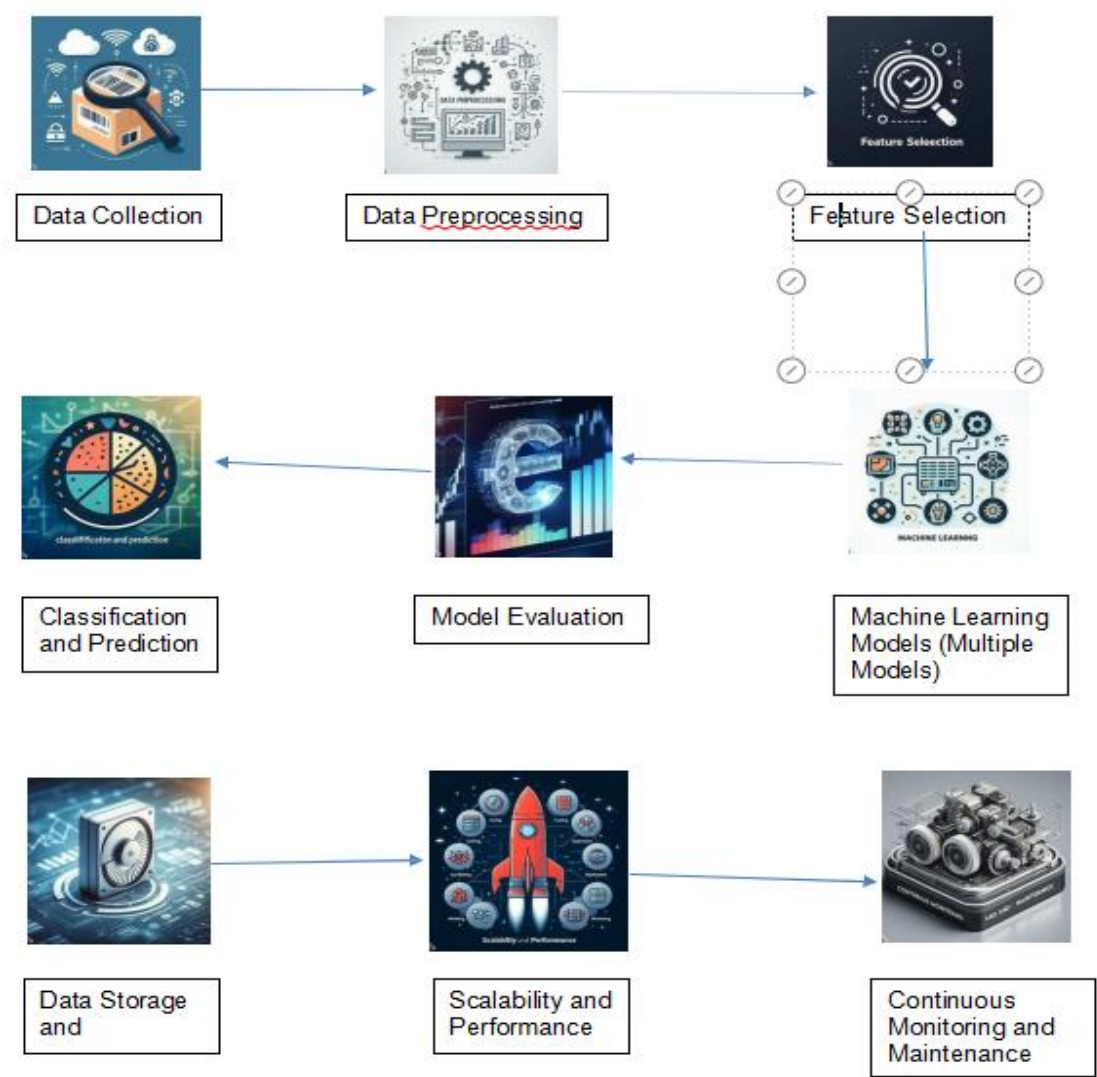A unique dataset is used in the model evaluation procedure to evaluate the model's performance and correctness.
After it is complete, the model can be deployed from the Trained Model Repository and made available to users.
Through the User Interaction procedure, users engage with the deployed model by sending categorization requests for potato leaf photos.

Data Flow Diagram:

Solution Architecture Diagram:

Data Collection → Data Preprocessing → Feature Selection

Classification and Prediction ← Model Evaluation ← Machine Learning Models (Multiple Models)

Data Storage and → Scalability and Performance → Continuous Monitoring and Maintenance

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
Ships' Owners and Operators:	Design and Construction:	USN-1	Ship owners and operators rely on ship classification to ensure that their vessels are designed and constructed to meet international standards for safety, reliability, and performance. This helps in reducing risks associated with ship operations.	access the ship classification system via a user-friendly interface, either through a web application or a mobile app.	High	Sprint-1
Shipbuilders and Shipyards:	Testing and Certification:	USN-2	Classification societies may oversee and certify various aspects of ship construction, including materials, welding processes, and testing procedures, to ensure compliance with industry standards.	ship classification system should be equipped with an extensive database that covers a wide range of ship images, including both common and rare occurrences, to provide comprehensive information for research purposes.	High	Sprint-1
Maritime Regulators and Authorities:		USN-3	I require a user-friendly ship classification societies work closely with regulatory bodies to ensure that ships meet safety and environmental standards, helping to mitigate risks and protect marine environments.	The ship classification system should provide timely and accurate information on various ship images, including their sizes, colour, and appropriate management strategies, enabling agronomists to make informed decisions and provide effective guidance to marine officer .	Medium	Sprint-2

Naval and Coast Guard Agencies:	Search and Rescue Operations:	USN-4	ship classification for the Rescue operations are more important by comparing the images with ship classifier we can have an estimation of ship type ship size etc.	It should have the capability to Medium handle a large volume of data and provide real-time analysis,enabling military officers to make informed decisions and implement timely interventions for traffic	Medium	Sprint-1