Project Initialization and Planning Phase

Date	25 June 2025
Team ID	SWTID1749974387
Project Title	Neural Networks Ahoy: Cutting-edge Ship Classification for Maritime Mastery
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report

Project Overview	
Objective	To build a machine learning model that classifies ships into predefined categories (Cargo, Military, Carrier, Cruise, Tanker) using image data.
Scope	Data preprocessing and visualization Image classification using deep learning Five-class classification task Evaluation through visualizations and metrics
Problem Statement	
Description	Given an image of a ship, predict its correct category from among five types: Cargo, Military, Carrier, Cruise, and Tanker. The task involves handling image data and training a computer vision model to perform accurate classification.
Impact	Such a model could aid in automated ship identification, potentially useful in maritime traffic monitoring, naval intelligence, and port management.
Proposed Solution	
Approach	Load and label image data from a CSV, Visualize class distribution, Use TensorFlow/Keras for image preprocessing and modeling.
Key Features	- Class-wise sample visualization

	- Use of class mapping - Data exploration using Seaborn and Matplotlib - CNN-based image classification

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Tensorflow/Keras	Flask
Libraries	Additional libraries	pandas, numpy, matplotlib, seaborn, PIL
Development Environment	IDE	Jupyter Notebook, pycharm
Data		
Data	Source, size, format	Google Drive File, 83.85Mb, csv