Model Development Phase Template

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| Date | 25 June 2025 |
| Team ID | SWTID1749974387 |
| Project Title | Neural Networks Ahoy: Cutting-edge Ship Classification for Maritime Mastery |
| Maximum Marks | 5 Marks |

**Feature Selection Report Template**

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

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| **Feature** | **Description** | **Selected (Yes/No)** | **Reasoning** |
| image | Filename of the ship image | Yes | This is used to locate and load the corresponding ship image for model training. |
| category | Numerical label representing ship type (1–5) | Yes | This is the primary label used for supervised classification. |
| class\_name | Human-readable class name (e.g., Cargo, Tanker) | No | Redundant for training — used only for interpretation and visualization. |
| Image Pixels | Pixel data extracted from ship images | Yes | Fundamental feature for deep learning model input. |

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| Image Size | Dimensions of each image | Yes | |  | | --- | |  |  |  | | --- | | Images are resized to a standard size  during preprocessing. | |
| Data Augmentation | Transformed versions of the same image (flip, rotation, zoom, etc.) | Yes | |  | | --- | |  |  |  | | --- | | Improves model generalization by  synthetically increasing dataset diversity. | |
| RGB Channels | |  | | --- | |  |  |  | | --- | | Red, Green,  Blue channels  of image data | | Yes | |  | | --- | |  |  |  | | --- | | Standard input for image models;  each color channel contributes uniquely  to recognition. | |