Model Development Phase Template

Date	20/6/2025
Project Title	**Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation**.
Maximum Marks	5 Marks

Feature Selection Report

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.

Feature	Description	Selected (Yes/No)	Reasoning
Filepath/Filename	Path or name of the ECG spectral image file	No	Not needed as a model input; used only for data loading and tracking.
Image (Pixel Data)	The actual pixel data of the 2D ECG spectral image	Yes	Core input for deep learning models (CNNs extract features directly from image data).
Label (Arrhythmia Class)	The target class (e.g., Normal, LBBB, RBBB, PAC, PVC, VFib)	Yes	Essential as the supervised learning target for classification.
Image Height/Width	Dimensions of the image	No	All images are resized to a fixed size during preprocessing; not needed as a separate feature.
Color Channels	Number of color channels (e.g., RGB or grayscale)	No	Handled in preprocessing/model input shape; not a model feature.
Acquisition Date/Time	Date/time when ECG was recorded	No	Not relevant for classification; does not affect ECG morphology.
Patient ID	Unique identifier for each patient	No	Not used for classification; could introduce data leakage if included.
Device/Source	Device or source from which ECG was recorded	No	Not used; model is designed to generalize across devices.

Feature	Description	Selected (Yes/No)	Reasoning
Signal-derived Features (e.g., RR interval, QRS duration)	Features calculated from raw ECG signal (if available)	No	Not used in image-based deep learning; if using raw signals, could be included in a hybrid approach.
Augmented Image Indicator	Whether the image is original or augmented	No	Not needed; augmentation is for training diversity, not as an input feature