

Model Development Phase Template

Date	15 March 2024
Team ID	LTVIP2024TMID24981
Project Title	Deep learning techniques for breast cancer prediction
Maximum Marks	5 Marks

Model Selection Report

This project aims to develop a robust machine learning model for the classification of breast cancer images as benign or malignant using Convolutional Neural Networks (CNNs). The objective is to enhance diagnostic accuracy and support clinical decision-making.

Model Selection Criteria

- **Performance Metrics:** Focus on accuracy, precision, recall, F1-score, and AUC-ROC.
- **Complexity:** Balance between model complexity and interpretability.
- **Training Time:** Consider the time required to train the model effectively.
- **Scalability:** Ability to handle larger datasets as they become available.
- **Transfer Learning:** Potential to leverage pre-trained models for improved performance.

Model Selection Report:

Model	Description
LeNet-5	Early CNN architecture primarily used for digit recognition.
Alex Net	Deeper architecture with multiple convolutional layers and max pooling.

VGG16	Deep CNN with 16 layers, known for its simplicity and uniform architecture.
ResNet50	Residual network that uses skip connections to improve training of deep networks.
InceptionV3	Uses multiple convolutional kernel sizes and depth-wise separable convolutions.
Transfer Learning (e.g., using InceptionV3 or ResNet50)	Utilizes pre-trained models on large datasets (e.g., ImageNet).