Model Development Phase Template

Date	20 April 2025
Student Name	Shviraj Manik Patil
Project Title	Uncovering The Hidden Treasures of The Mushroom Kingdom: A Classification Analysis
Maximum Marks	5 Marks

Model Selection Report:

Model	Description
Artificial Neural Network (ANN)	ANNs are foundational deep learning models composed of multiple fully connected layers. They are well-suited for tabular data or feature-engineered inputs, and while they can be adapted for image data, they do not inherently capture spatial relationships.
Convolutional Neural Network (CNN)	CNNs are powerful deep learning models specifically designed for image data. They automatically extract spatial features from images using convolutional layers, allowing effective classification of complex visual patterns. In this project, CNNs are used to classify Boletus, Lactarius, and Russula mushrooms based on their images.
Recurrent Neural Network (RNN)	RNNs are designed to model sequential data by maintaining a hidden state across time steps. While they are powerful for time series and language modeling, their utility in static image classification is limited.
Inception v3	Inception v3 is a deep convolutional neural network architecture designed for efficient image classification. It utilizes inception modules to capture multi-scale features, allowing the model to learn both fine and coarse details. Pre-trained on ImageNet, Inception v3 is suitable for transfer learning, offering a good balance of accuracy and speed. In this project, it is used to classify Boletus, Lactarius, and Russula mushrooms.

Conclusion:

Model Selected	
Inception v3	Inception v3 is a deep convolutional neural network architecture designed for efficient image classification. It utilizes inception modules to capture multi-scale features, allowing the model to learn both fine and coarse details. Pre-trained on ImageNet, Inception v3 is suitable for transfer learning, offering a good balance of accuracy and speed. In this project, it is used to classify Boletus, Lactarius, and Russula mushrooms.