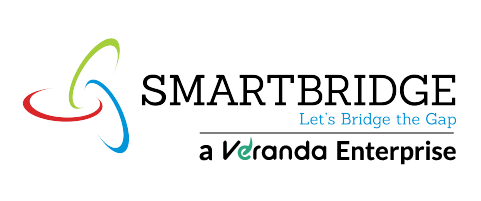


**Model Development Phase Template**

|  |  |
| --- | --- |
| Date | 06 july 2025 |
| Student Name | Sanika 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. |