Project Initialization and Planning Phase

Date	29 April 2025
Skillwallet ID	**SWUID20250148853**
Project Title	Uncovering the Hidden Treasures of the Mushroom Kingdom: A Classification Analysis
Maximum Marks	3 Marks

Project Proposal (Proposed Solution):

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	To apply deep learning and computer vision techniques for the identification of wild mushroom species using a categorized image dataset, with the goal of creating an efficient classification pipeline.
Scope	The project involves gathering mushroom images and training a deep learning classifier to recognize three genera. It incorporates pretrained models to reduce training time and enhance accuracy, with the potential for further genus expansion in the future.
Problem Statement	
Description	Since misidentifying wild mushrooms can be hazardous, expert knowledge is usually needed. Developing an accessible and accurate classification tool could help foragers, researchers, and hobbyists make safer decisions.
Impact	Proper mushroom classification enhances ecological studies, learning, and foraging safety. An image-based approach makes species identification more widely available.

Proposed Solution	
Approach	First, the mushroom image dataset will be cleaned and augmented. Then, a CNN with transfer learning (ResNet/EfficientNet) will be trained and fine-tuned for accurate classification.
Key Features	First, transfer learning compensates for limited training data. Next, augmentation boosts robustness for classifying three critical mushroom types. Finally, a web interface may be added for accessibility.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	1 x NVIDIA RTX 3060 GPUs
Memory	RAM specifications	16 GB RAM
Storage	Disk space for data, models, and logs	500 GB SSD
Software		
Frameworks	Python frameworks	Python
Libraries	Additional libraries	tensorflow
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	Source, size, format	Kaggle, MushroomObserver.org, JPEG/PNG format, 10,000 images