Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	06 May 2023
Team ID	NM2023TMID15487
Project Name	Project - Uncovering the hidden treasures of Mushroom kingdom - classification analysis

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

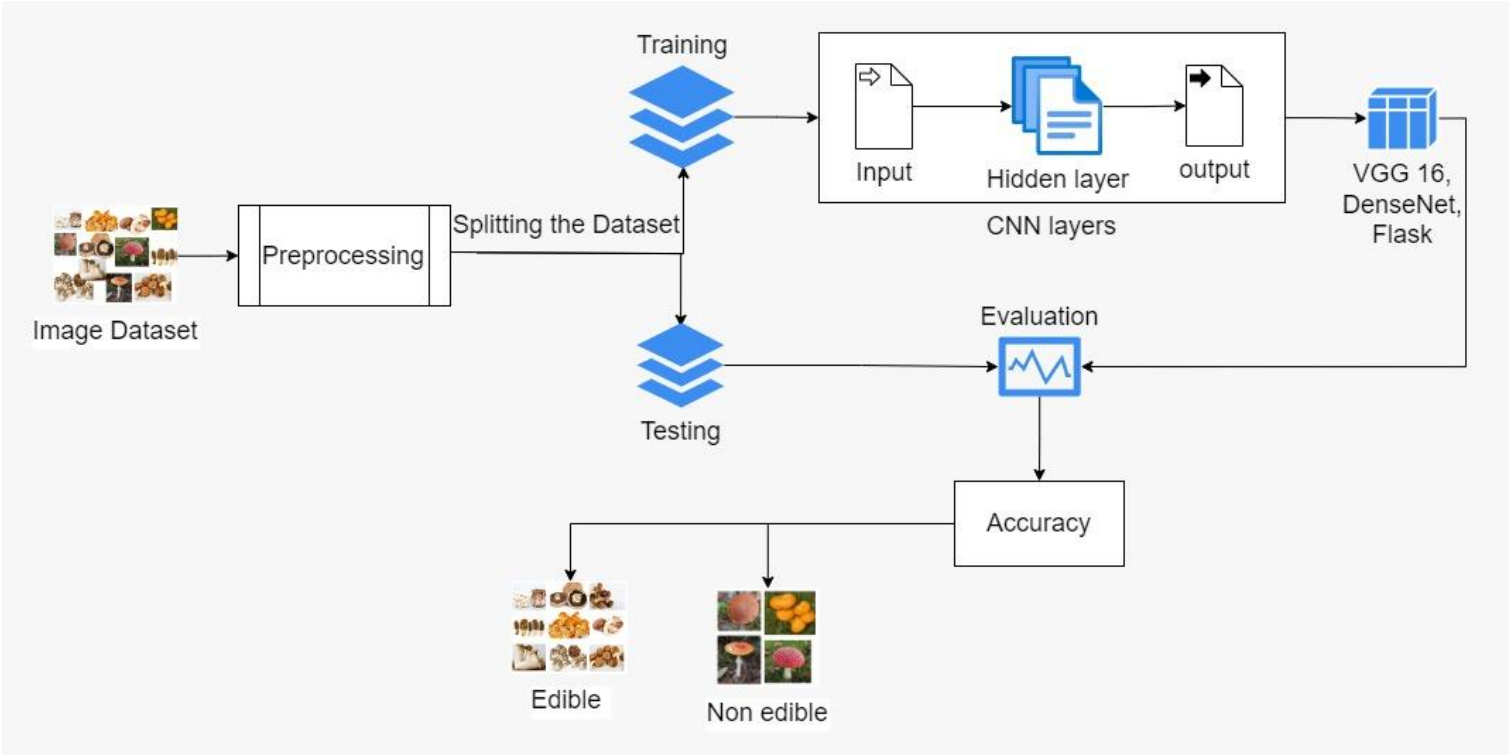

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Frontend	User interface for interacting with the application	HTML, CSS, JavaScript
2.	Backend	Handles business logic and data processing	Python, Flask framework,
3.	Database	Stores user data and Mushroom classification information R	Relational Database (e.g., MySQL)
4.	Image Processing Module	Processes and prepares Mushroom images for classification	OpenCV, PIL (Python Imaging Library),Scikit-image, TensorFlow, Keras
5.	Convolutional Neural Network (CNN) Model	Performs Mushroom classification based on image data	Deep Learning Framework (e.g., TensorFlow, PyTorch,VGG16,Flask,Xception,Inception-V3.ResNet,DenseNet)
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant, IBM-Cognos

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	High accuracy	Trained on the ImageNet dataset as a feature extractor	CNN,VGG16,ResNet
2.	Robustness to noise	VGG16 is known for its ability to learn robust representations of image features	VGG16,Flask,Data augmentation, ensemble models
3.	User-friendly interface	Provides a user-friendly web-based interface for users to interact with the mushroom classification model	HTML, CSS, Javascript, Bootstrap, Error handling
4.	Scalability	The Flask web application can be easily scaled up to handle a large numbers of users and requests,making it suitable for a variety of application	Cloud computing platforms,(AWS,GCP,EC2),Load balancers, such as Nginx, HAProxy
5.	Customizability	The Flask application can be customized to fit specific user requirements and can be easily integrated with other tools and applications	RESTful API(Flask),JSON files, MySQL