Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	06 May 2023
Team ID	NM2023TMID15487
Project Name	Project - Uncovering the Hidden Treasures of the Mushroom Kingdom: A Classification Analysis

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Authentication	Two-factor authentication Biometric authentication
FR-4	Re-Directing to Dashboard	URL Redirection Access Control
FR-5	Picture Uploading & Finding Match	Image upload Functionality Image Processing Model Mushroom Data Base Matching Algorithm
FR-7	Back to Dashboard & History	Dashboard Link History Log
FR-8	User Feedback	FeedBack Form

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The user interface of the website should be intuitive and easy to navigate, with clear instructions and labels for each feature and should be designed with the user's goals , needs in mind . Uploading images of mushrooms should be a simple and straightforward process, with clear instructions and error messages if the image is not in the correct format or size. The website should provide users with a choice of different machine learning models to use for mushroom classification, such as CNN, VGG16, and DenseNet. The differences between the models

		should be clearly explained, so that users can make an informed choice based on their needs and goals. The website should be fast and responsive, with minimal lag or delay in processing images and returning results. Users should be able to upload and classify images quickly and without interruption.
NFR-2	**Security**	**Data Protection** where the website should take steps to protect user data, such as the images of mushrooms that are uploaded for classification. **User Authentication and Authorization** and In **Input Validation** ,the website should validate all input data, such as images uploaded for classification, to ensure that it is in the expected format and size. **Model Security , Secure Communication** where All communication between the website and the user should be secured using HTTPS or other secure protocols. **Regular Updates**, the website should be regularly updated to address security vulnerabilities and fix any issues that arise.
NFR-3	**Reliability**	**Model Training** where the machine learning models used for mushroom classification should be well-trained and validated to ensure that they are accurate and reliable. In **Model Selection** , the website should provide users with a choice of different machine learning models to use for mushroom classification, such as CNN, VGG16, and DenseNet. **Testing and Validation** where the website should undergo rigorous testing and validation to ensure that it is functioning properly and providing reliable results.
NFR-4	**Performance**	**Model Optimization** where the machine learning models used for mushroom classification should be optimized to ensure that they can provide accurate results quickly and efficiently. In **Caching** , The website should implement caching to reduce the amount of time it takes to classify a mushroom image. In **Load Balancing** ,the website should be designed to handle a high volume of user traffic, with load balancing techniques used to distribute requests across multiple servers. **Parallel Processing** where the website should utilize parallel processing techniques to speed up image classification. In **Monitoring**, the website should be monitored regularly to ensure that it is performing optimally and to identify any performance issues that arise.
NFR-5	**Availability**	**Redundancy** where the website should be designed with redundancy in mind, to ensure that it remains available even in the event of hardware or software failures. **Disaster Recovery** where The website should have a disaster recovery plan in place, to ensure that it can

		be quickly restored in the event of a catastrophic failure or natural disaster. In **Monitoring** ,The website should be monitored regularly to ensure that it remains available and to identify any issues that may arise. **User Support** where the website should provide users with clear instructions and support, to help them navigate the website and troubleshoot any issues that may arise.
NFR-6	**Scalability**	Cloud Infrastructure where the website should be designed to run on cloud infrastructure that can scale up or down as required. In Horizontal Scaling , The website should be designed to scale horizontally, meaning that new server instances can be added as needed. Auto scaling , Database Scaling and Performance Optimization are the additional requirements.