**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

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| --- | --- |
| Date | 26-06-2025 |
| Team ID | LTVIP2025TMID59656 |
| Project Name | Enchanted Wings: Marvels of Butterfly Species |
| Maximum Marks | 4 Marks |

**Functional Requirements**

Following are the functional requirements of the proposed solution.

**Functional Requirements – Music Streaming App**

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| --- | --- | --- |
| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| **FR-1** | **Butterfly Image Upload & Classification** | Upload butterfly image through web/mobile interface Classify species using pretrained CNN via transfer learning   |  | | --- | |  | |
| **FR-2** | **Real-Time Inference & Identification** | Classify images instantly for field use by researchers and citizen scientists |
| **FR-3** | **Dataset Management** | Display classification accuracy, confusion matrix, and distribution of species across regions |
| **FR-4** | **Visualization & Insights** | Display classification accuracy, confusion matrix, and distribution of species across regions |

**Non-functional Requirements:**

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

|  |  |  |
| --- | --- | --- |
| **NFR No.** | **Non-Functional Requirement** | **Description** |
| **NFR-1** | **Usability** | |  | | --- | | The UI must be intuitive and user-friendly for researchers, students,  and citizens of all ages | |
| **NFR-2** | **Security** | Ensure secure image uploads and protect user-collected data using encryption |
| **NFR-3** | **Reliability** | |  |  | | --- | --- | | |  | | --- | | The classification system must function consistently across devices and sessions. | | |
| **NFR-4** | **Performance** | |  | | --- | |  |  |  | | --- | | Model should respond within 2 seconds for image classification on  mobile/desktop | |
| **NFR-5** | **Availability** | |  | | --- | |  |  |  | | --- | | The system should have at least 99.5% uptime, especially during  biodiversity monitoring seasons | |
| **NFR-6** | **Scalability** | |  | | --- | | Support growing datasets and user base without performance degradation | |