**Project Design Phase-II**

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

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| Date | 27 Jun 2025 |
| Team ID | LTVIP2025TMID41259 |
| Project Name | Pattern Sense: Classifying Fabric Patterns using Deep Learning |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

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| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | Image Input & Upload | Allow users to upload single fabric images via web interface |
| FR-2 | Pattern Classification | Classify fabric images into predefined categories |
| FR-3 | Data Preprocessing | Normalize, resize, and centre images before model inference |

**Non-functional Requirements:**

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

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| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Performance** | The system shall classify a single image in less than 2 seconds and handle batch uploads efficiently. |
| NFR-2 | **Scalability** | The system shall scale horizontally to process increasing numbers of users or images concurrently. |
| NFR-3 | **Availability** | The service shall maintain 99.5% uptime during operational hours |
| NFR-4 | **Security** | All user data and API endpoints shall be secured via HTTPS and token-based authentication. |
| NFR-5 | **Reliability** | The system shall recover gracefully from errors and log all failed classifications for review. |