**Data Flow Diagram & User Stories**

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| Date | 31 January 2025 |
| Team ID | LTVIP2025TMID38289 |
| Project Name | Fabrics using Deep-Learning |
| Maximum Marks | 4 Marks |

**🔹 Level 0 – Context-Level DFD**

This shows the **overall system** as a single process.

**Entities:**

* User (Admin/Operator)
* Fabric Dataset Source

**Process:**

* Fabric Inspection & Classification System

**Data Stores:**

* Fabric Database

**Data Flows:**

* User inputs fabric images or data
* System returns classification or defect report

[User] ──► (Fabric Inspection & Classification System) ◄── [Fabric Dataset Source]

◄── Classification/Report ──┘

**🔹 Level 1 – High-Level DFD**

Breaks down the system into **main functional modules**.

**Processes:**

1. Data Preprocessing
2. Deep Learning Model Training
3. Model Evaluation
4. Fabric Prediction/Inspection

**Data Stores:**

* Preprocessed Data
* Trained Model
* Prediction Results

Data Flow:

[User] ──► (1. Data Preprocessing) ──► [Preprocessed Data]

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(2. DL Model Training) ──► [Trained Model]

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(3. Model Evaluation)

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(4. Fabric Prediction) ◄── [New Fabric Input]

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──► [Prediction Results] ──► [User]

**🔹 Level 2 – Detailed DFD of “Data Preprocessing” and “Prediction”**

More detailed breakdown of **fabric prediction process**.

**Sub-processes:**

* Image Resizing
* Data Normalization
* Feature Extraction
* Model Inference
* Output Interpretation

(New Fabric Image)

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(Image Resizing)

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(Data Normalization)

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(Feature Extraction)

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(Model Inference - CNN)

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(Output Interpretation)

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(Defect/Type Report to User)

**✅ Use Case:**

This system could be used for:

* Detecting fabric defects (holes, misweave, stains)
* Classifying fabric types (cotton, silk, polyester, etc.)
* Quality control in textile industries