Project Design Phase-II
Data Flow Diagram & User Stories

Date	31 January 2025
Team ID	LTVIP2026TMIDS89328
Project Name	Online Payments Fraud Detection using Machine Learning
Maximum Marks	4 Marks

Data Flow Diagrams – Real-Time Payment Fraud Detection System

A Data Flow Diagram (DFD) is a graphical representation that illustrates how data moves within the Real-Time Payment Fraud Detection System. It clearly shows how transaction data enters the system, how it is processed by different components, where it is stored, and how the final output is generated.

A well-structured DFD helps in understanding system requirements and visualizing the overall workflow of fraud detection. It highlights the interaction between users, the web application, the machine learning model, and the data storage components.

The DFD for this system demonstrates:

- How users input transaction details
- How the Flask backend processes the data
- How the machine learning model analyzes the transaction
- How prediction results (Fraud / Legitimate) are generated
- How logs and statistics are stored

Example: Simplified DFD (Level 0)

External Entity:
User

Process:
Fraud Detection System

Data Flow:
User → Transaction Details → Fraud Detection System
Fraud Detection System → Prediction Result → User

Level 1 DFD (Detailed View)

1. User enters transaction details
2. Web Application (Flask) receives input
3. Data Preprocessing Module (Encoding & Scaling)
4. Machine Learning Model analyzes data
5. Prediction (Fraud / Not Fraud) generated
6. Result displayed to user
7. Prediction stored in log/statistics file

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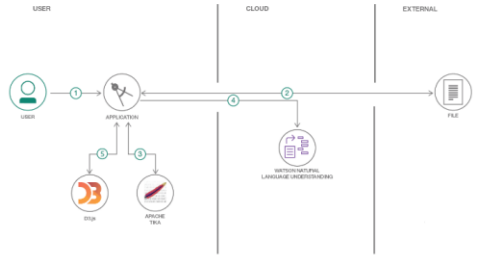
7. **Prediction stored in log/statistics file**

Flow



1. User configures credentials for the Watson Natural Language Understanding service and starts the app.
2. User selects data file to process and load.
3. Apache Tika extracts text from the data file.
4. Extracted text is passed to Watson NLU for enrichment.
5. Enriched data is visualized in the UI using the D3.js library.

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard					
Customer (Web user)						
Customer Care Executive						
Administrator						