

# REQUIREMENT ANALYSIS DOCUMENT

## Project Title: Online Fraud Payment Detection System

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### **1. Introduction**

The Online Fraud Payment Detection System is designed to identify fraudulent online transactions using machine learning algorithms. Requirement analysis ensures that the system meets user needs, performs efficiently, and provides accurate predictions.

This document details the **functional requirements, non-functional requirements, hardware/software requirements**, and system constraints.

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### **2. Functional Requirements**

Functional requirements describe **what the system should do**.

#### **1. User Input:**

- Users should be able to input transaction details through a web interface (amount, transaction type, user details, etc.).

#### **2. Fraud Prediction:**

- The system should classify a transaction as **Fraudulent** or **Legitimate** using the trained machine learning model.

#### **3. Model Integration:**

- The trained ML model should be integrated with the web application for real-time predictions.

#### **4. Data Handling:**

- The system should handle input data securely and ensure that no sensitive data is exposed.

#### **5. Output Display:**

- Prediction results should be displayed clearly on the interface.
- Include probability or confidence score (optional).

#### **6. Admin Interface (Optional):**

- Admins can view aggregated transaction reports or statistics.
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### **3. Non-Functional Requirements**

Non-functional requirements describe **how the system should perform**.

#### **1. Performance:**

- The system should return predictions in less than 2 seconds for each transaction.

#### **2. Scalability:**

- The system should handle a large number of simultaneous transactions.

### 3. Reliability:

- The model should provide accurate predictions with minimal false positives/negatives.

### 4. Security:

- Input data must be validated and sanitized to prevent attacks.
- Sensitive data must not be stored in plain text.

### 5. Usability:

- The interface should be user-friendly and easy to navigate.

### 6. Maintainability:

- The codebase should be modular and documented for easy updates and retraining of the model.
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## 4. Hardware Requirements

Component	Specification
Processor	Intel i3 or above
RAM	8 GB or higher
Storage	500 GB HDD / SSD
Internet Connection	Required for cloud deployment
System	Windows/Linux/MacOS

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## 5. Software Requirements

Component	Version / Notes
Python	3.8 or above
IDE	VS Code / PyCharm / Jupyter

Component	Version / Notes
Libraries	Pandas, NumPy, Scikit-learn, Flask
Web Browser	Chrome / Firefox / Edge
Deployment Platform	Render / Heroku / AWS

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## 6. System Constraints

- The system depends on the quality and size of the historical transaction dataset.
  - Model accuracy may vary based on dataset imbalance.
  - The deployed system requires a stable internet connection for online use.
  - Real banking transaction integration is not part of the initial system.
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## 7. Assumptions

- Users will input valid transaction details.
  - Historical dataset is clean and labeled for supervised learning.
  - Users have access to a modern web browser.
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## 8. Summary

The requirement analysis ensures that the Online Fraud Payment Detection System meets its functional and non-functional objectives. With clearly defined hardware, software, and system constraints, this document guides the design and implementation phases of the project.