Low-Level Design (LLD)

**Financial Crime Analysis**

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# Introduction

## What is Low-Level Design Document?

#### The goal of the Low-level design document (LLDD) is to give the internal logic design of the actual program code for the Sales Analysis dashboard. LLD describes the class diagrams with the methods and relations between classes and programs specs. It describes the modules so that the programmer can directly code the program from the document.

* 1. **What is Scope?**

#### Low-level design (LLD) is a component-level design process that follows a step- by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

## Project Introduction

This is a project about Sales Management. Organizations under the E- commerce industry seek to attain core competence by creating and sustaining a unique process to collect personal information about customers and their purchasing trends. The report critically evaluates how service-based organizations -Amazon use Management information systems to attain competitive advantage through efficient management and acquisition of information. The purpose of this project is to analyze Amazon Sales Data to obtain meaningful information. To do that, a Sales dataset is provided, which includes sales amount, list price, cost price, etc.

# Problem Statement

In India, Financial institutions around the world are turning to data science to combat crime and manage compliance due to the changing nature of crime and a quickly expanding regulatory landscape.

The global financial crisis of 2008 altered the course of history. It had an impact not only on the financial industry, but also on other industries and enterprises around the world. The crisis exposed ineffective policies that resulted in severe fractures that threatened to bring the global financial system to its knees.

Technological advancements, and new capabilities to understand enormous volumes of data can help to analyze and formulate the best approach to identify flaws and appropriate interventions techniques to reduce financial crime.

AI, machine learning, and automation, among other advanced analytics and cognitive techniques, can help to filter out false positives and improve inefficiencies in existing investigation processes. Data and analytics have the potential to not only improve efficiencies and save operating costs, but also help identify intelligence-led and data-driven approaches to combating financial crime.

1. **Dataset Information**

TX\_ID:- Transaction ID

SENDER\_ACCOUNT\_ID:- Amount sent to the bank

RECEIVER\_ACCOUNT\_ID:- Amount Received by Bank Account

TX\_TYPE:- Type Of Transaction

TX\_AMOUNT:- Total Amount of Transaction

TIMESTAMP:- Time

IS\_FRAUD:- Transaction is fraud or real

ALERT\_ID:-ID for alerting the user

# Architecture

Exploratory Data Analysis (EDA)

Modelling

Deployment



Raw Data Collection

Data Pre- Processing

Data Cleaning

REAL WORLD

Reporting

* 1. **Architecture Description**

### Raw Data Collection

The Dataset was taken from iNeuron’s Provided Project Description Document.

<https://drive.google.com/file/d/1KxBXQZbAN-6kGrRx3yOwndoYeInnhyTV/view>

### Data Pre-Processing

Before building any model, it is crucial to perform data pre-processing to feed the correct data to the model to learn and predict. Model performance depends on the quality of data fed to the model to train.

This Process includes-

* + - 1. Handling Null/Missing Values
      2. Handling Skewed Data
      3. Outliers Detection and Removal

### Data Cleaning

Data cleaning is the process of fixing or removing incorrect, corrupted, incorrectly formatted, duplicate, or incomplete data within a dataset.

* + - 1. Remove duplicate or irrelevant observations
      2. Filter unwanted outliers
      3. Renaming required attributes

### Exploratory Data Analysis (EDA)

Exploratory Data Analysis refers to the critical process of performing initial investigations on data to discover patterns, spot anomalies, test hypotheses and check assumptions with the help of summary statistics and graphical representations.

### Reporting

Reporting is a most important and underrated skill of a data analytics field. Because being a Data Analyst you should be good in the easy and self- explanatory report because your model will be used by many stakeholders who are not from a technical background.

* + - 1. High-Level Design Document (HLD)
      2. Low-Level Design Document (LLD)
      3. Architecture
      4. Wireframe
      5. Detailed Project Report
      6. PowerPoint Presentation

### Modelling

Data Modelling is the process of analyzing the data objects and their relationship to the other objects. It is used to analyze the data requirements that are required for the business processes. The data models are created to store the data in a database. The Data Model's main focus is on what data is needed and how we have to organize data rather than what operations we have to perform.

### Deployment

We created a Power BI Dashboard

