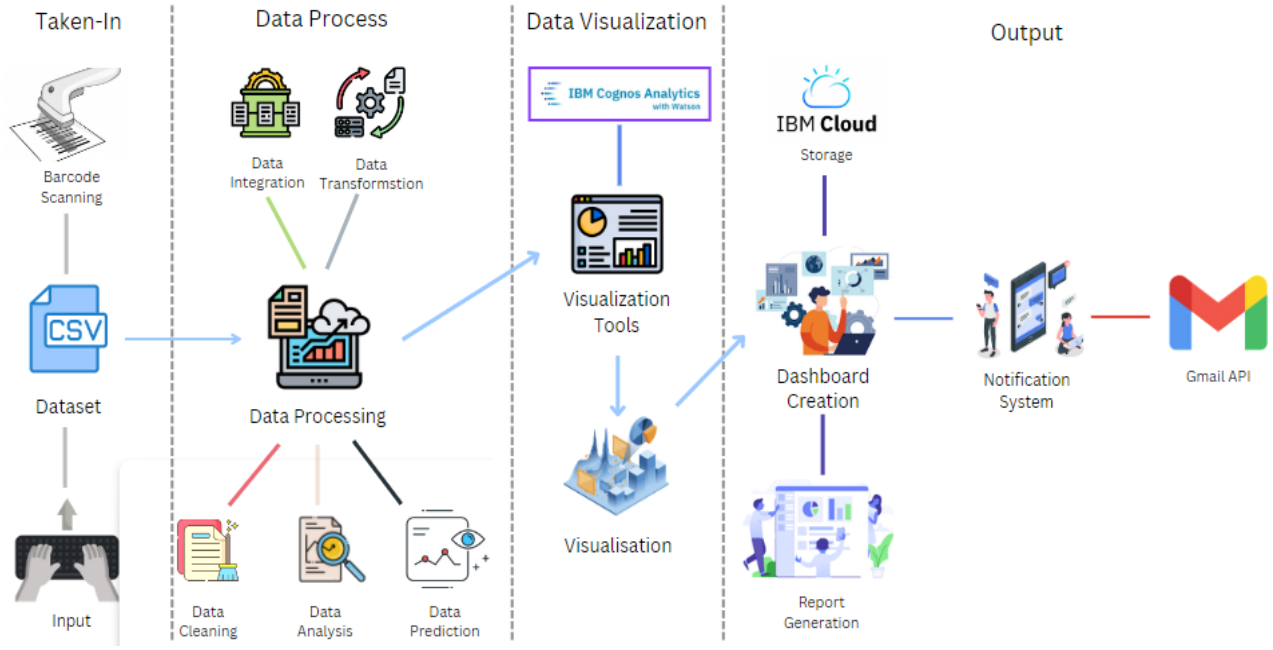
Project Design Phase-II
Technology Stack (Architecture & Stack)

Team ID	PNT2022TMID26463
Project Name	Retail Store Stock Inventory Analytics

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



Description:

1. Initially, the input dataset could be acquired using either scanning barcodes or user input stored in the local database (MySQL) in CSV format.
2. The data is cleaned, analyzed, processed, integrated, and transformed for data prediction.
3. The processed data is visualized using various visualization tools in IBM Cognos Analytics.
4. A real-time dashboard is generated with various features like report generation and a notification system.

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web User Interface compactable for all the devices	HTML, CSS, JavaScript, Bootstrap
2.	Application Logic-1	Data Pre-processing	IBM Cognos Analytics.
3.	Application Logic-2	Web application development and data processing and prediction models.	Python
4.	Database	Temporary memory storage	MySQL
5.	Cloud Database	Used to store the CSV file and the customer information including the forecasting data.	IBM Cloud
6.	External API-1	User Authentication and sending emails.	GMAIL API, Twilio etc
7.	Machine Learning Model	To predict the future sales and order stock accordingly.	Supervised learning model (**XGBOOST**).
8.	Infrastructure (Server / Cloud)	Cloud Server Configuration: • 1 GB RAM • 512 MB Storage • Linux or Windows (higher than 8)	AWS, pythonanywhere etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	• Scikit-learn – Used for Prediction • Django – Web Development Framework • Bootstrap	• Data Analytics • Data Science • Web Development
2.	Security Implementations	• User Authentication • Data Encryption	• SHA256 • Encryptions • Cybersecurity

S.No	Characteristics	Description	Technology
		• Cyber Attacks Protection	
3.	Scalable Architecture	3 – tier architecture will be more feasible.	• Web Pages – HTML, CSS, JS • Application Server – Python • Database – MySQL • Cloud Server – IBM Cloud
	Availability	Web Hosting – Access to this Web Application is available to anyone with a device that can operate a web browser and a working internet connection.	Hosting Server.
4.	Performance	The performance can be increased based on the pricing Package	Hosting Server.