Finance KPI Monitoring Portal

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Abstract

The goal of this project is to develop a website that allows users to view and interact with a Finance KPI (Key Performance Indicator) Monitoring Dashboard for tracking the sales performance of employees in a company. The website provides a login system where users can securely sign in and access the dashboard. For added security, users can also reset their passwords if needed.The Power BI Dashboard will display important financial data, including sales numbers, profit margins, and sales targets. The dashboard will be embedded directly into the website, allowing users to view the performance of each salesperson. The system will also provide basic filters to dynamically adjust the data shown, based on individual salespersons or other criteria.This simple yet effective solution will help managers and sales team members monitor their performance, make data-driven decisions, and keep track of progress toward targets. The website's user-friendly interface ensures easy access to the performance data, while the secure login and password reset features provide safe access to the dashboard.

I. INTRODUCTION

Today’s business environment, real-time financial performance tracking is crucial for decision-making. This project focuses on developing a Finance KPI Monitoring Portal, which integrates a web-based data entry and authentication system with an embedded Power BI dashboard to monitor sales performance. Users such as salespersons, managers, and company founders will have controlled access, managed by an admin. The portal allows authorized users to enter sales data, which is stored in a PostgreSQL cloud database and then imported into Power BI for analysis.Traditionally, financial reports were static and required manual effort to update.

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II. LITERATURESURVEY

Finance KPI (Key Performance Indicator) monitoring is critical for organizations to make informed decisions about resource allocation, sales strategies, and overall business performance. Over time, the methods used for collecting and analyzing financial data have evolved from manual, spreadsheet-based approaches to more advanced, automated solutions integrating web technologies and business intelligence (BI) platforms.The integration of data visualization tools in financial analysis has significantly enhanced the efficiency of decision-making processes. Several research studies highlight the benefits of using Power BI for real-time financial monitoring and business intelligence applications.

We have studied various papers related t othe Finance KPI Dashboards and integration of dashboard into website.

i. Power BI Dashboard for Data Analytics of Sales Data-2022(Sanjeev Kumar Singh, Professor, GCET, Gr. NOIDA) explores the advantages of using Power BI for business intelligence and financial decision-making. The study discusses the role of Power BI in handling large datasets, providing meaningful insights through interactive dashboards, and improving data-driven strategiesAll businesses want growth, and this can be achieved by identifying new opportunities and potential areas for growth in addition to the areas in which the business is lagging. These days, analytics and business intelligence are more dependent on visualisation.

ii. Sri Sulistyawati, Aldo Lovely Arief Suyoso, Dien Mardhiyah in 2025 examined the effectiveness of Power BI in tracking sales performance, revenue, and customer insights. The research highlights how Power BI dashboards facilitate real-time financial monitoring and streamline the decision-making process by providing interactive reports. The study also explores different visualization techniques, including bar charts, line graphs, and matrix reports, which enhance the usability of financial data. Their article describes the implementation of Power BI to create an interactive dashboard based on a dataset of Adidas product sales in the United States from Kaggle. Power BI processes sales data to provide deep insights into sales trends, product performance, market analysis, and consumer preferences.

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iii. William Paul, Nancy Spencer in 2023, presented a case study on using Power BI for large-scale data simulation and analysis. The research emphasizes the role of Power BI in managing vast amounts of structured and unstructured financial data, making it an ideal tool for businesses to improve performance tracking. The study also discusses the integration of machine learning techniques in Power BI for predictive analytics, enabling organizations to anticipate financial trends and optimize their operations.The case study is the Queensland Energy and Jobs Plan, and the data portal implemented using Power BI. The data portal presents the results from simulating the effect of implementing the plan on the Australian National Electricity Market, encompassing the eastern seaboard of Australia. The portal development process compares different data extraction, transformation, and load strategies and combines proven processes from Business Analysis and Data Management Bodies of Knowledge. The process result is a portal based on a relational database that provides a template for future projects.

These studies collectively highlight the growing significance of Power BI in financial KPI monitoring, demonstrating its ability to improve business intelligence, enhance visualization, and facilitate efficient data-driven decision-making. Our project builds upon these findings by integrating Power BI dashboards into a web-based portal, ensuring seamless access to financial insights in real time.

III. Methodology

The development of the Finance KPI Monitoring Portal follows a structured approach to ensure seamless data integration, real-time visualization, and efficient financial monitoring. The project begins with data collection, where financial records, including sales transactions and revenue details, are gathered and stored in a PostgreSQL cloud database. The collected data undergoes preprocessing and transformation to clean inconsistencies, standardize formats, and optimize storage for efficient querying.

The web application is built using Django for the backend and HTML, CSS, and JavaScript for the frontend, ensuring a responsive and user-friendly interface. The backend is responsible for handling authentication, user management, and data retrieval, while the frontend provides

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interactive access to financial KPIs. Role-based access control is implemented, allowing administrators to manage users and define access permissions securely. To enhance usability, the platform supports email-based password reset functionality via SMTP, ensuring secure account recovery.The Power BI dashboard is integrated into the web portal to provide real-time visualization of financial data. This dashboard fetches data from the PostgreSQL cloud database, enabling users to analyse trends, compare historical performance, and generate custom financial reports. The integration is optimized to ensure seamless synchronization between the Django backend and Power BI, allowing for efficient data updates and interactive analytics.

IV.ExistingSystem

i. **Power BI for Data Analytics of Sales Data:**

   a. Description: This system utilizes Power BI to handle large datasets and generate interactive dashboards for financial decision-making. It focuses on transforming raw data into meaningful insights using advanced data visualization techniques. **Limitations:** Lacks real-time integration with web applications and requires manual data updates for report generation.

ii. **Implementation of Power BI for Dashboard Visualization Using Adidas Sales Data**:

   a. Description: This system explores the effectiveness of Power BI in tracking financial performance by using visual reports, charts, and real-time analytics . **Limitations:** Limited customization for role-based user access and lacks automated alerts or notifications for financial anomalies.

iii. **Leveraging Data Portals as Analytic Platforms**:

   a. Description: This approach involves using Power BI as a simulation-based financial analysis tool, enabling businesses to assess long-term financial trends and performance analysis.

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b. **Limitations:** Does not support real-time data input from multiple users and lacks integration with external web-based platforms for interactive user engagement.

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V.Problem Statement

To address the limitations of traditional financial monitoring, we propose a Finance KPI Monitoring Portal that integrates Power BI dashboards into a web-based platform. This portal aims to provide real-time insights, automated report generation, and interactive data visualization to facilitate better financial decision-making. By leveraging a PostgreSQL cloud database, the system will support dynamic data updates, reducing manual intervention and enhancing data accuracy.Additionally, the portal will incorporate role-based user access control, ensuring different levels of authorization for administrators, managers, and salespersons.

VI. Proposed System

Our project features a user-friendly interface that allows users

to access financial data securely and efficiently.The portal integrates Power BI dashboards to provide interactive financial visualizations, helping users analyse trends and make informed decisions. It ensures real-time data updates by synchronizing financial records with a PostgreSQL cloud database, eliminating manual data entry.To enhance security, the system includes role-based access control, ensuring different permissions for admins, managers, and employees. Users can track historical financial trends, compare past performance.the system supports SMTP email integration, enabling password reset requests and automated email notifications for financial updates. The PostgreSQL cloud database ensures secure, scalable, and efficient data management, making the system adaptable for future AI-driven financial forecasting and automation.

Our project "The Finance KPI Monitoring Portal" will have the following features:

- Web-Based Platform: A user-friendly web interface to access financial KPIs.
- Power BI Integration: Seamless embedding of interactive Power BI dashboards.
- Real-Time Data Updates: Automatic data synchronization with the database.
- User Role Management: Role-based access control for enhanced security.
- Historical Data Analysis: Track financial trends over different timeframes.
- Customizable Reports: Generate and export financial reports in various formats.

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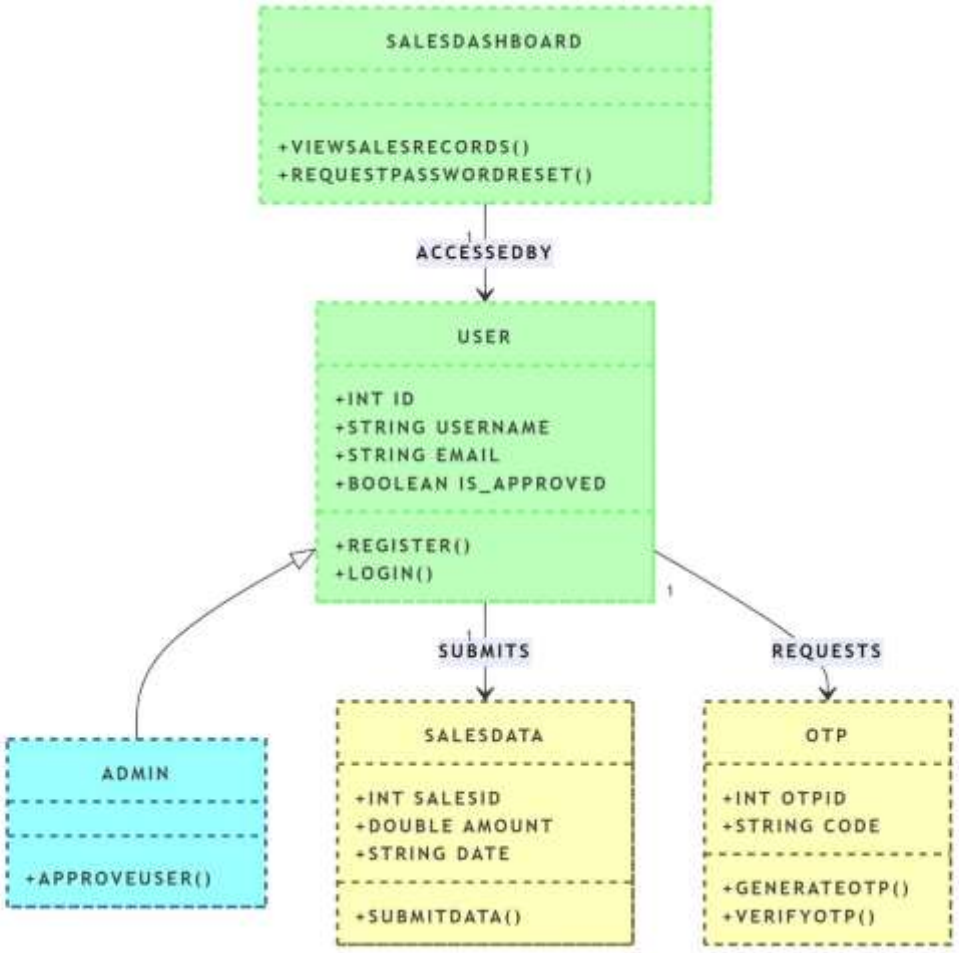
- SMTP Email Integration: Enables password reset and user notifications.
- Cloud Database: PostgreSQL cloud database ensures efficient and scalable data storage.



VII.Project modules

i. User Interface Module:

a. Provides an intuitive frontend interface using HTML, CSS.

b. Enables users to navigate through financial reports and KPI dashboards.

c. Implements responsive design for multi-device accessibility.

ii. Dashboard Module:

a. Integrates Power BI dashboards into the web application.

b. Displays real-time financial insights, trends, and visual analytics.

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c. Allows users to filter, analyse, and compare key financial metrics.

iii. Database Management Module:

a. Utilizes PostgreSQL cloud database for efficient storage and management of financial data.
b. Ensures secure transactions and real-time data synchronization.
c. Supports data retrieval for Power BI and web application.

iv. Admin Control Module:

a. Provides role-based access management for different user levels (Admin, Manager, Employee).
b. Allows data entry, user management, and report generation.
c. Monitors system logs, activities, and access permissions.

VIII.PROJECT REQUIREMENTS

I. **Hardware Components**:

Laptop/Desktop (with a good processor for handling database and Power BI tasks)

II. **Software Components**:

Backend Technologies: Python (django)

III. **Web Technologies**: HTML, CSS

IV. **Cloud Database**: PostgreSQL Cloud (for storing financial records)

V. **Libraries & Frameworks Required**:

Web Development Frameworks:

a. Django (pip install django) – For backend web development)

Database Management:

b. PostgreSQL – Cloud-based database for storing financial records
c. Psycopg2 (pip install psycopg2) – For PostgreSQL integration with Django

Data Visualization & Business Intelligence:

d. Power BI – For creating interactive financial dashboards

Security & Authentication:

e. SMTP Library (built-in in Python) – For password reset and email notifications

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Cloud & Deployment Utilities:

f. Whitenoise (pip install whitenoise) – For managing static files in production

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IX.System Architecture

The Finance KPI Monitoring Portal is a web-based system designed to track financial performance metrics by integrating Django for backend processing, PostgreSQL Cloud for data storage, and Power BI for interactive data visualization. The system allows users, including Admins, Managers, and Employees, to securely log in, access role-based dashboards, and analyze key financial indicators such as revenue, expenses, and profit margins.

Upon user authentication, the frontend built with HTML, CSS, and JavaScript interacts with the Django backend, which processes API requests and retrieves financial data from the PostgreSQL Cloud database.

This data is then synchronized with Power BI dashboards, enabling real-time financial insights. Users can perform actions such as viewing reports, analyzing KPIs, exporting financial data, and requesting password resets via an SMTP email service. Admins have additional privileges, including managing users, modifying access controls, monitoring financial performance, reviewing reports, and configuring system settings.

The system also automates report generation, updates dashboards dynamically, and sends email notifications for financial anomalies or password recovery. Through these automated processes and interactive user functionalities, the portal ensures efficient, secure, and scalable financial monitoring for organizations.

The essential modules of our system are as follows:

- Data Source: PostgreSQL cloud database storing financial records updated on website.
- Backend Processing: Django for data retrieval and API management.
- Power BI Dashboard: Fetching data and generating interactive visualizations.
- Frontend Interface: A web-based UI for users to interact with KPIs.
- User Access Control: Role-based authentication for data security.

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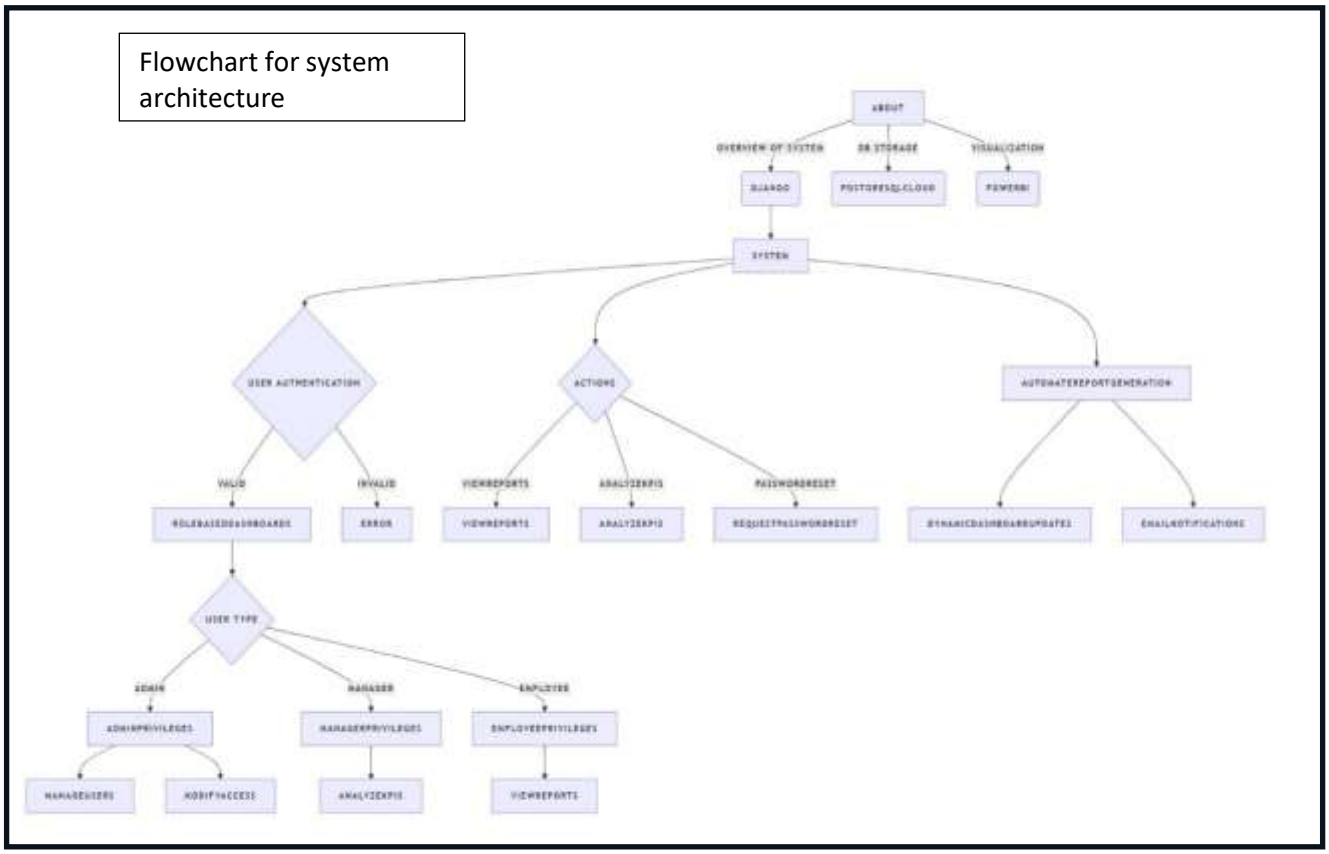

X.Design and Development

The Finance KPI Monitoring Portal is designed to provide real-time financial insights by integrating Power BI dashboards into a Django-based web application. It processes financial data from a PostgreSQL Cloud database, enabling businesses to track key performance indicators such as revenue, expenses, and profit margins.

i. Design

a) System Architecture: The system consists of data ingestion (user input & database), processing (Django backend & API), visualization (Power BI dashboards), and user interface (web-based frontend).

b) Components: Uses Django for backend logic, PostgreSQL Cloud for scalable database

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management, Power BI for interactive analytics, and HTML, CSS, and JavaScript for frontend development.

ii. Development

a) Data Acquisition & Storage: Financial data from user inputs and external sources is stored in a PostgreSQL Cloud database for secure and efficient retrieval.

b) Web Application Backend: Django framework handles API requests, user authentication, and role-based access control for secure financial monitoring.

c) Interactive Dashboard Integration: Power BI dashboards are embedded into the web portal, allowing users to visualize real-time financial trends dynamically.

d) User Management & Access Control: Implements role-based authentication, where admins can manage users, assign permissions, and control data access.

e) Automatic Updated Reporting: The system ensures that financial reports are dynamically updated in real-time, reflecting the latest transactional data without requiring manual refreshes.

XI.Result

In the result phase,the Finance KPI Monitoring Portal successfully integrates Power BI dashboards into a Django-based web application, enabling real-time financial monitoring and decision-making. The system provides a user-friendly interface with interactive financial visualizations, allowing businesses to track key performance indicators (KPIs) such as revenue, expenses and sales margins efficiently.

The result of this project in short is the user registers , log in , update sales data in website and views dashboard to monitor and check salesperson wise, region, product wise sales performance and gets to know about revenue generated, target margins through that visualization.

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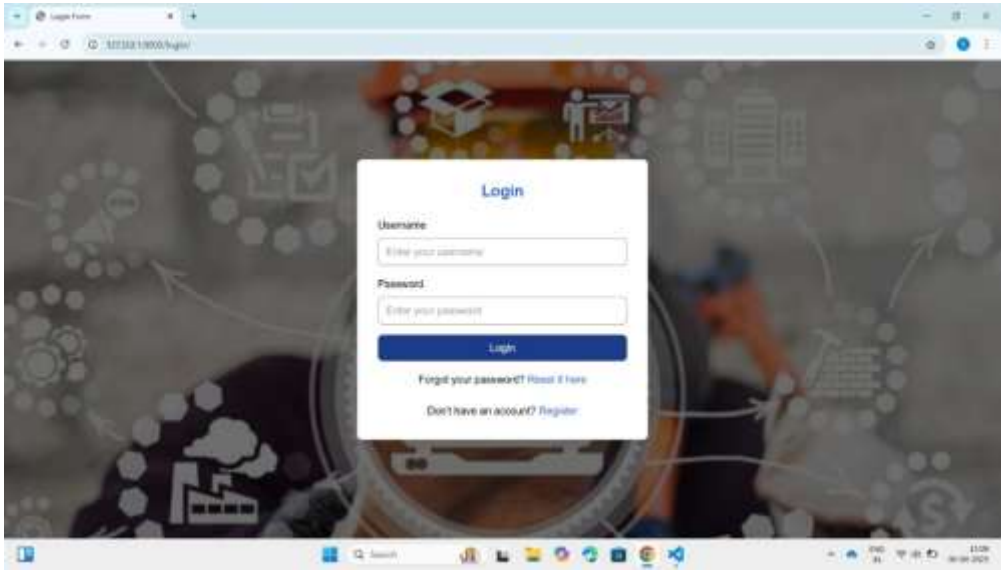

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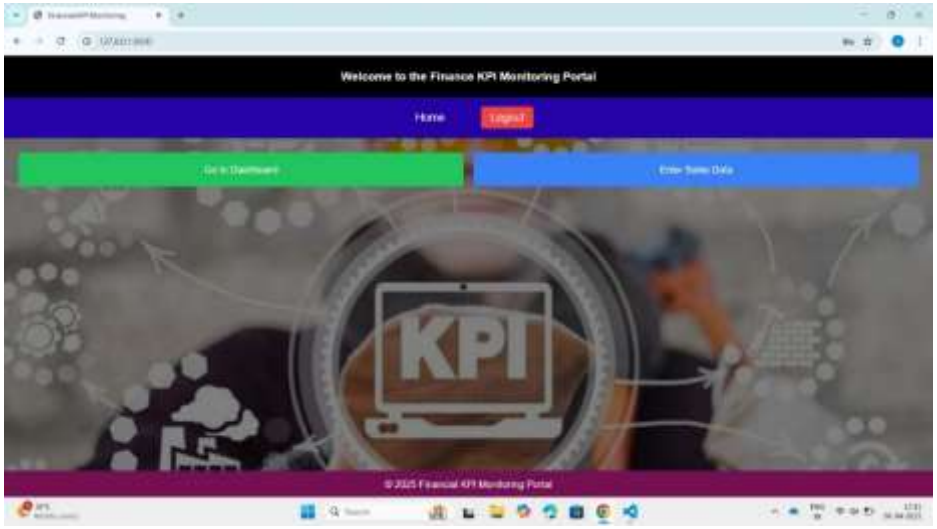

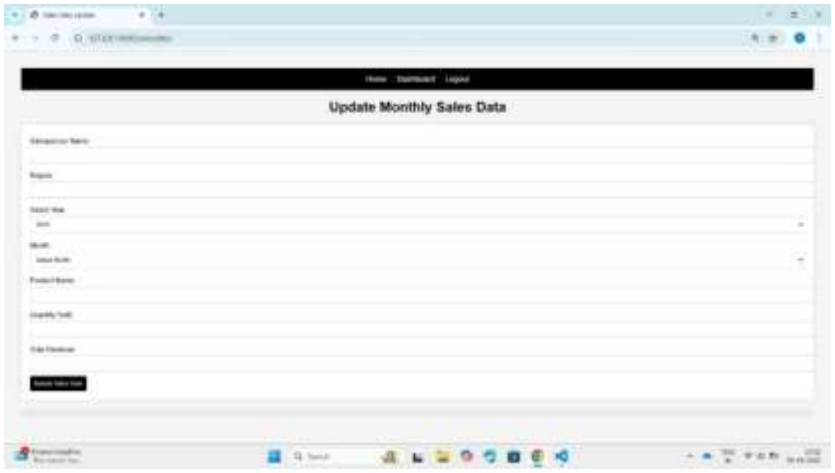

Dashboard embedded into website

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XII. Conclusion

The Finance KPI Monitoring Portal successfully integrates Power BI dashboards into a Django-based web application, providing businesses with a real-time, interactive, and automated financial monitoring system. By leveraging PostgreSQL Cloud for data storage, the system ensures scalability, security, and efficient data management. The portal allows businesses to track key financial metrics, analyse trends, and make informed decisions based on real-time insights. Key features such as automatic report updates, role-based access control, and real-time data synchronization enhance the system's usability and efficiency. The seamless integration of Power BI dashboards enables stakeholders to visualize financial data dynamically, improving decision-making processes.

By eliminating manual data entry and enabling custom reporting and email notifications, the portal ensures accurate, secure, and scalable financial management. Future enhancements like AI-driven forecasting and mobile accessibility will further improve its effectiveness.

XIII. Future Scope

The Finance KPI Monitoring Portal can be enhanced with AI-powered financial forecasting, enabling predictive insights for better decision-making. Future improvements may include mobile app integration for on-the-go financial tracking and automated anomaly detection to identify potential risks. Additionally, third-party API integrations with accounting tools and blockchain security can further enhance data security and transparency.

Some key areas for future development include:

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- AI-Powered Financial Forecasting: Implementing machine learning models to predict future financial trends and provide insights for better decision-making.
- Automated Anomaly Detection: Using AI to identify unusual financial patterns, fraud detection, and budget deviations in real time.
- Integration with External APIs: Connecting with third-party financial services, payment gateways, and accounting software for seamless data flow.
- Mobile Application Support: Developing a mobile-friendly version of the portal to enhance accessibility for users on the go.
- Blockchain Security Implementation: Ensuring enhanced data integrity and security by leveraging blockchain technology for financial transactions.
- Enhanced Custom Reporting: Allowing users to generate more detailed, customized reports with advanced filtering and scheduling features.

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XV. Bibliography

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