PROJECT PROPOSAL

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CLASS: TYBSc(CS) - 73

TITLE: Sales Pulse (Business sales analytics and forecasting app)

INTRODUCTION

SalesPulse is proposed as a centralized, mobile-first application designed to simplify and enhance business sales management. The system provides dedicated modules for daily sales entry, product management, expense tracking, analytics visualization, and AI-based sales forecasting. It enables secure login for admin and staff, offering real-time access to revenue trends, top-performing products, and interactive charts. The aim is to create a unified digital platform that replaces manual Excel-based processes, reduces calculation errors, and helps business owners make informed decisions

OBJECTIVES

- To develop a mobile-first dashboard for real-time sales monitoring on phones and desktops.
- To perform exploratory data analysis and visualize key business metrics.
- To implement time-series forecasting using statistical and machine-learning methods.
- To provide automated Excel and PDF report-generation features.
- To ensure secure user authentication with role-based access for admin and staff.
- To build a scalable and maintainable system using the Django framework.

SCOPE

- Multi-user system with registration & login (Admin + Staff roles)
- CRUD operations for Products, Sales, and Expenses
- Interactive dashboards with Chart.js (line, bar, pie, doughnut, polarArea)
- Daily, weekly, monthly, and yearly sales analytics
- Sales forecasting for the next 30–90 days with confidence intervals
- Export reports in Excel and PDF format
- Works offline-capable for basic viewing (service workers – future phase)

METHODOLOGY

• **Frontend Development:** Develop a mobile-first Progressive Web App using HTML5, Bootstrap 5, and JavaScript with responsive dashboards and interactive Chart.js visualizations.

• **Authentication:** Implement secure, role-based login using Django's built-in authentication system with protected admin and staff access.

• **Database Management:** Create structured Django ORM models for users, products, sales, expenses, and categories with optimized relational queries.

• **File Handling & Reports:** Generate downloadable Excel and PDF reports using Pandas, OpenPyXL, and WeasyPrint with support for multiple date ranges.

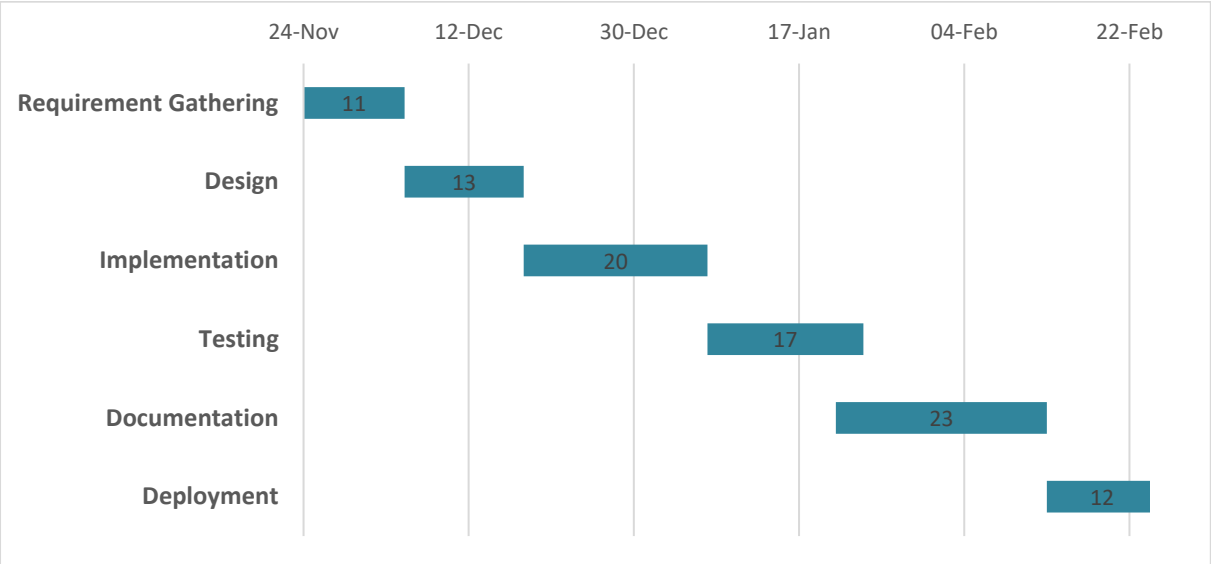
• **Analytics & Forecasting:** Integrate Prophet for AI-based time-series forecasting and visualize predictions through Chart.js.

• **Testing & Deployment:** Test all modules for functionality and consistency, and deploy the final application on a cloud platform for evaluation.

TOOLS & TECHNOLOGIES

Category	**Technology Used**
Frontend	HTML5, CSS3, Bootstrap 5, JavaScript, Chart.js
Backend	Python 3.12, Django 5.x
Database	SQLite(development),PostgreSQL(production), Mysql Workbench
Data Analysis & Plotting	Pandas, Matplotlib, Seaborn
Machine Learning	Scikit-learn
Forecasting Visualization	Chart.js + custom prediction plugin
Report Generation	Django - import-export
Version Control	Git & GitHub
IDE & Editor	Visual Studio Code

TIMELINE



RESOURCES

- Laptop/PC with minimum 8 GB RAM.
- Stable internet connection.
- Free accounts: GitHub, PythonAnywhere.
- Open-source Python and Django libraries.
- Official documentation for Django, Pandas and Chart.js.
- Online tutorials and reference guides for web development.

EXPECTED OUTCOMES

- Fully functional web application accessible at a public URL
- Admin panel to manage products, users, and sales entries
- Interactive dashboard with 8+ different charts
- Accurate 30–90 day sales forecast with upper/lower bounds
- One-click Excel and PDF report generation
- Source code on GitHub with proper README and documentation
- Final project report, PPT presentation, and video demo

REFERENCES

- HTML5 & CSS3: https://developer.mozilla.org
- Bootstrap 5: https://getbootstrap.com/docs/5.3/
- JavaScript & Chart.js: https://www.chartjs.org/docs/latest/
- Django 5.x: https://docs.djangoproject.com/en/5.1/
- Python, Pandas, Matplotlib, Seaborn: https://pandas.pydata.org | https://seaborn.pydata.org
- Scikit-learn (Forecasting): https://scikit-learn.org/stable/
- GeeksforGeeks – https://www.geeksforgeeks.org/
- W3Schools – https://www.w3schools.com/