SmartIntern Project Report

Project Title:

Plugging Into The Future: An Exploration Of Electricity Consumption Patterns Using Tableau

Submitted by

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1. Introduction

This project explores electricity consumption patterns using Tableau to identify usage trends, user behaviors, and regional consumption data. The goal is to support better energy planning and raise awareness through data-driven visuals.

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2. Project Objectives

- Analyze electricity usage using a real-world-like dataset
- Visualize trends based on region, time, and user type
- Identify peak usage times
- Build and publish interactive dashboards and stories using Tableau

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3. Tools & Technologies Used

- **Tableau Public** – Visualization & Story creation
- **Python** – Data generation and cleaning
- **MS Excel** – Data formatting
- **Seaborn & Matplotlib** – Mock visualizations

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4. Project Workflow

1. Data Collection & Cleaning:

Simulated electricity usage data (Jan–Mar 2024) across zones and user types.

2. Data Preparation:
Created fields like:

- Time Category (Morning, Afternoon, Evening, Night)
- Peak Hour Flag (Yes/No)

3. Visualization in Tableau:

- Region-wise average usage
- Pie chart of user type consumption
- Time-of-day impact on usage
- Peak vs Non-peak hour consumption

4. Dashboard Design:
Filters: Region, Time, User Type
Metrics: Avg Consumption, Peak Hour %, Usage by Type

5. Tableau Story Slides:

1. Introduction to Dataset
2. Trend Over Time
3. Region-wise Usage
4. Suggestions for Efficiency

6. Performance Testing:

- Optimized filters
- Aggregated data
- Tested responsive design

7. Web Integration:

- Published dashboard via Tableau Public
- (Insert your Tableau link here if available)

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5. Key Insights

- Evening time (6 PM to 10 PM) shows highest usage
- Industrial users dominate electricity consumption
- South Zone reports highest average usage
- Peak hour usage is nearly 30% higher

6. Conclusion

The project demonstrates effective data visualization using Tableau. It helps uncover meaningful insights about power usage behavior and supports smarter electricity planning. Skills gained include data prep, analysis, dashboard design, and storytelling.