Analysis of Household Power Consumption of Gyalposhing Community

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Abstract

This web application is developed for the purpose to visualize, predict the price and energy consumption of individual household in Gyalpozhing. There is no awareness of the energy consumption patterns, identification of power optimization possibilities and data-driven planningand forecasting. Thus, this project aims to address the problems by developing a predictive model for Gyalpozhing Household price and energy consumption with the help of machine learning algorithms and provide this services to the users through an interactive website deployed in Heroku.

Aim,Goal and Objective of the Project

Aim of the Project

To analyze the household energy consumption of Gyalpozhing and make pertinent predictions.

Goal of the Project

To apply data analysis and ML techniques to the study of household energy consumption in our immediate vicinity.

Objective of the Project

- To assess a time-bound energy consumption patterns of the town useful for creating awareness and identifying opportunities of optimization.
- To present the household energy consumption of the town in a user-friendly manner to stakeholders.
- To make relevant forecasts that would help stakeholders in appropriate data-driven planning and decision making.

Algorithm Used in Project

The algorithm used in our project

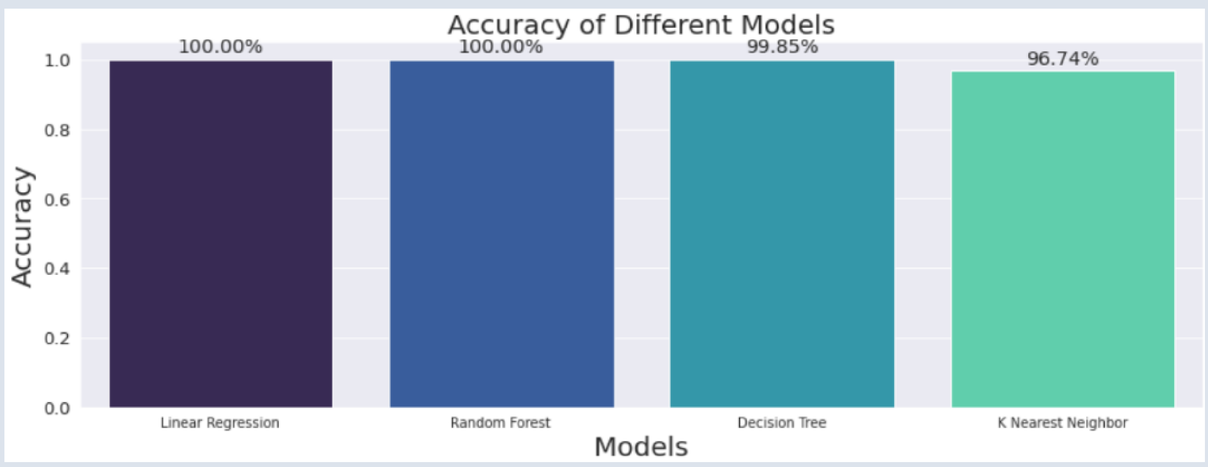
- Linear Regression
- Random Forest
- Decision Tree
- K-Nearest Neighbour

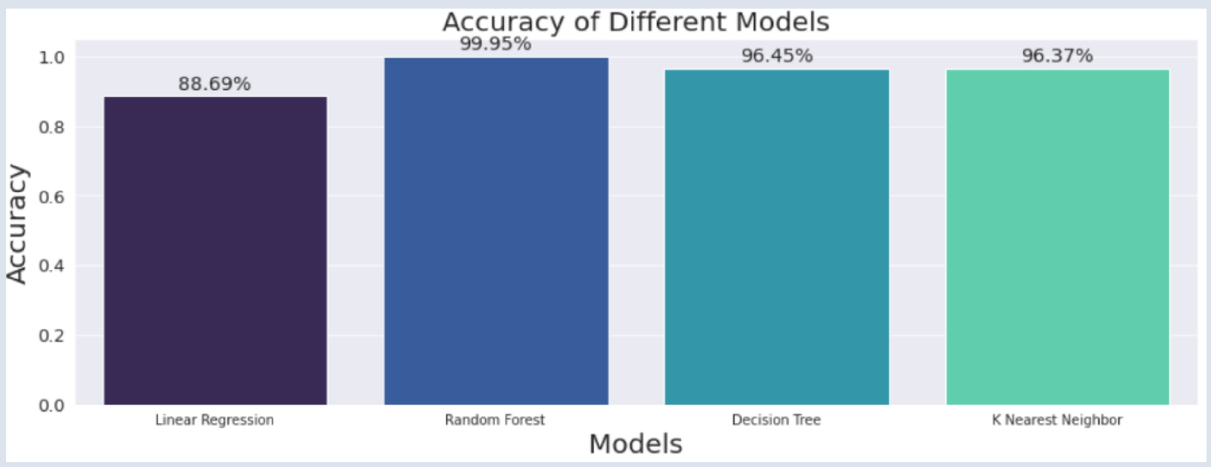
Problem Statement

Bhutan is abundant sources of electricity, there is no awareness of the energy consumption patterns, identification of power optimization possibilities and data-driven planning and forecasting.In this project, we are focusing on Gyalposhing and using electricity power consumption data for the past three years to predict patterns for power consumption of households. The key aspect of this project is to have knowledge on the amount of energy consumption and manage energy consumption which is advantageous for both the consumer and producer.

Results

The first picture compares the algorithm used for energy consumption prediction.
The second picture compares the algorithm used for price prediction.





Conclusion

From the above results we can conclude that the best algorithm is the Linear Regression Algorithm for this energy consumption prediction and the best algorithm is the Random Forest Algorithm for the price prediction because both the algorithm has higher accuracy compare to other algorithm. Hence we could make a successful model using these two algorithms for energy consumption and price prediction.