MACHINE LEARNING PROJECT

Project title: Laptop Price Prediction for SmartTech Co.

Presented by

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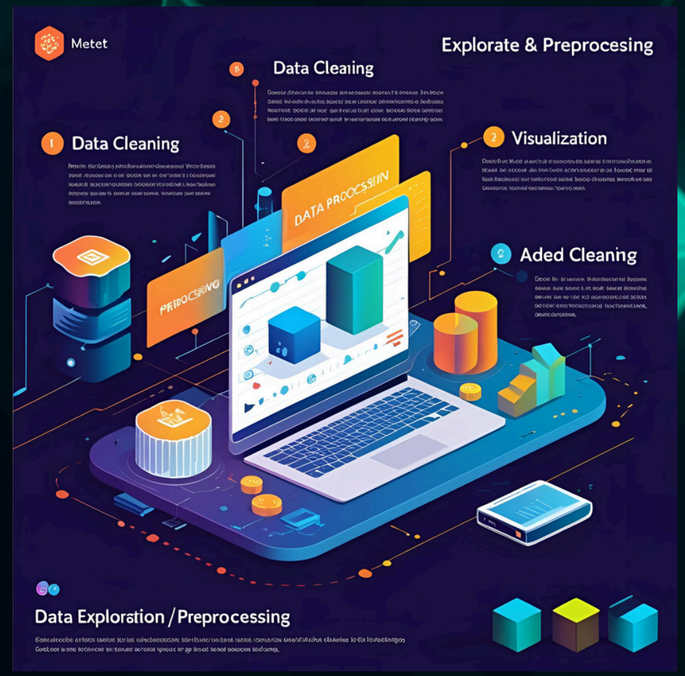
Project Overview

- *Goal: Develop a machine learning model to accurately predict laptop prices for SmartTech Co..*
- *Purpose: Provide valuable market insights for competitive pricing strategies and inventory management.*
- *Outcome: Identified and implemented the optimal model for robust price forecasting.*

Data Exploration & Preprocessing

- *Dataset: Utilized a comprehensive laptop dataset.*
- *Key Features Examined: Company, TypeName, Inches, ScreenResolution, CPU, RAM, Memory, GPU, and Operating System.*
- *Data Understanding: Performed thorough exploration to understand feature distributions and relationships with price.*
    - *Preprocessing Steps:Handled missing values (if any).*
    - *Removed irrelevant columns ("Unnamed: 0", "Unnamed: 0.1") to ensure data quality.*
    - *Prepared the dataset for model training through appropriate encoding and scaling (as implied by ML project).*



Model Development & Evaluation :

Algorithms Evaluated:

Linear Regression

Random Forest Regressor

XGBoost

Evaluation Metrics: *R2 Score and Mean Absolute Error (MAE).*

Results:

Random Forest Regressor achieved the highest R2 score and lowest MAE.

Best-performing model for predicting laptop prices.

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Key Achievements & Skills Demonstrated

Machine Learning Proficiency: *Successfully applied and evaluated multiple regression algorithms.*

Data Analysis: Expertise in data exploration, cleaning, and preparation for model readiness.

Model Selection: *Ability to identify the most effective model based on performance metrics (R2, MAE).*

Predictive Modeling: Developed a functional model capable of accurate price prediction.

Python & Libraries*: Hands-on experience with pandas, numpy, scikit-learn (implied by model names), matplotlib (implied by data exploration).*

Impact & Future Scope

Business Value: *Provides SmartTech Co. with data-driven insights for pricing optimization and inventory planning.*

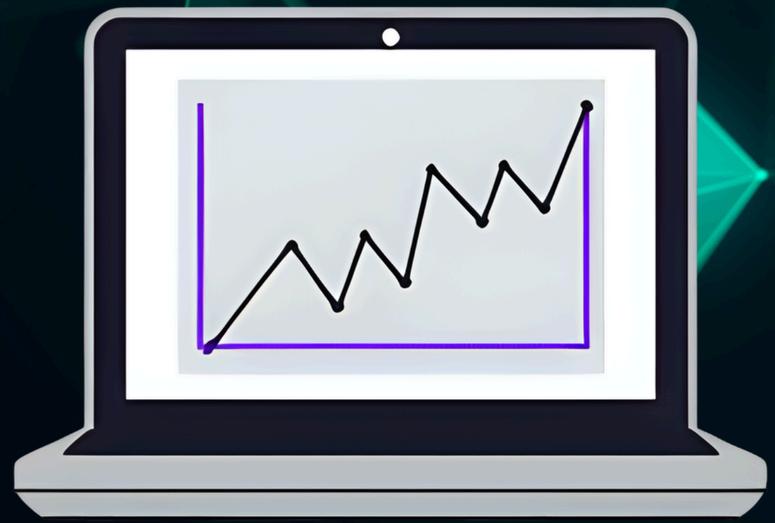
Scalability: *The developed model can be retrained with new data to adapt to market changes.*

Potential Enhancements:

Integration with live market data feeds.

Development of a user-friendly prediction interface.

Feature engineering for deeper insights (e.g., brand-specific performance).



THANK YOU!

FOR YOUR ATTENTION

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