Internship Final Report

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Major: Computer Science and Engineering (AI)
Internship Duration: August 1st, 2025 - August 30th, 2025
Company: ShadowFox
Domain: AI/ML
Mentor: [Hari]
Coordinator: [Aakash]

Objectives

The main objectives of my internship were to:
1. Understand practical implementation of Artificial Intelligence and machine learning concepts.
2. Work on real datasets to strengthen my data preprocessing, analysis, and visualization skills.
3. Gain experience in developing predictive models and evaluating their performance.
4. Apply theoretical concepts learned in academics to solve real-world problems using Python and ML libraries.

Tasks and Responsibilities

During my internship, I was actively involved in the following tasks:

● Data Cleaning & Preprocessing: Worked on handling missing values, encoding categorical variables, and normalizing features for smooth model training.

● Exploratory Data Analysis (EDA): Visualized data patterns, correlations, and feature distributions to better understand the dataset using Matplotlib and Seaborn.

● Predictive Modeling: Built Linear Regression models for two key tasks:
  - Boston House Price Prediction: Developed a regression model to predict housing prices based on various features.
  - Car Price Prediction: Implemented a regression model to estimate car selling prices using historical data.

● Model Evaluation: Assessed models using R^2 score, RMSE, and compared predicted vs.

actual values.

● Visualization & Reporting: Created visualizations of predicted vs. actual prices and sorted predicted outcomes for clear interpretation.

Learning Outcomes

Through this internship, I gained the following learning outcomes:

● Technical Skills: Improved proficiency in Python, Pandas, NumPy, Matplotlib, Seaborn, and Scikit-learn.

● Machine Learning Concepts: Understood the end-to-end ML workflow including preprocessing, training, testing, and evaluation.

● Analytical Skills: Enhanced ability to interpret data patterns and translate them into meaningful insights.

● Professional Growth: Learned how to approach problems systematically, document findings, and present results effectively.

Challenges and Solutions

● Data Quality Issues: Encountered missing and inconsistent values in datasets, which were handled using imputation and encoding techniques.

● Model Accuracy: Initially faced low accuracy in predictions; resolved this by refining preprocessing steps and selecting appropriate evaluation metrics.

● Understanding Large Datasets: Analyzing big datasets was time-consuming; optimized processing using efficient Pandas operations.

Conclusion

This internship has been a highly valuable experience, providing practical exposure to Aritifical Intelligence and machine learning. By working on real datasets such as Boston Housing and Car Price Prediction, I gained confidence in applying theoretical concepts to practical problems. This internship has strengthened my technical and analytical skills and inspired me to continue exploring the field of AI and Data Science.

Acknowledgments

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