COGNIFYZ TECHNOLOGIES

MACHINE LEARNING INTERNSHIP – TASK 1 REPORT

🧑💻 Intern Details:

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- **Department**: B.E. CSE – AI & ML
- **Internship Duration**: June–July 2025
- **Task Title**: Predicting Restaurant Ratings using Regression

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📌 Objective

To build a machine learning regression model that predicts the **aggregate rating** of restaurants based on various features like location, cuisine, cost, and delivery options using real-world restaurant data.

🧰 Technologies & Tools Used

- Python (Google Colab)
- Libraries: Pandas, NumPy, Scikit-learn, Matplotlib
- Dataset: Provided by Cognifyz Technologies (Dataset.csv)

🧪 Methodology

1. **Data Loading & Exploration**
    - Loaded dataset using pandas
    - Explored column structure and missing values
2. **Data Cleaning & Preprocessing**
    - Dropped unnecessary or redundant columns
    - Filled or removed null values
    - Encoded all categorical (string) columns using LabelEncoder
3. **Feature Selection**
    - Target: Aggregate rating
    - Input features: All relevant numeric and encoded columns
4. **Model Building**
    - Used LinearRegression() from scikit-learn
    - Split data: 80% for training, 20% for testing
5. **Model Evaluation**
    - Metrics used:
        - Mean Squared Error (MSE): **1.189**
        - R^2 Score: **0.487**
    - Created a scatter plot of **actual vs predicted ratings**

📊 Key Outputs

- The model was trained and tested successfully.
- Around **48.7%** of the variation in ratings is explained by the model.
- Predictions closely matched actual ratings in most cases.

✅ Conclusion

This task enhanced my understanding of:

- Regression algorithms
- Data preprocessing and encoding
- Model evaluation using real metrics
- Real-world implementation of ML pipelines

It helped bridge the gap between theory and practical application, and it has prepared me well for more advanced ML tasks.

📎 Attachments:

- Task1_Predict_Restaurant_Ratings.ipynb
- Task1_Report_Yashwanth.pdf
- GitHub Link: https://github.com/Yashwahthmc/Task1.git

🖊 Signature:

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