### **PREDICTIVE ANALYTICS MODEL REPORT**

#### **Task Title:**

Predictive Analytics Model – House Prices Forecasting

#### **Assigned By:**

Intern Intelligence – Data Analytics Internship

#### **Task Duration:**

July 10 – July 16, 2025

#### **OBJECTIVE:**

Develop a predictive analytics model to forecast future house prices based on historical data using machine learning techniques.

#### **DATASET USED:**

* **Competition:** House Prices – Advanced Regression Techniques (Kaggle)
* **Description:** Historical housing data with features like lot area, overall quality, year built, and sale price.

#### **TOOLS & PLATFORMS:**

Kaggle Notebook  
Python (Pandas, Numpy, Scikit-learn)  
Random Forest Regressor & Linear Regression models

#### **DATA PREPARATION:**

* Loaded training and test datasets
* Handled missing values using median/mode imputation
* Performed feature encoding for categorical variables with pd.get\_dummies()
* Prepared input features (X) and target variable (y)

#### **MODEL IMPLEMENTATION:**

1. **Linear Regression:**
   * Trained a baseline linear regression model.
   * Evaluated using Mean Squared Error (MSE).
2. **Random Forest Regressor:**
   * Implemented for improved performance.
   * Achieved lower MSE compared to linear regression.

#### **RESULTS & EVALUATION:**

* **Evaluation Metric:** Mean Squared Error (MSE)
* Random Forest Regressor performed better, providing more reliable house price predictions for the test data.

#### **FILES SUBMITTED:**

* predictive\_model\_task.ipynb – Kaggle notebook file
* submission.csv – Predictions generated from the trained model

#### **INSIGHTS:**

* Random Forest models capture non-linear relationships effectively in structured tabular data.
* Data cleaning and encoding are critical for machine learning model performance.

#### **CONCLUSION:**

Successfully developed and validated a predictive analytics model to forecast housing prices. This task enhanced my practical skills in data preprocessing, regression modeling, and result interpretation for business decision-making.