**PREDICTION MODEL FOR AFFORDABLE HOUSING POLICY.**

**Rising housing costs are outpacing incomes, leading to affordability challenges.**

**Soln: Predict the price of a house for affordable housing policy implementation by the government.**

1. **Data Collection and Preprocessing**: Collected housing data including Sold Price, location, property characteristics (e.g., square footage, lot size, number of bedrooms and bathrooms), and property features. Cleaned the dataset to handle missing values and inconsistencies.
2. **Feature Engineering**: Transformed categorical variables (e.g., Price Category) using encoding methods and created new variables where necessary to improve the model’s predictive power.
3. **Exploratory Data Analysis (EDA)**: Analyzed trends, distributions, and relationships between Sold Price and various property attributes to identify key factors impacting prices.
4. **Data Splitting**: Split the dataset into training and testing subsets to evaluate model performance and generalizability.
5. **Model Selection and Training**: Chose appropriate models (e.g., Multivariate Linear Regression, K-Nearest Neighbors Classifier) and trained them on the dataset, using Sold Price as the target variable.
6. **Evaluation and Fine-Tuning**: Evaluated model performance using metrics such as Mean Absolute Error (MAE) and fine-tuned hyperparameters to improve accuracy.
7. **Data Visualization and Presentation**: Created visualizations (e.g., time series, heatmaps, scatter plots) to illustrate the effect of policy interventions on Sold Price, providing insights to support affordable housing policy recommendations.