SURYA GROUP OF INSTITUTION

VIKRAVANDI 605-652

PHASE 4 DEVELOPMENT PART 2

PREDICTION HOUSE PRICES USING MACHINE LEARNING

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ECE DEPARTMENT

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AI_ PHASE 4:

To Develop the project development part 2 is build a model evaluation, model training

Model Building and evaluation:

Model 1 : Linear regression

```
model_lr=LinearRegression() model_lr.fit(X_train_scal,
Y_train)
LinearRegression()
```

Predicting Prices

```
Prediction1 = model_lr.predict(X_test_scal)
```

Evaluation of predicted data:
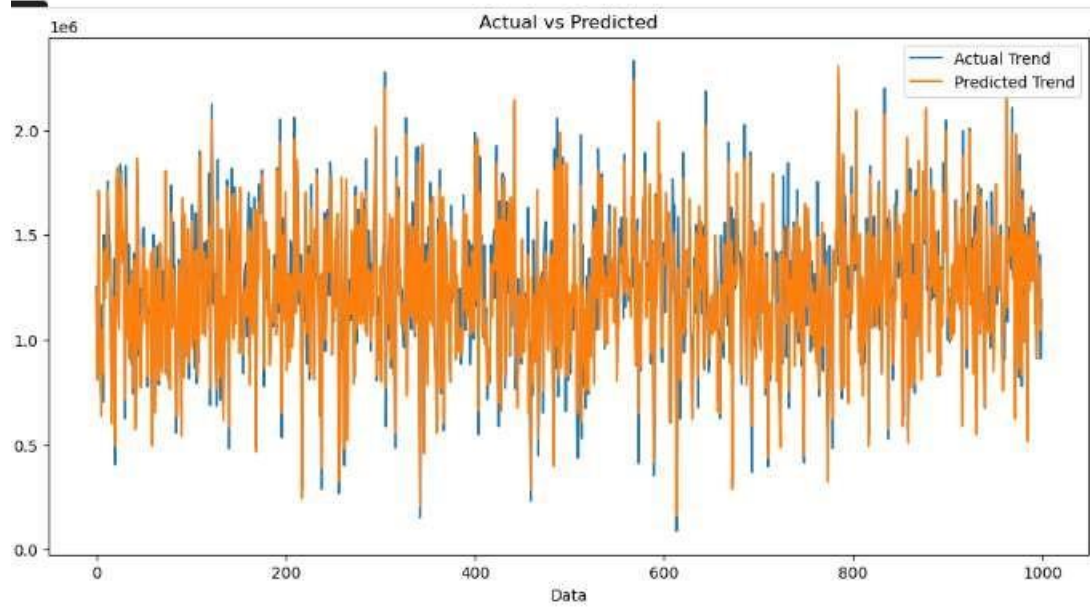
```
plt.figure(figsize=(12,6))    plt.plot(np.arange(len(Y_test)), Y_test,
label='Actual Trend')    plt.plot(np.arange(len(Y_test)), Prediction1,
label='Predicted Trend')    plt.xlabel('Data')    plt.ylabel('Trend')
plt.legend()    plt.title('Actual vs Predicted')
Text(0.5, 1.0, 'Actual vs Predicted')
```

Actual vs Predicted

```
sns.histplot((Y_test-Prediction1), bins=50)

<Axes: xlabel='Price', ylabel='Count'>
```
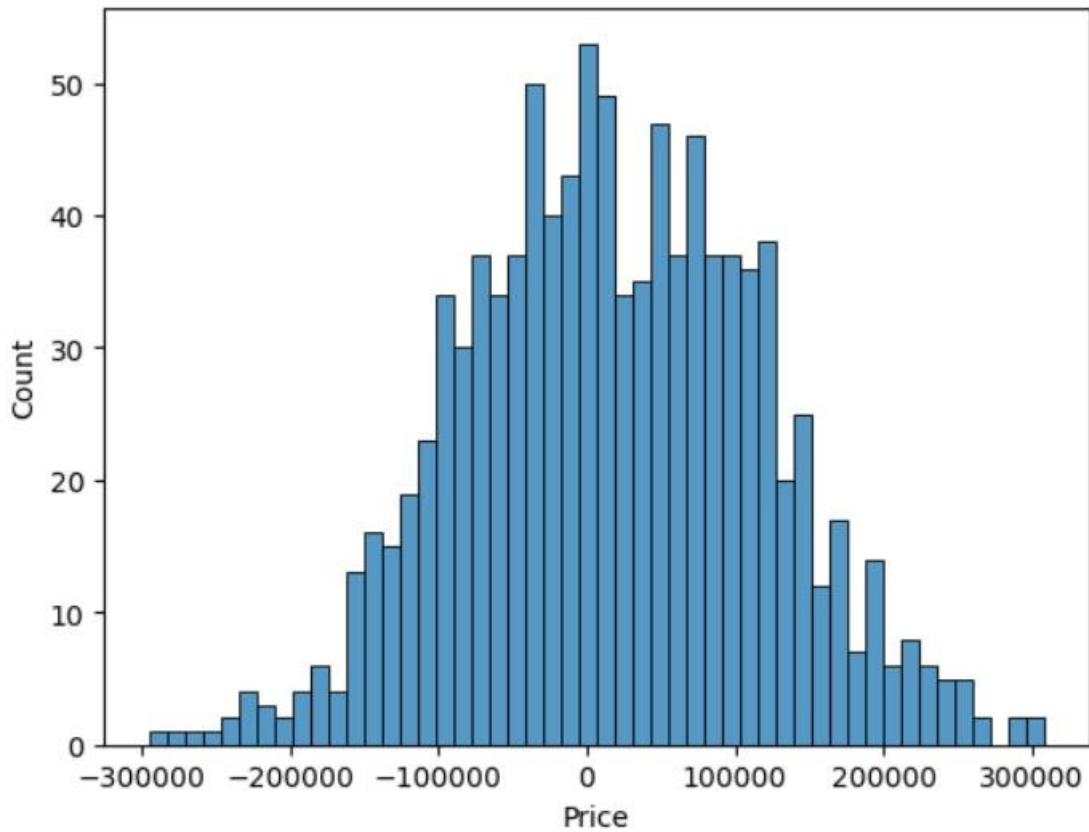
```
print(r2_score(Y_test, Prediction1)) print(mean_absolute_error(Y_test,

Prediction1)) print(mean_squared_error(Y_test, Prediction1))

0.9182928179392918

82295.49779231755

10469084772.975954
```

Model 2:   XG Boost Regressor :

```
model_xg = xg.XGBRegressor()

model_xg.fit(X_train_scal, Y_train)
```

   XGBRegressor (base_score=None, booster=None, callbacks=None,
colsample_bylevel=None, colsample_bynode=None,
colsample_bytree=None, early_stopping_rounds=None,
```

enable_categorical=False, eval_metric=None, feature_types=None,
gamma=None, gpu_id=None, grow_policy=None, importance_type=None,
interaction_constraints=None, learning_rate=None, max_bin=None,
max_cat_threshold=None, max_cat_to_onehot=None,
max_delta_step=None, max_depth=None, max_leaves=None,
min_child_weight=None, missing=nan, monotone_constraints=None,
n_estimators=100, n_jobs=None, num_parallel_tree=None,          predictor=None,
random_state=None, ...)

Predicting Prices :

```
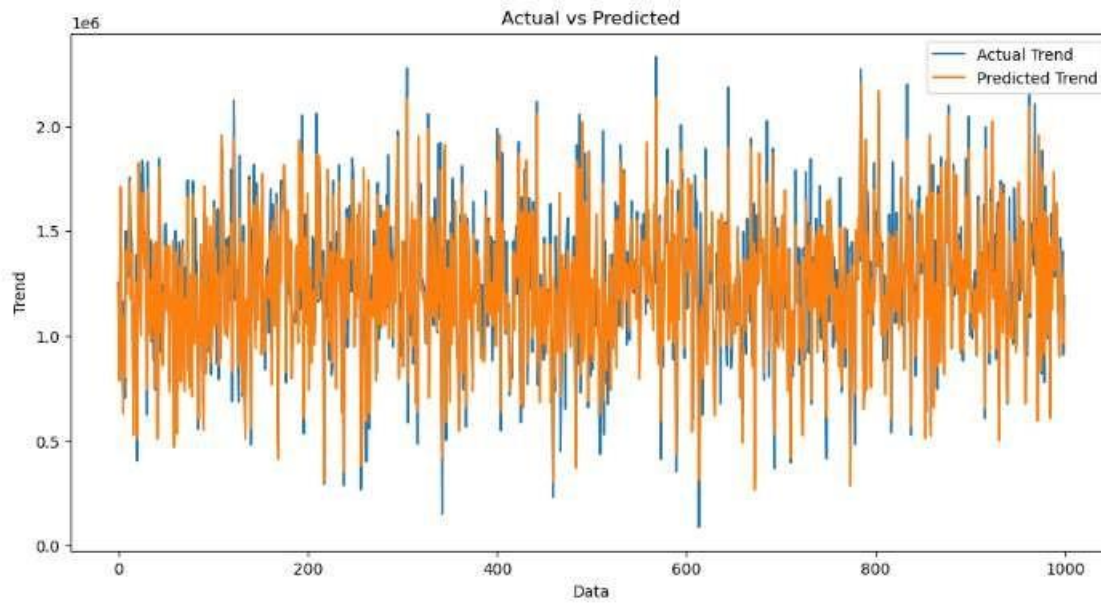Prediction5 = model_xg.predict(X_test_scal)
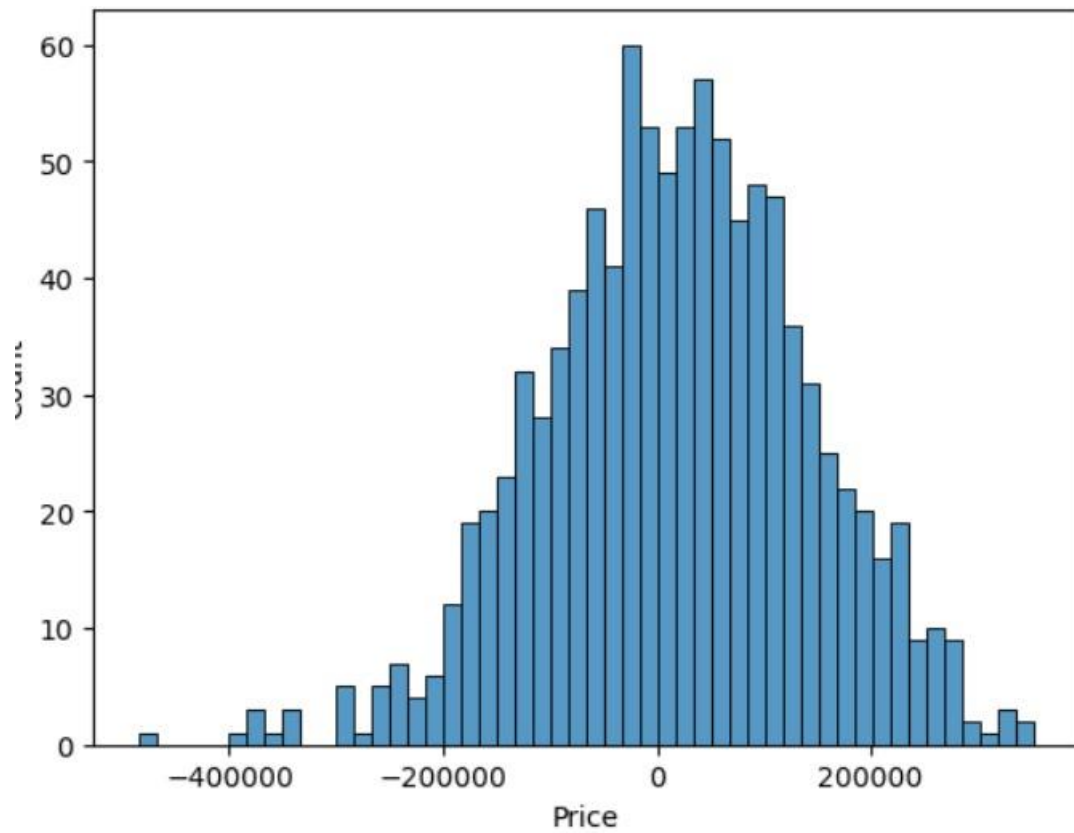```

Evaluation of Predicting Prices:

```
plt.figure(figsize=(12,6))
plt.plot(np.arange(len(Y_test)), Y_test, label='Actual Trend')
plt.plot(np.arange(len(Y_test)), Prediction5, label='Predicted Trend')
plt.xlabel('Data')          plt.ylabel('Trend')          plt.legend()
          plt.title('Actual vs Predicted')
```

Text(0.5, 1.0, 'APrediction5 = model_xg.predict(X_test_scal)

Actual vs Predicted

```
print(r2_score(Y_test, Prediction2)) print(mean_absolute_error(Y_test,
Prediction2)) print(mean_squared_error(Y_test, Prediction2))
```

-0.0006222175925689744

286137.81086908665 128209033251.4034

```
sns.histplot((Y_test-Prediction4), bins=50)
```

<Axes: xlabel='Price', ylabel='Count'>

CONCLUSION:

This project entitled "House Price Prediction algorithm had all other algorithms regarding to model building and evaluation in this project