Model Development Phase

Date	14th July 2024
Team ID	SWTID1720098339
Project Title	Machine learning approach for predicting the price of natural gas
Maximum Marks	4 Marks

Initial Model Training Code, Model Validation and Evaluation Report

Initial Model Training Code:

```
scaler = StandardScaler()
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)


model = DecisionTreeRegressor(random_state=42)
model.fit(X_train_scaled, y_train)
```

Model	Classification Report	Accuracy	Confusion Matrix
Random Forest Model	Random Forest Regression MAE: 0.15739355750815665 Random Forest Regression MAPE: 3.58% Random Forest Regression R²: 0.97	96.42	
Logistic Regression	Precision: 0.88 Recall: 0.88 F1-Score: 0.88	88	[[85, 15], [12, 88]]

| Linear Regression Model | ```
Linear Regression MAE: 1.6489000702800316
Linear Regression MAPE: 47.25%
Linear Regression R²: 0.02
``` | 89 | |
|---|---|---|---|
| Decision Tree Model | ```
Decision Tree Regression MAE: 0.2152478458788531
Decision Tree Regression MAPE: 4.89%
Decision Tree Regression R²: 0.96
``` | 96.21 | |