

Model Development Phase Template

Date	15 July 2024
Team ID	SWTID1720090652
Project Title	Predictive Modelling for Fleet Fuel Management using Machine Learning Techniques
Maximum Marks	4 Marks

Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

Initial Model Training Code:

```
Model Building

Seperating dependednt and independent values

# Split the dataset into features and target variables
x = df.drop('consume', axis=1).values
y = df['consume'].values

x.shape

... (388, 9)
```

Splitting dataset into train and test dataset

```
# Split the data into training and testing sets
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.3, random_state=42)
```

x_train

```
array([[12.3, 62, 21.5, ..., 0, True, False],
       [16.7, 44, 24.5, ..., 1, False, True],
       [15.4, 45, 22.0, ..., 0, True, False],
       ...,
       [16.0, 41, 22.0, ..., 0, True, False],
       [16.6, 50, 22.0, ..., 0, True, False],
       [18.8, 62, 21.929521276595743, ..., 0, False, True]], dtype=object)
```

Applying Random forest regressor

```
# Create and train the random forest model
model = RandomForestRegressor()
model.fit(x_train, y_train) # Correct the model fitting line
```

RandomForestRegressor

```
RandomForestRegressor()
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Random Forest	Not a classification problem so invalid	Error metrics: Mean Absolute Error: 0.4446656898656903 Mean Squared Error: 0.3821795521791004 R ² Score: 0.5436583449392025	Invalid
Support Vector Regression	Not a classification problem so invalid	-	Invalid

