

# Flask Application

## The Dataset and Model

	carwidth	carlength	carheight	enginesize	horsepower
count	205.000000	205.000000	205.000000	205.000000	205.000000
mean	65.907805	174.049268	53.724878	126.907317	104.117073
std	2.145204	12.337289	2.443522	41.642693	39.544167
min	60.300000	141.100000	47.800000	61.000000	48.000000
25%	64.100000	166.300000	52.000000	97.000000	70.000000
50%	65.500000	173.200000	54.100000	120.000000	95.000000
75%	66.900000	183.100000	55.500000	141.000000	116.000000
max	72.300000	208.100000	59.800000	326.000000	288.000000

Fig 1. Dataset Description

```
Mean Squared Error: 13114186.524696838
Mean Absolute Error: 2353.814312235572
```

Fig 2. Model Accuracy

The dataset used in this application is a multivariate dataset from UCI Machine Learning Repositories called "Automobile." It consists of 25 features and 205 instances, although only 5 of them were used to train the model. These features, notably 'carwidth', 'carlength', 'carheight', 'enginesize', and 'horsepower', were the most relevant features to include in training a linear regression model. The data used to train the model was neither preprocessed nor scaled for simpler implementation in the Flask application inputs.

## The Output

Car Price Predictor

Car Width (inches)  
68.1

Car Length (inches)  
168.8

Car Height (inches)  
48.8

Engine Size  
130

Horsepower  
111

Predict Car Price

Predicted Car Price: \$14807.83!

Fig 3. Flask Application Output

To implement the model with Flask, a basic html form was developed. The form prompts the user to provide the five input features applied in the Linear Regression model. Because the input in the form is not scaled, the model was also trained using the raw dataset. The model predicts that increasing horsepower and engine capacity will result in a large rise in car price when compared to other features. Overall, the model performs according to expectations and is acceptable.