

# Toyota Car Sales in Armenia and Price Prediction



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A stylized illustration of a red sports car, possibly a Toyota Supra, driving through a large, blue, wavy shape that resembles a wave or a cloud. The car is shown from a front-three-quarter view, with its headlights and grille visible. The background is white with a pattern of small, light blue dots.

# Business Problem

Help Toyota owners to

- set the price appropriately for their cars when putting them on sale at [auto.am](https://www.auto.am)
- understand whether or not the car will be purchased soon given the characteristics of the model

# Scraping the data

## Variables:

- location
- price
- custom
- payment option
- mileage
- hand drive
- car body type





# Getting variable “Purchased”

- Generate variable “Purchased”  
based on two dataframes scraped  
within 1 week difference in between
- Result: 1000/6700 cars sold
- Predict if the car will be soon  
purchased or not using predictive  
analytics



# Data Preprocessing

- Deleting unimportant variables
- Finding missing values -> imputing
- Getting dummies
- Outlier detection
- Result - 29 variables





# Models used for Regression and Classification

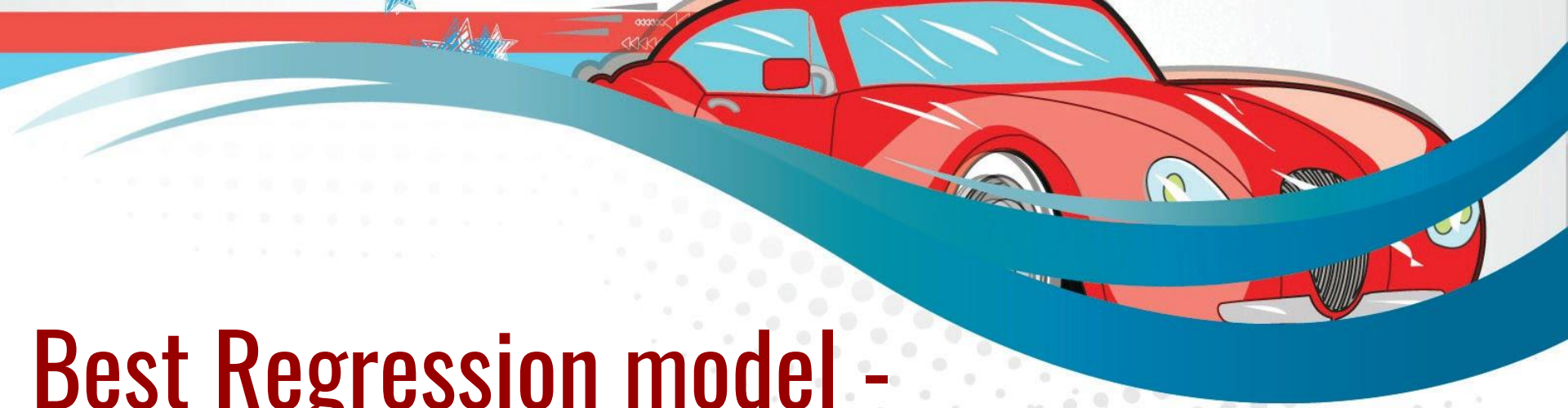
- Decision Tree
- Linear Regression
- Gradient Boosting
- Random Forest
- Neural Network

# Models Used for “Price Prediction”

Most of the models showed poor results,  
even with tuning:

- Low train and test accuracies
- Overfitting
- “Big” MSE-s and RMSE-s





# Best Regression model - Neural Network

- RMSE

- a. Train: 2,738

- b. Test: 3,816

- Overall Accuracy:

- a. Train: 78.54%

- b. Test: 66.46%




# Models Used for “Purchase Prediction”

Most of the models showed poor results,  
even with tuning:

- High train and test accuracies (~90%)
- Overfitting
- Low Recall and ROC\_AUC scores





# Best Classification model - Decision Tree

- Train: 69.2%
- Test: 66.6%
- Cross-Validation: 66.6%
- Recall score: 63.59%
- ROC\_AUC score: 64.77%



# Thank You!

**Sell your cars with us!**