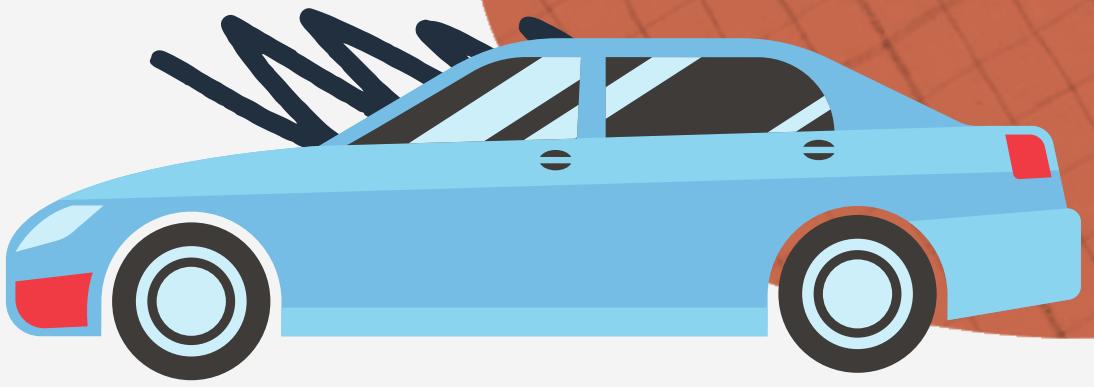


# Craigslist Sales Data Report

Kelompok Naevis - KASDD-F

# Our Team

## -Naevis-



**MUHAMMAD HASBI**

1906398811



**ANNISA AMALIA S.**

1906354002



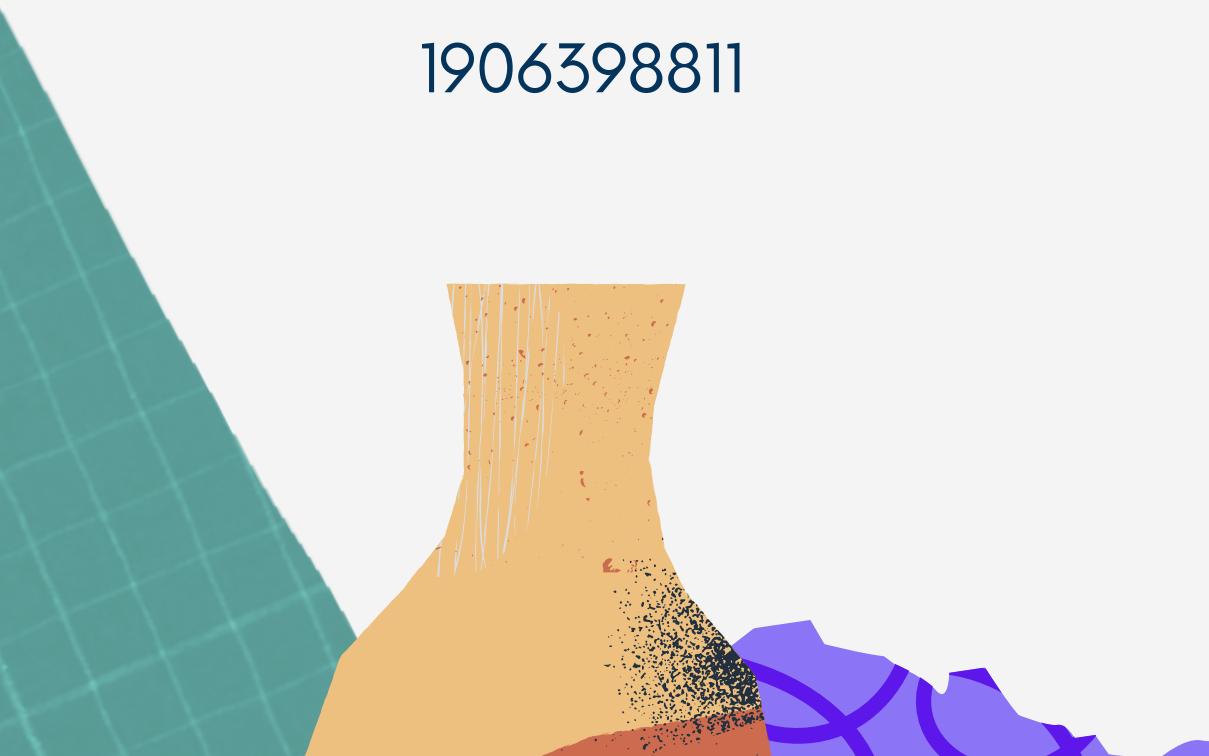
**FADIYA LATIFAH**

1906399442



**FIORENTINE PHILLIPS**

1906298916



# Deskripsi Dataset





**Dataset Craigslist Sales**  
**berisi data penjualan**  
**mobil/kendaraan bekas di**  
**USA yang diiklankan pada**  
**website craigslist.com.**

**Dataset ini terdiri dari 25**  
**kolom dan 426.880 data.**

#	Column	Non-Null Count	Dtype
0	id	426880 non-null	int64
1	url	426880 non-null	object
2	region	426880 non-null	object
3	region_url	426880 non-null	object
4	price	426880 non-null	int64
5	year	425675 non-null	float64
6	manufacturer	409234 non-null	object
7	model	421603 non-null	object
8	condition	252776 non-null	object
9	cylinders	249202 non-null	object
10	fuel	423867 non-null	object
11	odometer	422480 non-null	float64
12	title_status	418638 non-null	object
13	transmission	424324 non-null	object
14	VIN	265838 non-null	object
15	drive	296313 non-null	object
16	size	120519 non-null	object
17	type	334022 non-null	object
18	paint_color	296677 non-null	object
19	image_url	426812 non-null	object
20	description	426810 non-null	object
21	county	0 non-null	float64
22	state	426880 non-null	object
23	lat	420331 non-null	float64
24	long	420331 non-null	float64
25	posting_date	426812 non-null	object

# Business Understanding & Tujuan Analisis

- Mendapatkan informasi penjualan mobil setiap state
- Membantu penjual dalam mengetahui pasaran harga pada tipe mobil tertentu
- Mendeteksi pemasang iklan atau penjual yang mem-posting iklan palsu



# **Exploratory Data Analysis (EDA)**



# Jenis kendaraan paling populer

## berdasarkan state

	state	manufacturer	model	fuel	transmission	drive	size	type	paint_color
0	ak	ford	f-150	gas	automatic	4wd	full-size	SUV	white
1	al	ford	f-150	gas	automatic	fwd	full-size	sedan	white
2	ar	chevrolet	silverado 1500	gas	automatic	4wd	full-size	pickup	white
3	az	ford	f-150	gas	automatic	fwd	full-size	sedan	white
4	ca	ford	f-150	gas	automatic	fwd	full-size	sedan	white
5	co	ford	f-150	gas	automatic	4wd	full-size	SUV	white
6	ct	ford	forester	gas	automatic	4wd	full-size	sedan	black
7	dc	ford	camry	gas	automatic	fwd	full-size	sedan	black
8	de	ford	super duty f-550 drw	gas	automatic	4wd	full-size	sedan	white
9	fl	ford	f-150	gas	automatic	fwd	full-size	sedan	white
10	ga	ford	f-150	gas	automatic	fwd	full-size	sedan	white
11	hi	toyota	tacoma	gas	automatic	fwd	full-size	sedan	white
12	ia	chevrolet	f-150	gas	automatic	4wd	full-size	SUV	white
13	id	ford	f-150	gas	automatic	4wd	full-size	SUV	white
14	il	ford	silverado 1500	gas	automatic	4wd	full-size	sedan	white
15	in	ford	f-150	gas	automatic	4wd	full-size	sedan	white
16	ks	chevrolet	silverado 1500	gas	automatic	4wd	full-size	sedan	white
17	ky	ford	f-150	gas	automatic	4wd	full-size	SUV	white

# Jenis kendaraan paling populer

## berdasarkan state

	state	manufacturer	model	fuel	transmission	drive	size	type	paint_color
18	la	ford	mustang	gas	automatic	fwd	full-size	sedan	white
19	ma	ford	f-150	gas	automatic	4wd	full-size	sedan	black
20	md	ford	accord	gas	automatic	fwd	full-size	sedan	black
21	me	ford	tacoma	gas	automatic	4wd	full-size	SUV	black
22	me	ford	wrangler	gas	automatic	4wd	full-size	SUV	black
23	mi	ford	f-150	gas	automatic	4wd	full-size	SUV	white
24	mn	ford	f-150	gas	automatic	4wd	full-size	SUV	white
25	mo	chevrolet	silverado 1500	gas	automatic	4wd	full-size	pickup	white
26	ms	ford	f150	gas	automatic	fwd	full-size	sedan	white
27	mt	ford	1500	gas	automatic	4wd	full-size	SUV	white
28	nc	ford	f-150	gas	automatic	4wd	full-size	sedan	white
29	nd	ford	f-150	gas	automatic	4wd	full-size	SUV	white
30	ne	ford	f-150	gas	automatic	4wd	full-size	SUV	white
31	nh	ford	tacoma	gas	automatic	4wd	full-size	sedan	black
32	nj	ford	accord	gas	automatic	4wd	full-size	sedan	white
33	nm	ford	f-150	gas	automatic	fwd	full-size	sedan	white
34	nv	ford	3 series	gas	automatic	fwd	full-size	sedan	white

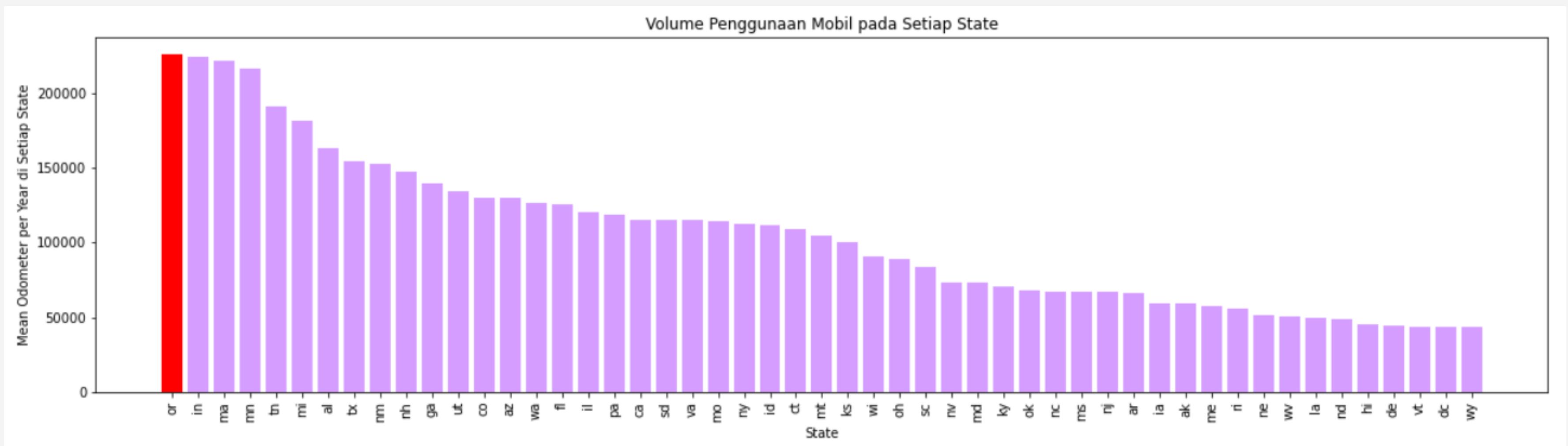
# Jenis kendaraan paling populer

## berdasarkan state

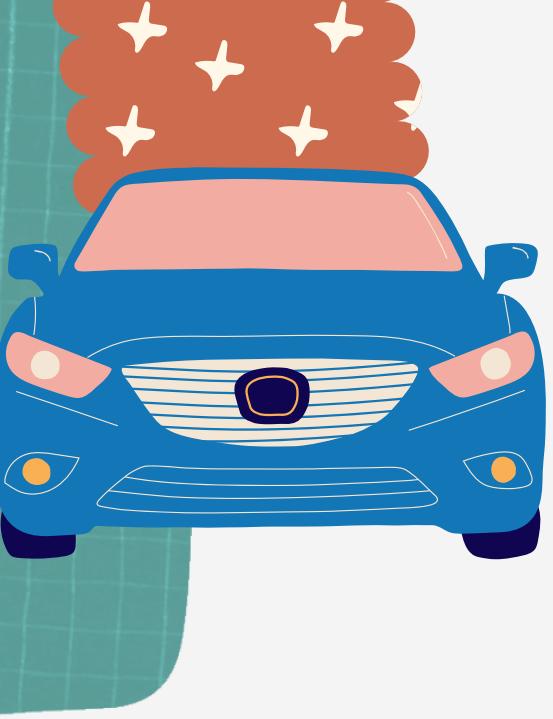
	state	manufacturer	model	fuel	transmission	drive	size	type	paint_color
35	ny	ford	f-150	gas	automatic	4wd	full-size	sedan	black
36	oh	ford	f-150	gas	automatic	4wd	full-size	sedan	white
37	ok	ford	f-150	gas	automatic	4wd	full-size	SUV	white
38	or	ford	f-150	gas	automatic	4wd	full-size	SUV	white
39	pa	ford	civic	gas	automatic	4wd	full-size	sedan	white
40	ri	ford	International 4300	gas	automatic	4wd	full-size	sedan	black
41	sc	ford	silverado 1500	gas	automatic	4wd	full-size	sedan	white
42	sd	ford	silverado 1500	gas	automatic	4wd	full-size	pickup	white
43	tn	ford	f-150	gas	automatic	fwd	full-size	sedan	white
44	tx	ford	f-150	gas	automatic	fwd	full-size	SUV	white
45	ut	ford	f-150	gas	automatic	4wd	full-size	truck	white
46	va	ford	f-150	gas	automatic	4wd	full-size	sedan	white
47	vt	ford	rogue	gas	automatic	4wd	full-size	SUV	black
48	wa	ford	1500	gas	automatic	4wd	full-size	SUV	white
49	wi	ford	f-150	gas	automatic	4wd	full-size	SUV	white
50	wv	ford	silverado 1500	gas	automatic	4wd	full-size	pickup	white
51	wy	ford	f-150	gas	automatic	4wd	full-size	sedan	white



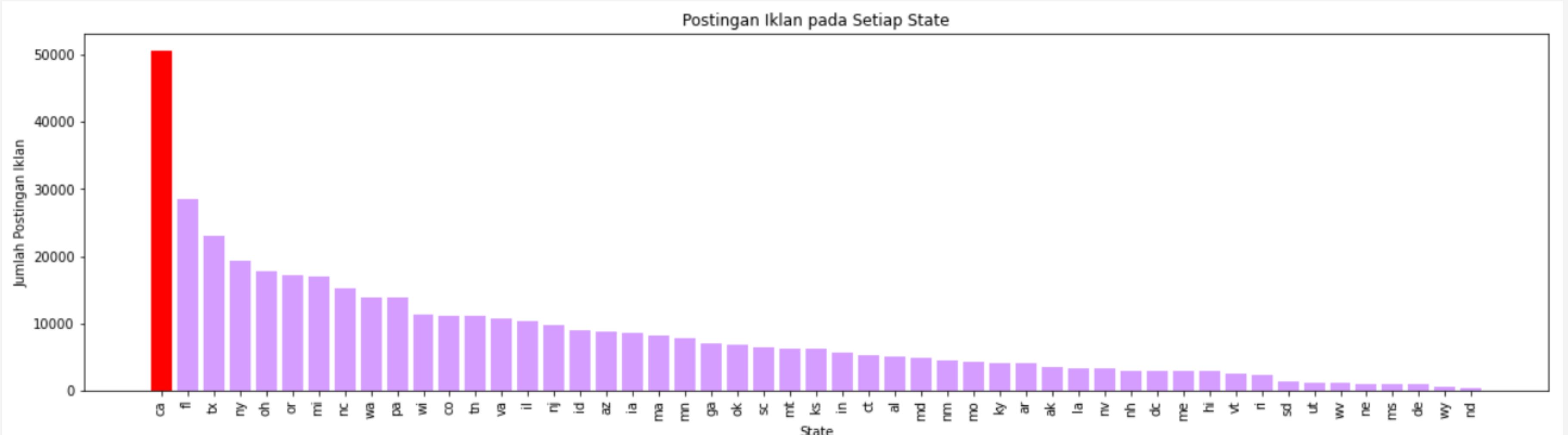
# State yang paling sering menggunakan mobil



State yang paling sering menggunakan mobil adalah state dengan kode or dengan mean odometer per year sebesar 225924.959543

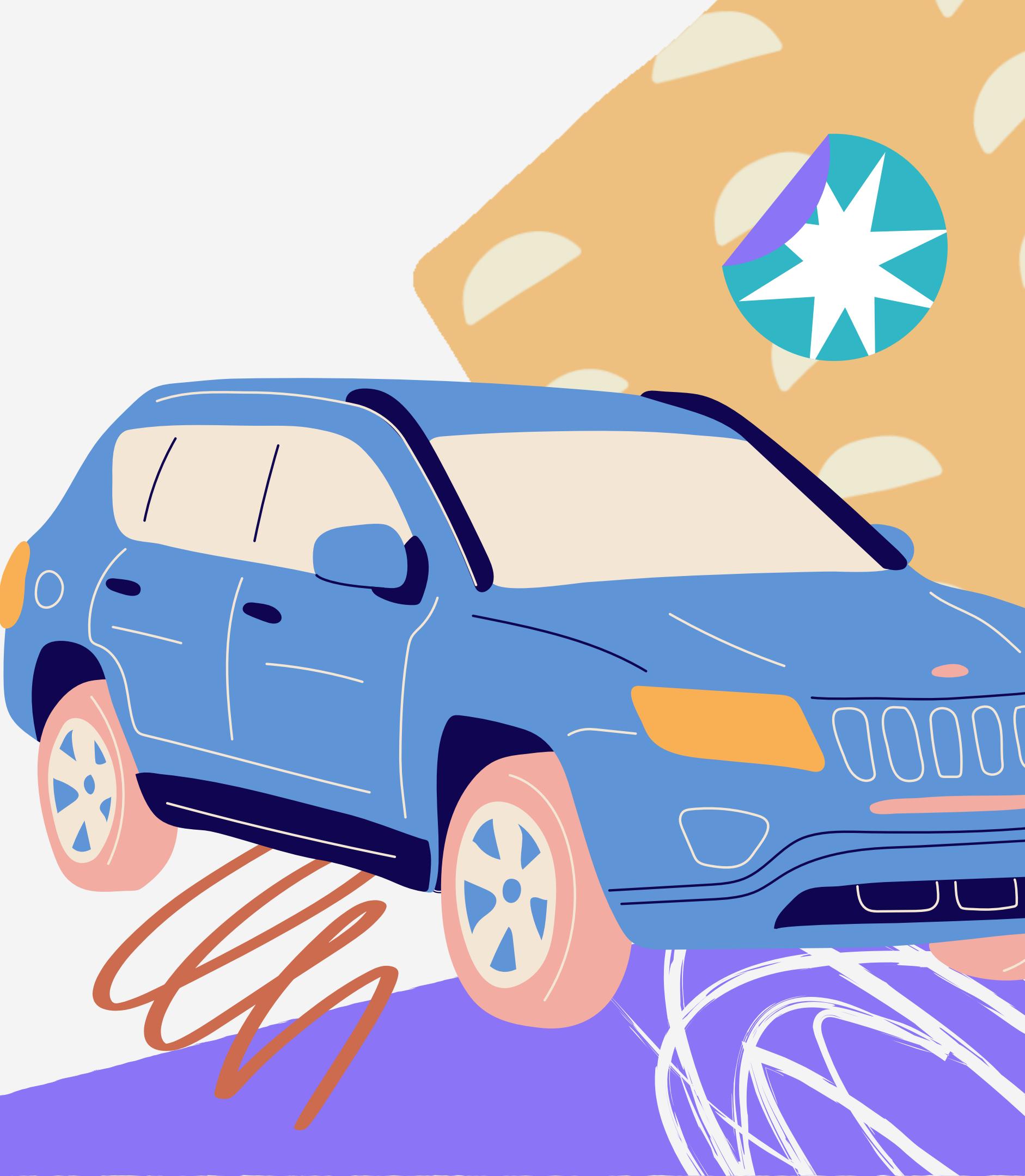


# State yang paling banyak memposting iklan



State yang paling banyak memposting iklan adalah state berkode ca dengan jumlah postingan iklan sebanyak 50614

# Preprocessing

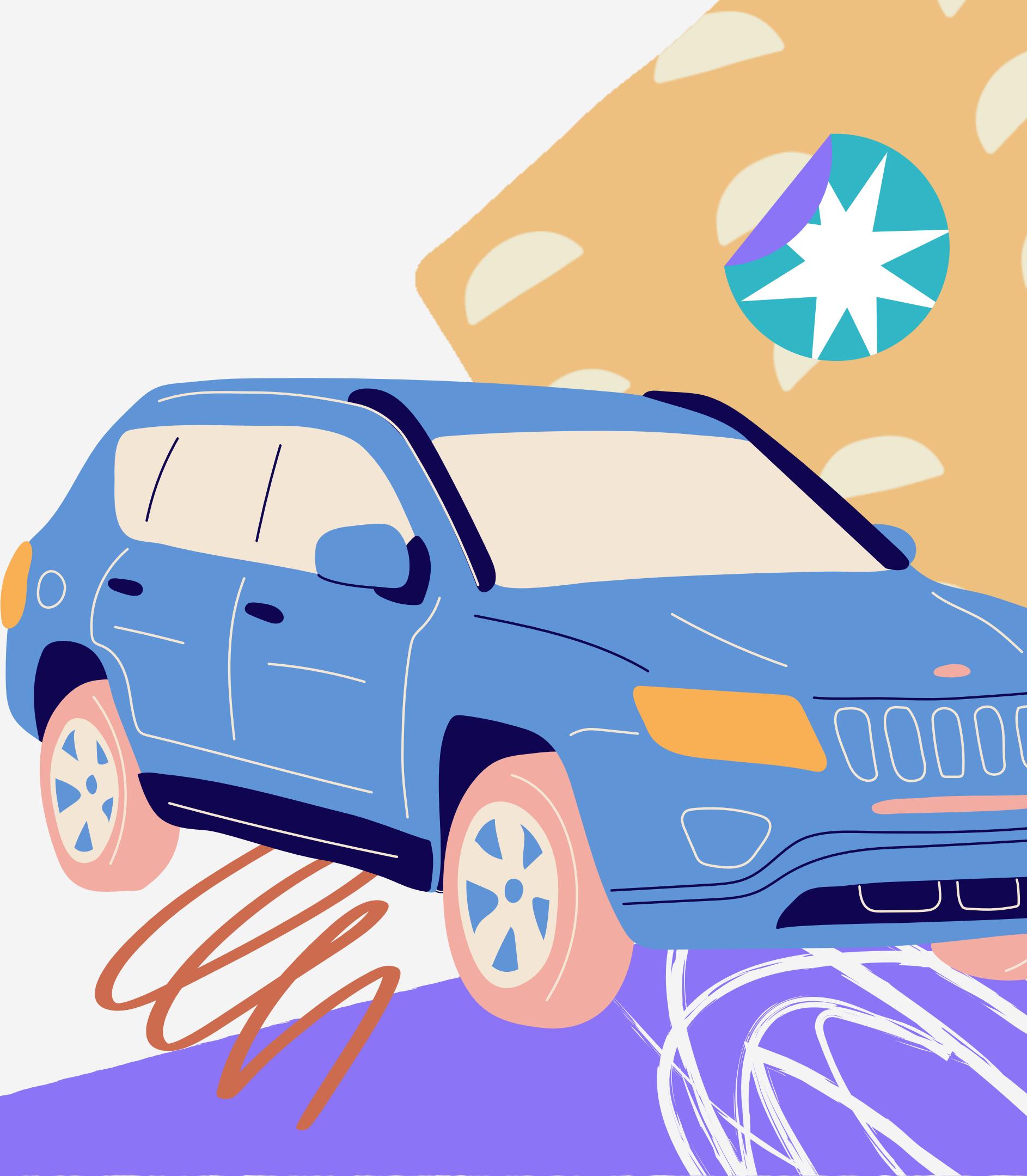


# Kegiatan Preprocessing

- **Handling Missing Value pada Dataset Vehicles**
- **Drop Missing Value**
- **Handling Duplikasi Data**
- **Handling Outliers**
- **Encoding non-numerical data**
- **Handling Unusual Data**



# Prediction



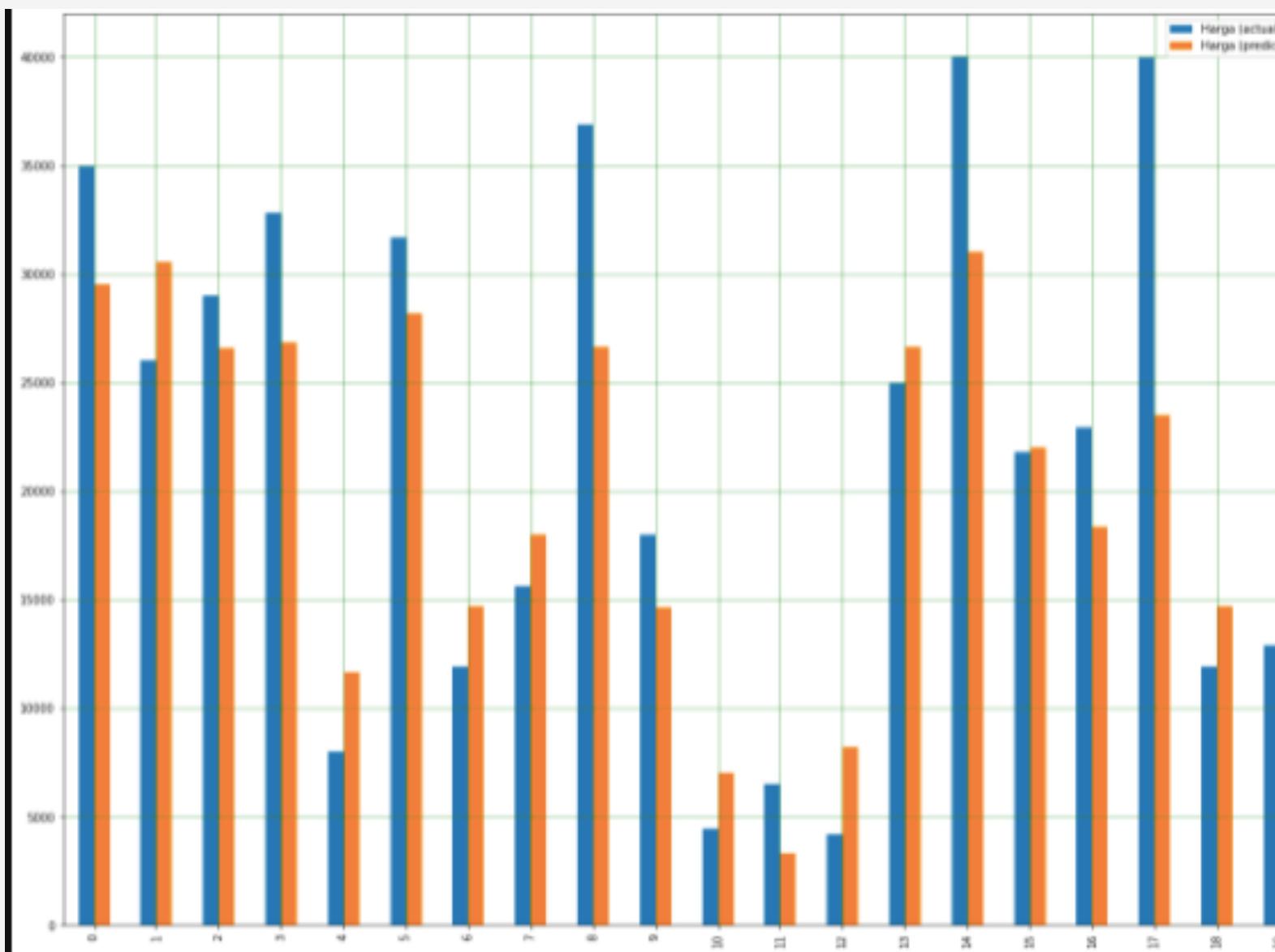


**Harga kendaraan bekas  
dengan type tertentu**

**Model : Linear Regression**

# Harga kendaraan bekas dengan type tertentu

Van

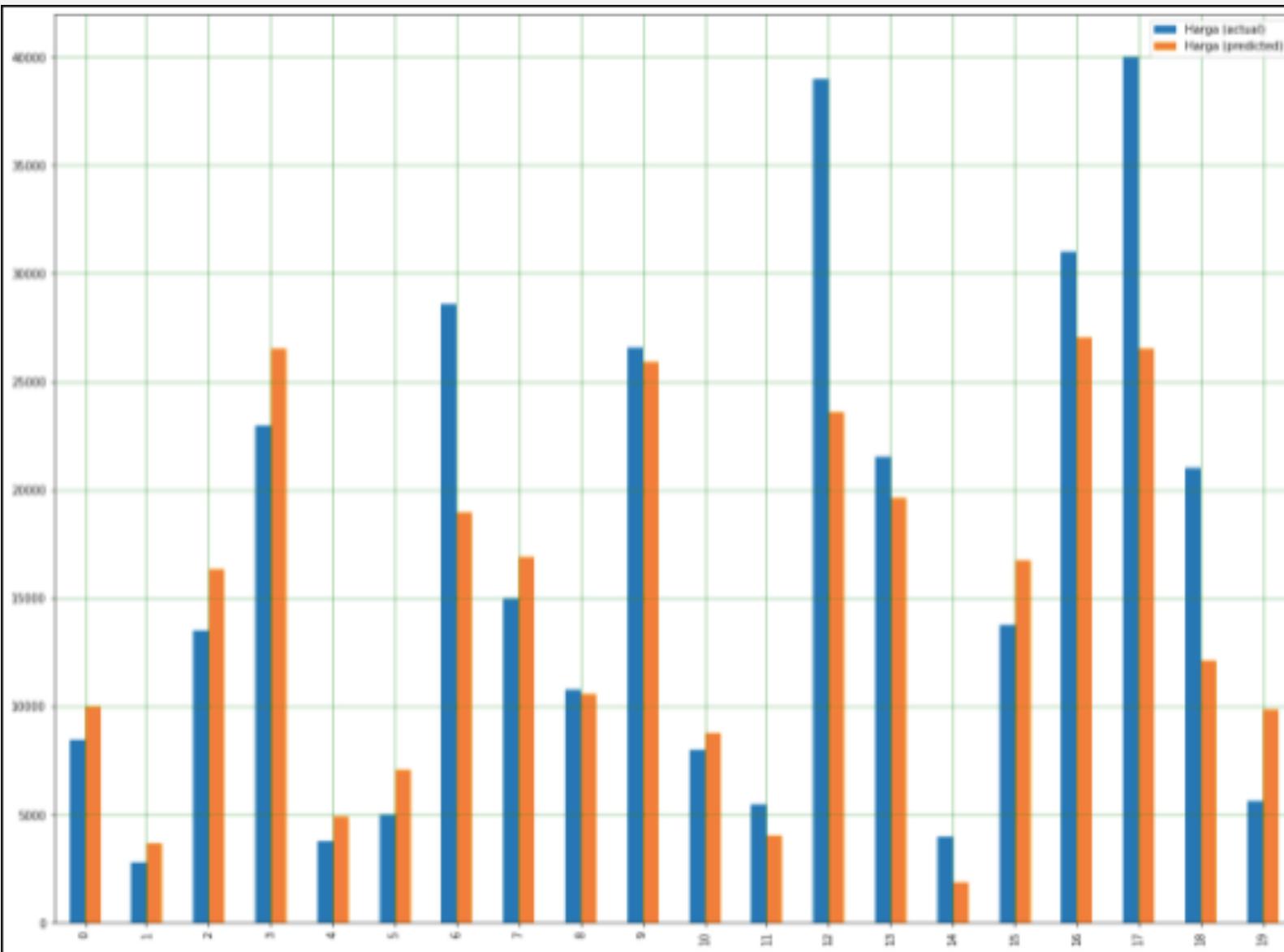


	Harga (predicted)	Harga (actual)
0	29509.723736	35000
1	30551.492537	25990
2	26569.107959	28995
3	26830.269937	32800
4	11632.162706	7995

Nilai MSE: 37761626.71473867  
Nilai MAE: 4650.7416366638845  
Nilai RMSE: 6145.048959507049  
Nilai R2: 0.6799349257211165

# Harga kendaraan bekas dengan type tertentu

Sedan



	Harga (predicted)	Harga (actual)
0	10016.528064	8450
1	3664.385997	2800
2	16332.602794	13470
3	26517.605059	22990
4	4882.839182	3750

Nilai MSE: 34135196.58565393

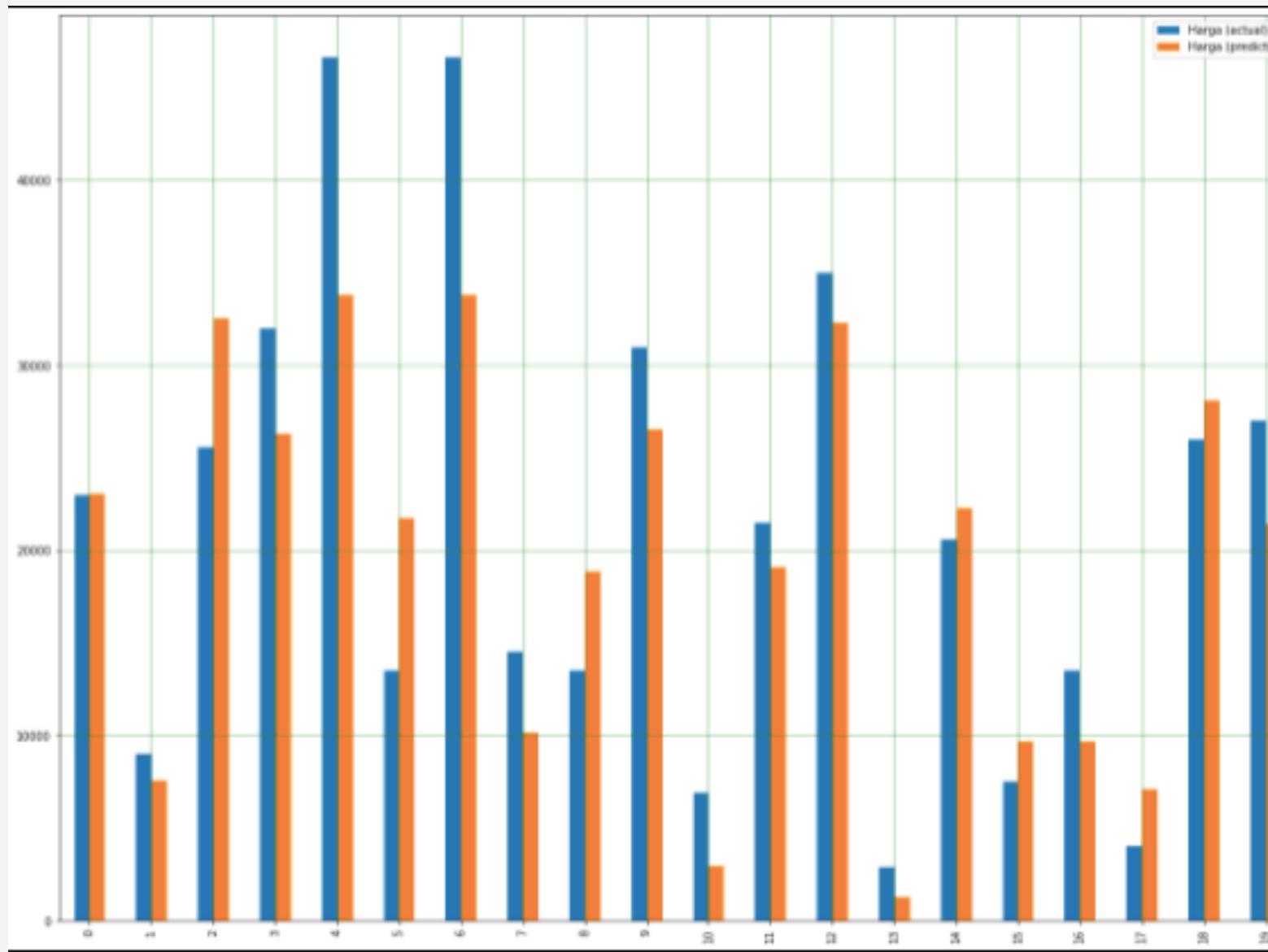
Nilai MAE: 4295.585371803363

Nilai RMSE: 5842.533404752936

Nilai R2: 0.688224100853808

# Harga kendaraan bekas dengan type tertentu

Convertible

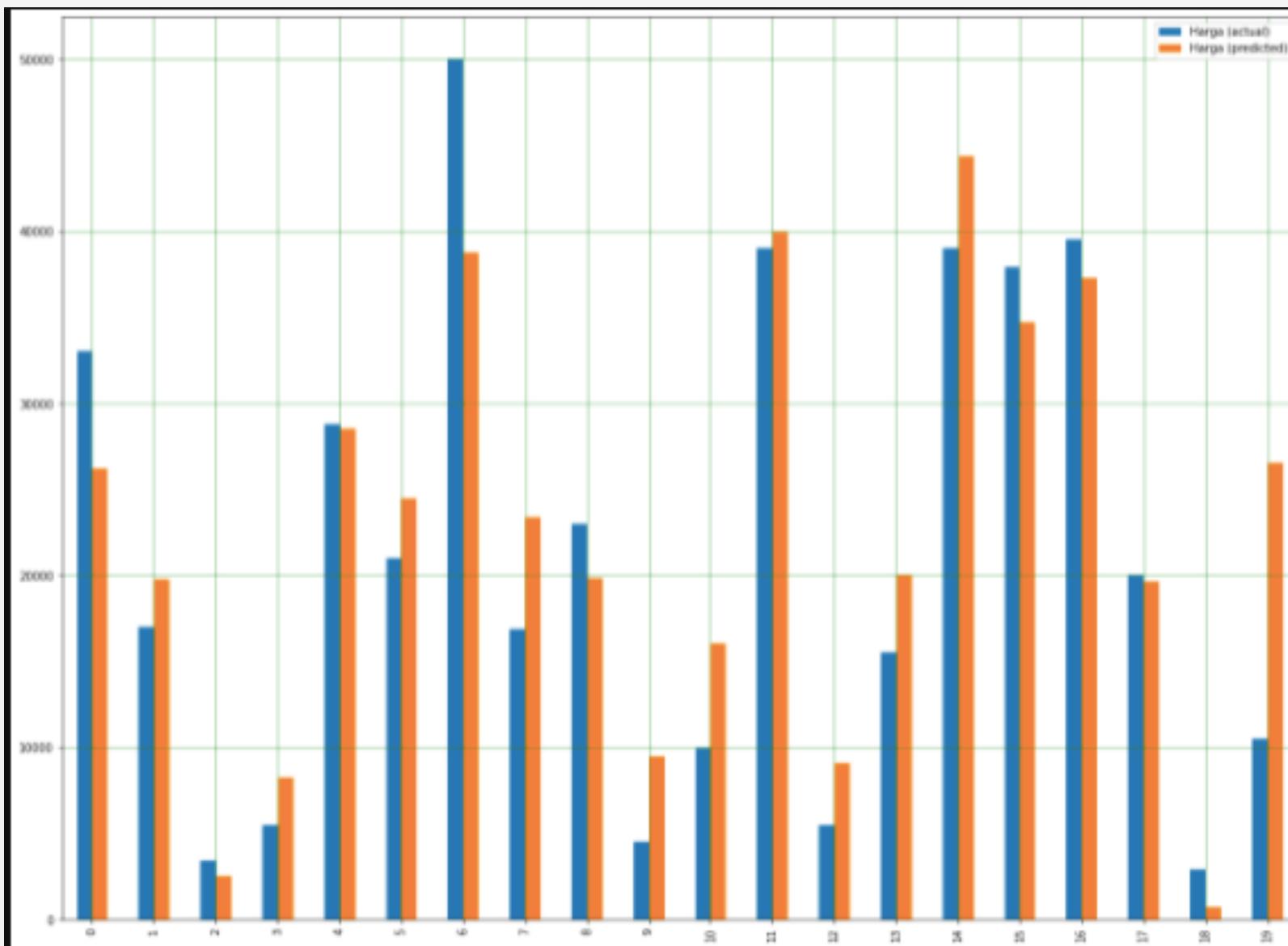


	Harga (predicted)	Harga (actual)
0	23015.986740	23000
1	7565.183026	8999
2	32502.900957	25590
3	26251.772295	31999
4	33805.100733	46590

Nilai MSE: 48500598.860875644  
Nilai MAE: 5458.763777670968  
Nilai RMSE: 6964.237134164491  
Nilai R2: 0.6319487734861784

# Harga kendaraan bekas dengan type tertentu

Truck

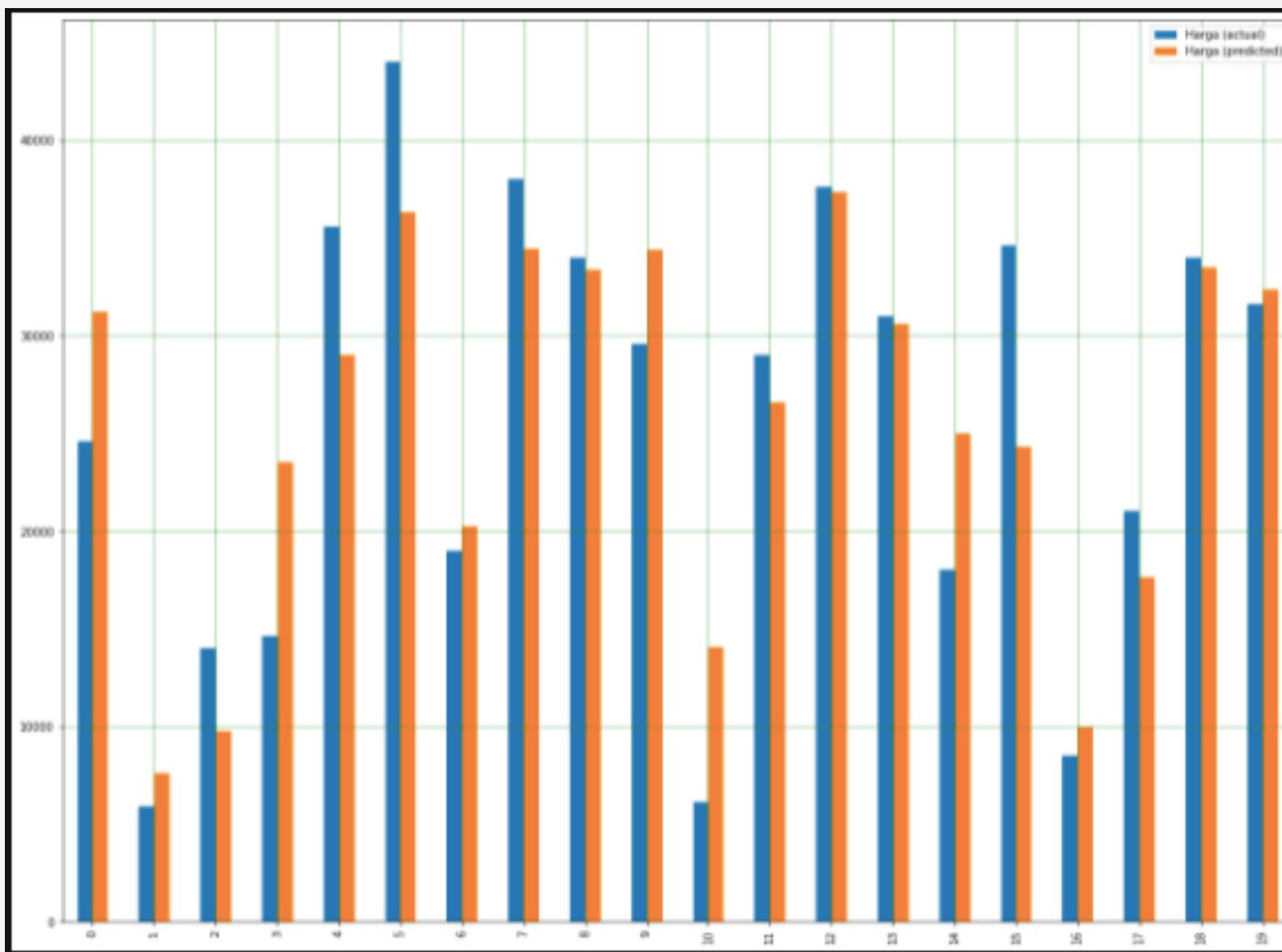


	Harga (predicted)	Harga (actual)
0	26212.681363	32999
1	19759.698576	17000
2	2492.109902	3400
3	8237.178169	5500
4	28507.496915	28788

Nilai MSE: 51147195.80323813  
Nilai MAE: 5393.056004168828  
Nilai RMSE: 7151.726770734333  
Nilai R2: 0.7118476205145297

# Harga kendaraan bekas dengan type tertentu

Coupe

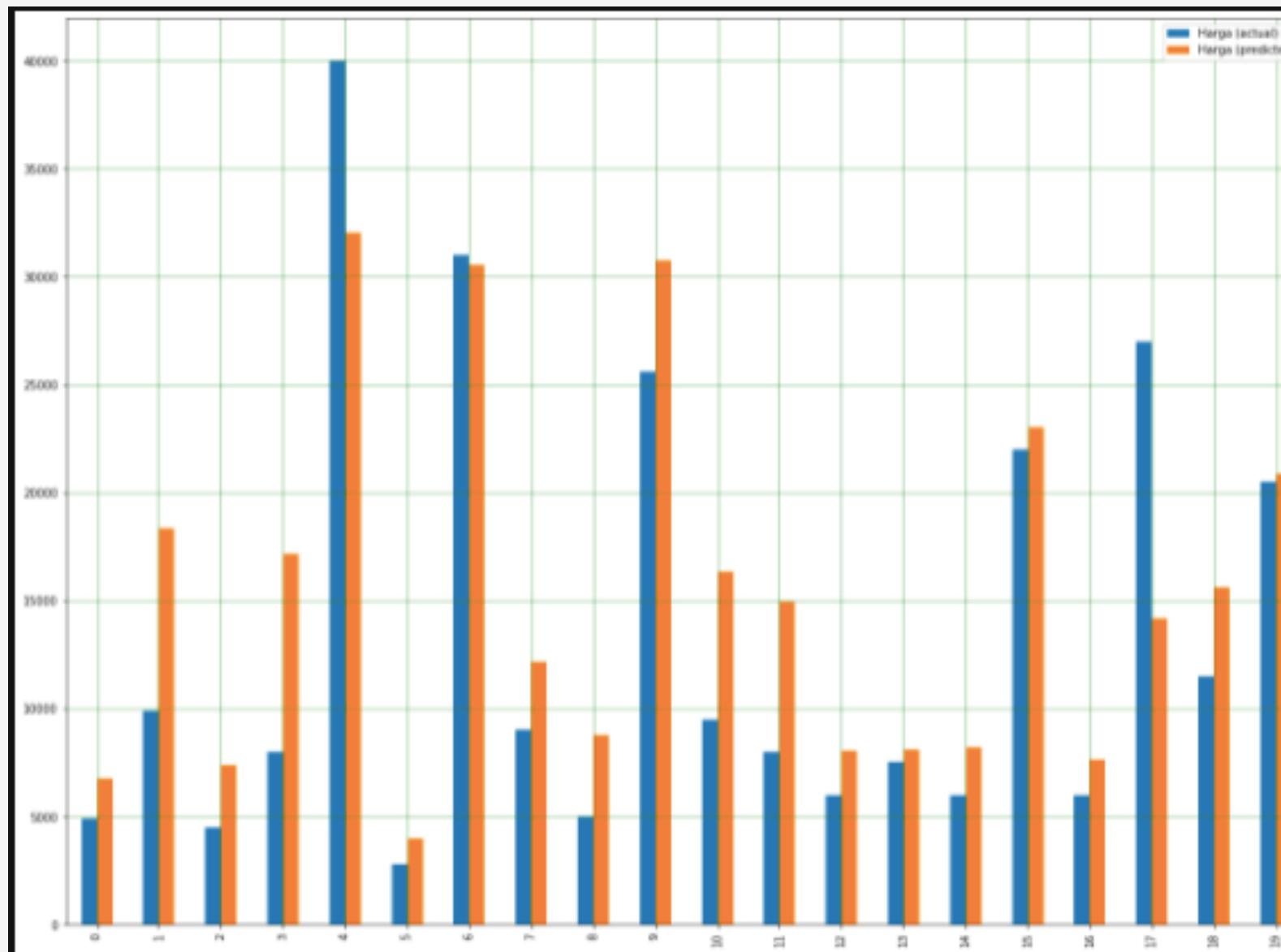


	Harga (predicted)	Harga (actual)
0	31225.296292	24590
1	7587.398668	5900
2	9737.605403	13999
3	23496.145541	14590
4	29023.658891	35590

Nilai MSE: 53467109.073698655  
Nilai MAE: 5666.463755621305  
Nilai RMSE: 7312.120696056559  
Nilai R2: 0.7068434634746494

# Harga kendaraan bekas dengan type tertentu

SUV

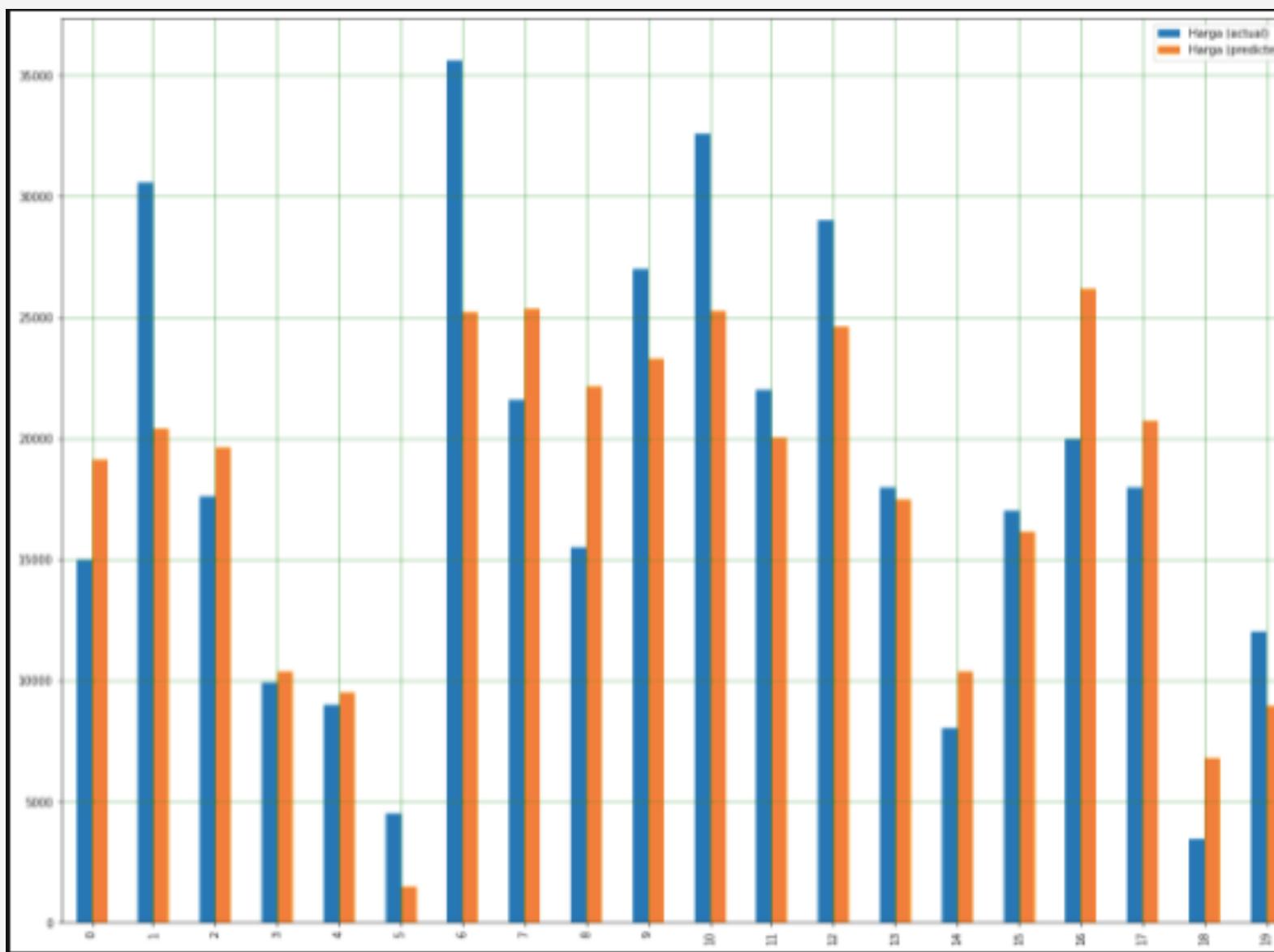


	Harga (predicted)	Harga (actual)
0	6752.546551	4900
1	18343.834324	9900
2	7354.961068	4500
3	17146.513765	7995
4	32041.975473	39990

Nilai MSE: 42516930.5811156  
Nilai MAE: 4923.822333176294  
Nilai RMSE: 6520.500792202667  
Nilai R2: 0.6566441469416215

# Harga kendaraan bekas dengan type tertentu

## Hatchback

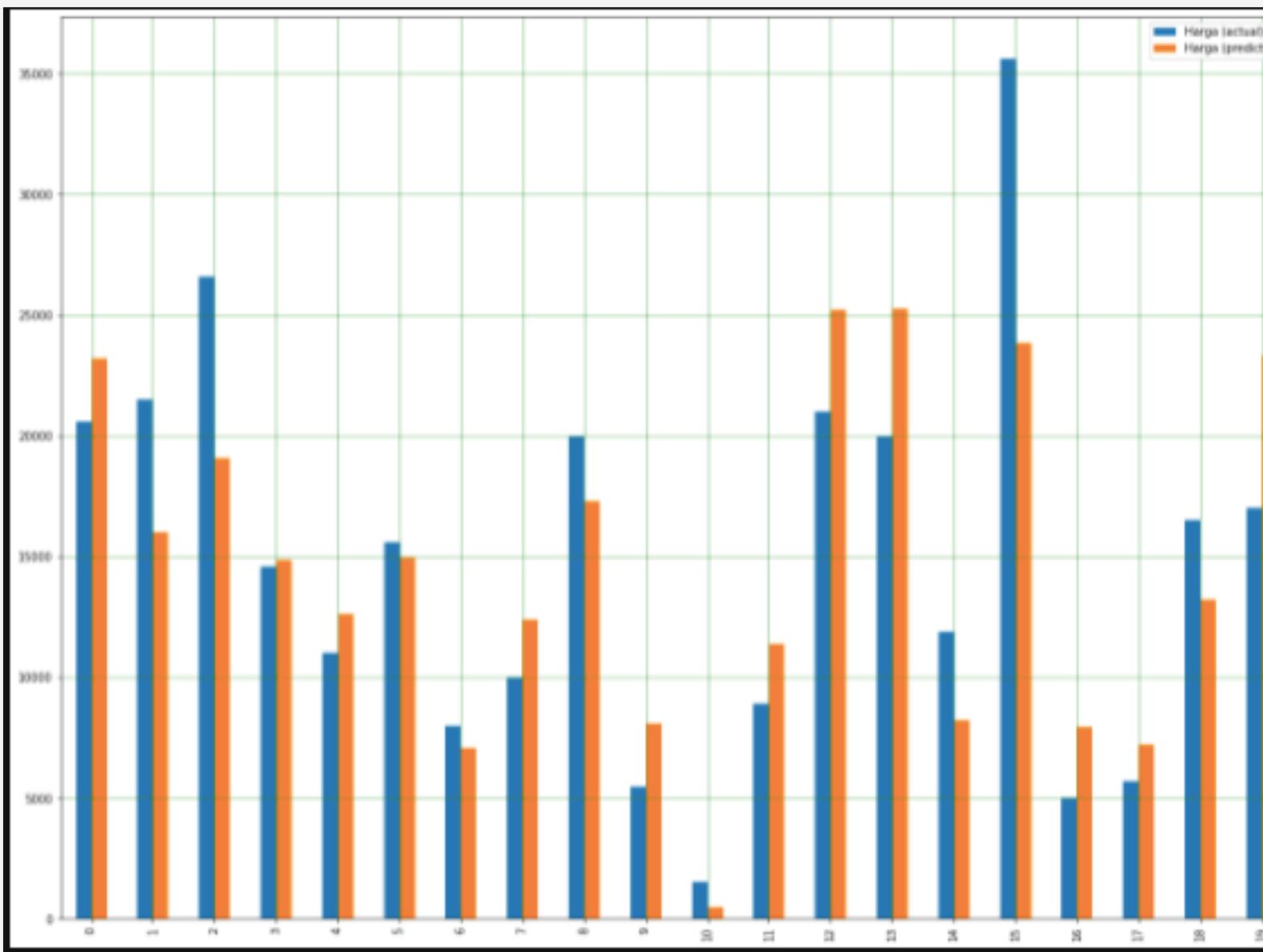


	Harga (predicted)	Harga (actual)
0	19114.838922	14990
1	20387.308117	30590
2	19628.913225	17590
3	10339.074875	9900
4	9491.366552	8995

Nilai MSE: 29599358.689209834  
Nilai MAE: 4284.238250000344  
Nilai RMSE: 5440.52926554116  
Nilai R2: 0.6708678005576527

# Harga kendaraan bekas dengan type tertentu

Wagon

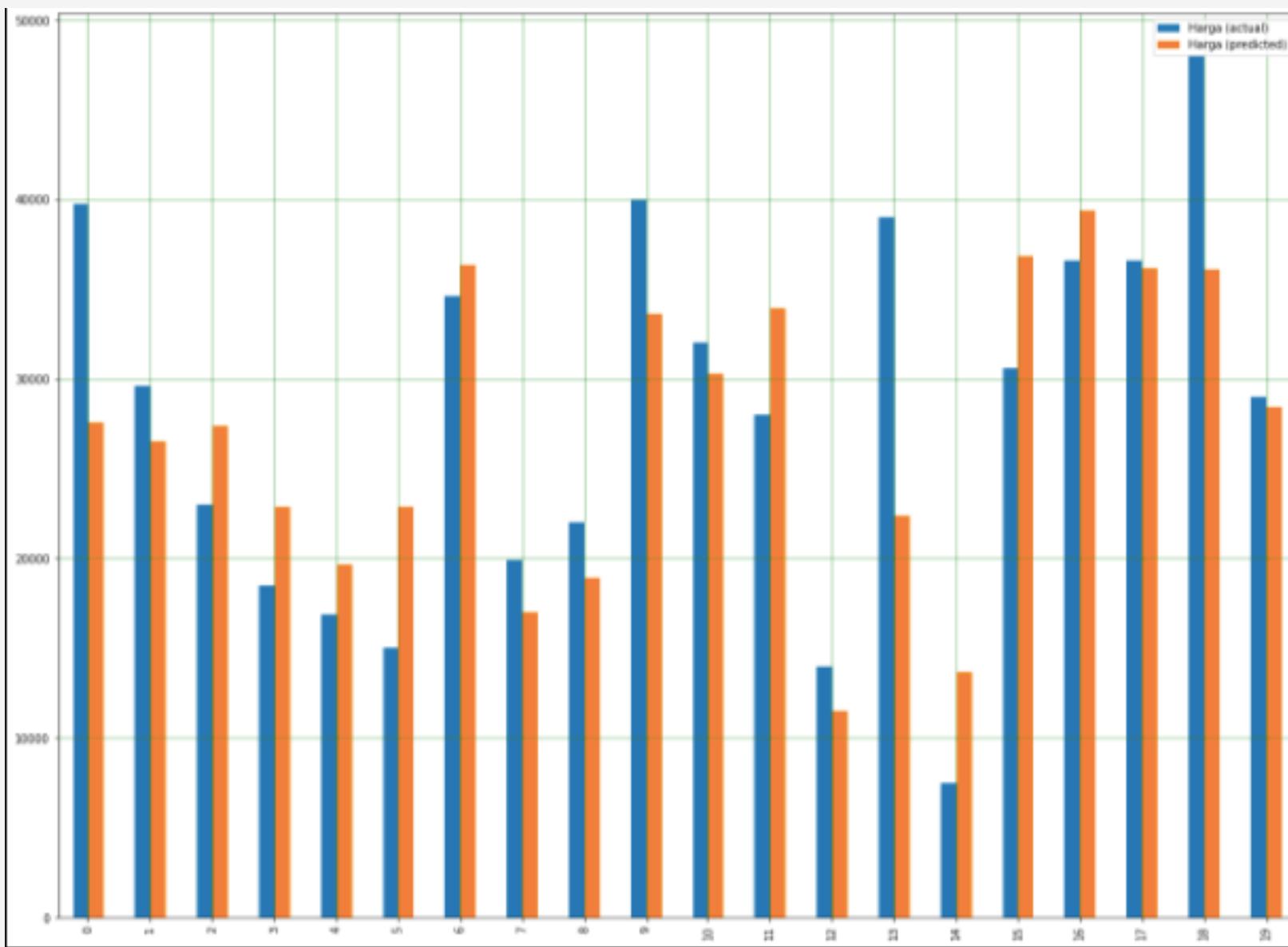


	Harga (predicted)	Harga (actual)
0	23174.230755	20590
1	15997.324832	21500
2	19050.734836	26590
3	14869.236417	14590
4	12623.958633	10995

Nilai MSE: 27327429.732194416  
Nilai MAE: 4020.385315546399  
Nilai RMSE: 5227.564416838344  
Nilai R2: 0.6252736732490605

# Harga kendaraan bekas dengan type tertentu

# Pickup

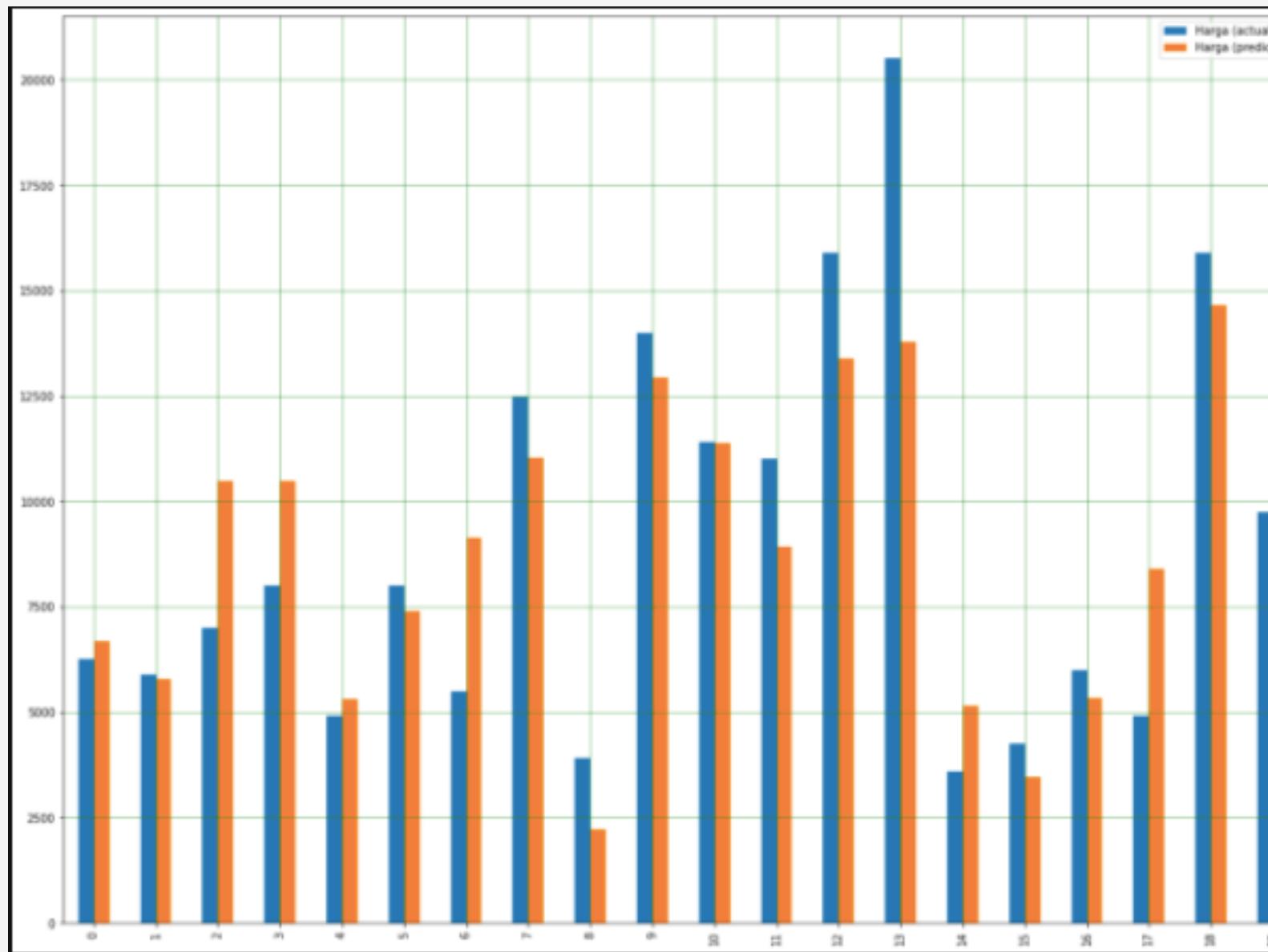


	Harga (predicted)	Harga (actual)
0	27562.161975	39750
1	26504.626838	29590
2	27355.959243	22990
3	22865.453272	18500
4	19659.185423	16900

Nilai MSE: 44706346.183083266  
Nilai MAE: 5068.960815379234  
Nilai RMSE: 6686.280444543383  
Nilai R2: 0.6414949430191339

# Harga kendaraan bekas dengan type tertentu

Mini-Van

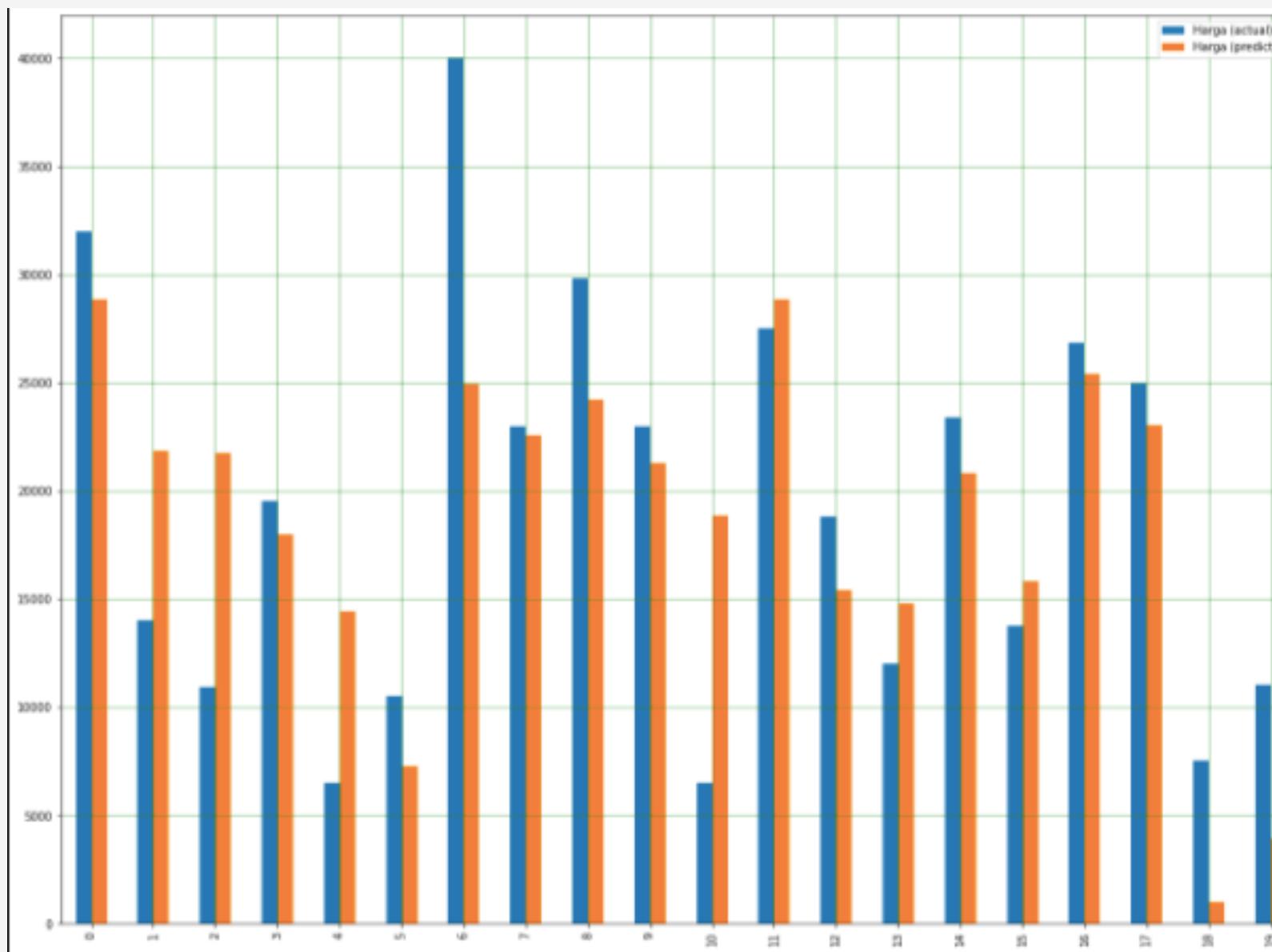


	Harga (predicted)	Harga (actual)
0	6686.456201	6250
1	5769.874356	5900
2	10480.124050	6995
3	10490.036686	7995
4	5316.728212	4900

Nilai MSE: 9799833.549934955  
Nilai MAE: 2308.229193296521  
Nilai RMSE: 3130.468583125369  
Nilai R2: 0.6636564969035976

# Harga kendaraan bekas dengan type tertentu

Offroad

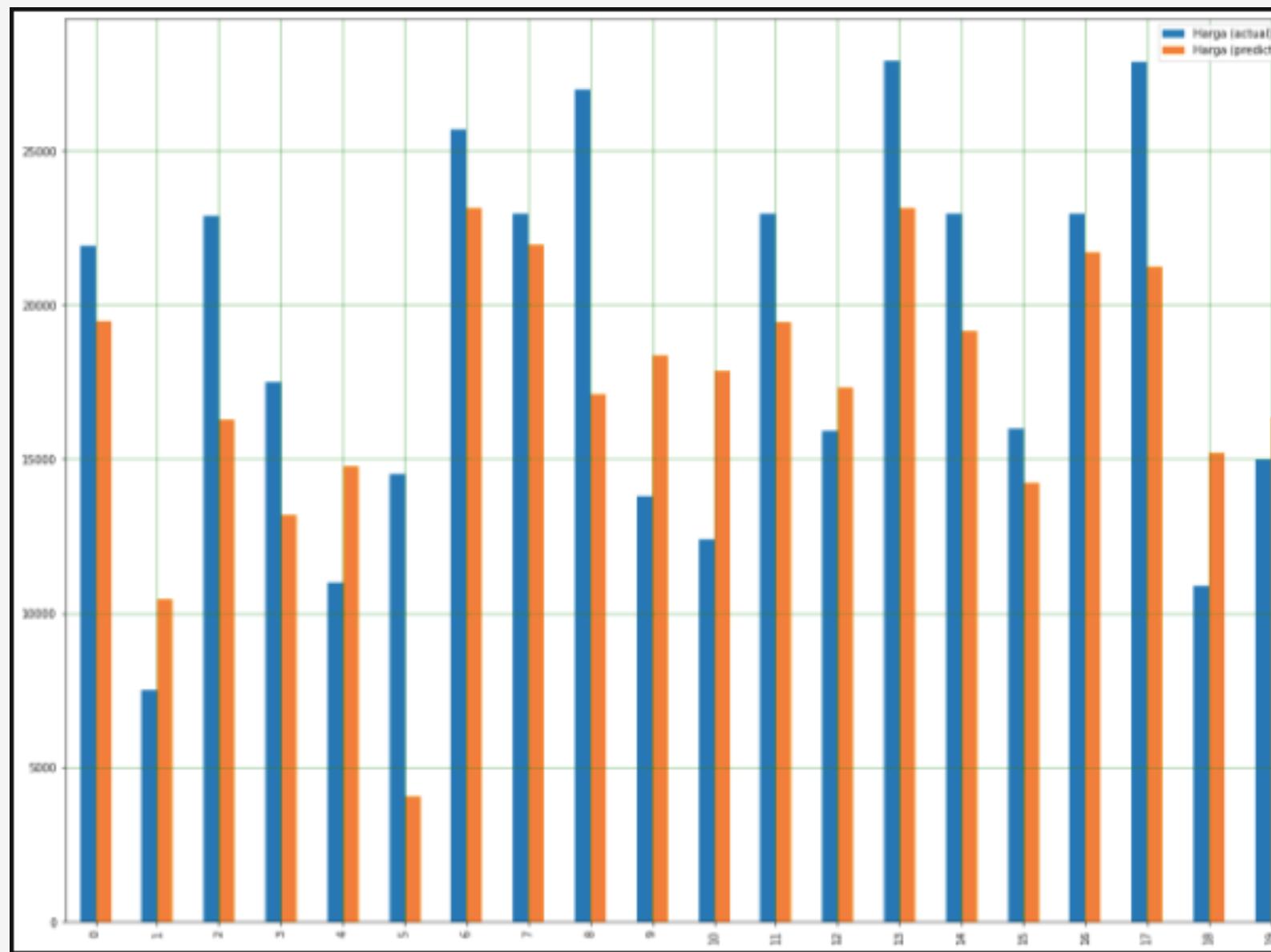


	Harga (predicted)	Harga (actual)
0	28863.279761	31992
1	21850.943467	13999
2	21723.171499	10900
3	17976.585039	19500
4	14447.824063	6500

Nilai MSE: 36085931.34492128  
Nilai MAE: 4325.90927681409  
Nilai RMSE: 6007.156677241012  
Nilai R2: 0.580006530376499

# Harga kendaraan bekas dengan type tertentu

Bus

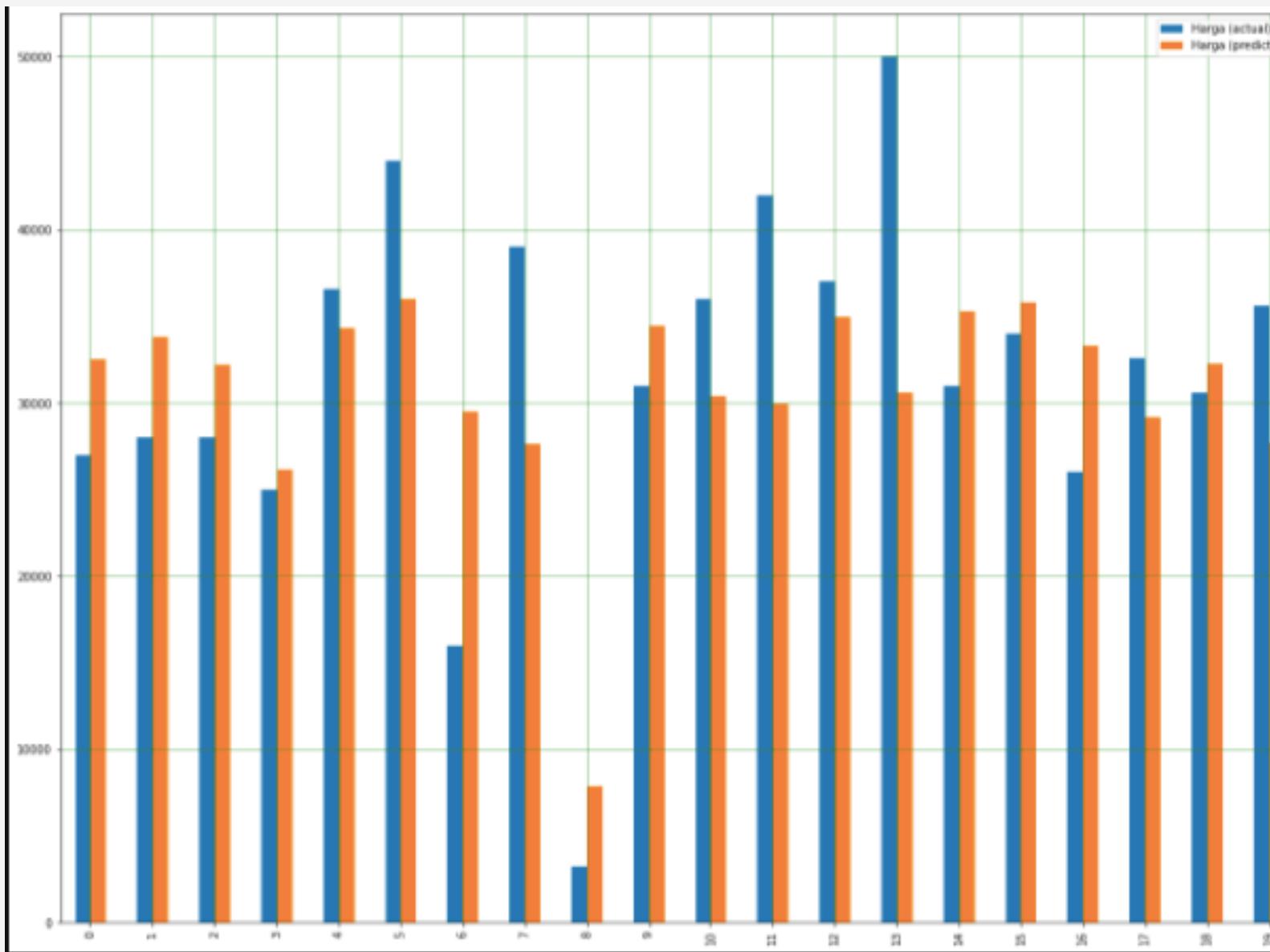


	Harga (predicted)	Harga (actual)
0	19488.177014	21900
1	10466.901161	7500
2	16281.094473	22900
3	13168.590350	17500
4	14780.721417	10999
5	4045.385500	14500

Nilai MSE: 32576408.488857385  
Nilai MAE: 4857.935145133116  
Nilai RMSE: 5707.574659069944  
Nilai R2: 0.3652102254759635

# Harga kendaraan bekas dengan type tertentu

## Other



	Harga (predicted)	Harga (actual)
0	32532.010634	26990
1	33768.603641	27990
2	32181.653924	27990
3	26115.625640	24990
4	34284.153448	36590

Nilai MSE: 59392323.433454394  
Nilai MAE: 6057.915483057284  
Nilai RMSE: 7706.641514528517  
Nilai R2: 0.41389874034806173



# Iklan palsu/fraud

## Model : Decision Tree

# Iklan palsu/fraud

Nilai Evaluasi :

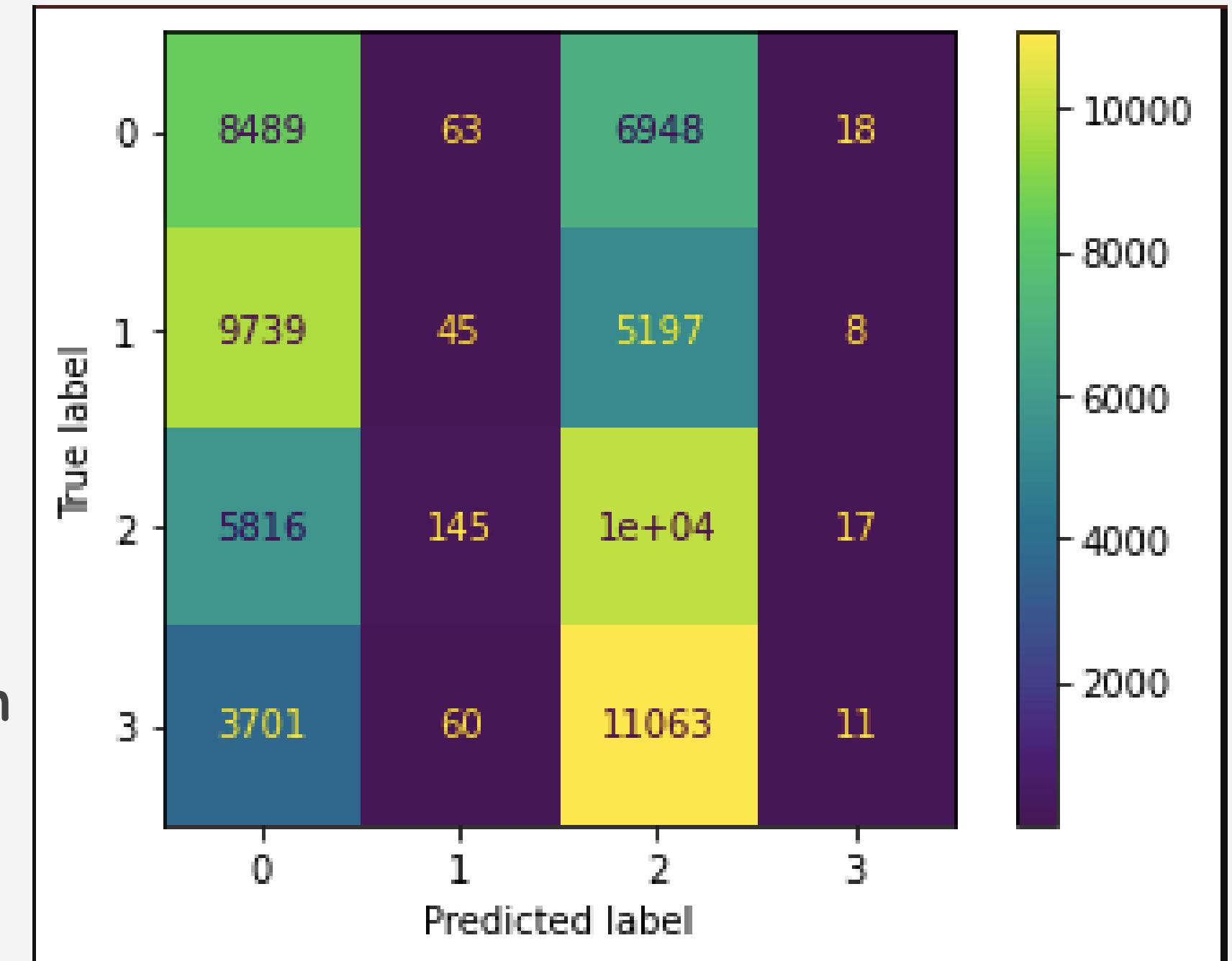
- Akurasi : 0.7805021193348549
- Presisi : 0.7802773468802191
- Recall : 0.7805021193348549
- F1-Score : 0.78038613886386

Total Fraud:

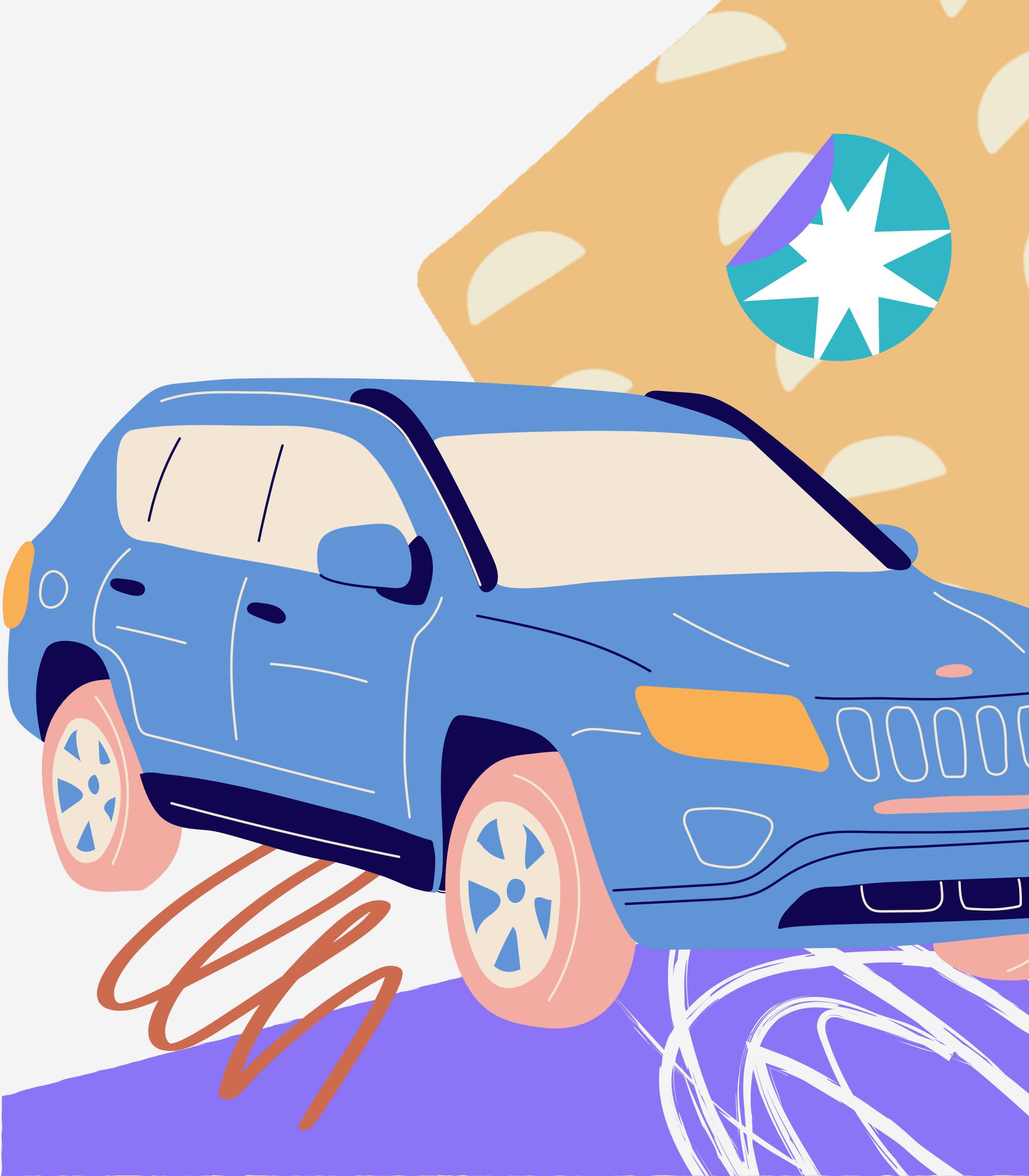
Nilai = 30.353 iklan

Catatan :

- 0 merupakan iklan dengan price terlalu rendah ( $< 6995$ )
- 3 merupakan iklan dengan price yang terlalu tinggi ( $> 27990$ )



# Analysis





# Stakeholder yang paling terbantu

## Customers

- Mudah melakukan seleksi terhadap iklan sehingga Customers dapat menghindari iklan palsu atau fraud
- Membantu Customers untuk menyiapkan prediksi budget minimum untuk membeli kendaraan bekas dengan tipe yang mereka inginkan.



# Kesulitan saat membangun model

- Menentukan model terbaik untuk melakukan prediksi terhadap masalah yang ada
- Melakukan pre-processing pada data.



# Kesimpulan

- State yang paling banyak mem-posting iklan mobil adalah California
- State yang paling sering menggunakan mobil adalah Oregon
- Jenis kendaraan yang paling populer di keseluruhan state:
  - manufacture = ford
  - type = sedan
  - color = white
  - fuel = gas
  - transmisi = automatic
- Penjual dapat mengetahui pasaran harga untuk tipe mobil tertentu berdasarkan prediksi yang telah dilakukan
- Terdapat 30.353 indikasi iklan palsu yang terpasang

# Thankyou

Next : Q&A Session

