In [212…
```
from sklearn.datasets import make_regression
import pandas as pd
import numpy as np

import plotly.express as px
import plotly.graph_objects as go

from sklearn.metrics import mean_absolute_error,mean_squared_error,r2_score
```

In [213…
```
X,y = make_regression(n_samples=100, n_features=2, n_informative=2, n_targe
```

In [214…
```
df = pd.DataFrame({'feature1':X[:,0],'feature2':X[:,1],'target':y})
```

In [216…
```
df.shape
```

Out[216… (100, 3)

In [215…
```
df.head()
```

Out[215…

	feature1	feature2	target
0	0.672568	1.138324	21.350534
1	2.195184	-0.246392	93.498735
2	0.469296	-0.328449	11.947523
3	0.103226	0.767110	5.244163
4	0.430672	-0.065819	9.694020

In [217…
```
fig = px.scatter_3d(df, x='feature1', y='feature2', z='target')

fig.show()
```

In [218…
```
from sklearn.model_selection import train_test_split
X_train,X_test,y_train,y_test = train_test_split(X,y,test_size=0.2,random_s
```

In [219…
```
from sklearn.linear_model import LinearRegression
```

In [220…
```
lr = LinearRegression()
```

In [221…
```
lr.fit(X_train,y_train)
```

Out[221… LinearRegression(copy_X=True, fit_intercept=True, n_jobs=None, normalize=Fals
e)

In [222…
```
y_pred = lr.predict(X_test)
```

In [223…
```
print("MAE",mean_absolute_error(y_test,y_pred))
print("MSE",mean_squared_error(y_test,y_pred))
print("R2 score",r2_score(y_test,y_pred))
```

```
MAE 33.086705281653586
MSE 1659.9139868998495
R2 score 0.7192978757875936
```

In [224…
```
x = np.linspace(-5, 5, 10)
y = np.linspace(-5, 5, 10)
xGrid, yGrid = np.meshgrid(y, x)

z_final = lr.predict(final).reshape(10,10)

z = z_final

final = np.vstack((xGrid.ravel().reshape(1,100),yGrid.ravel().reshape(1,100
```

In [225…
```
fig = px.scatter_3d(df, x='feature1', y='feature2', z='target')

fig.add_trace(go.Surface(x = x, y = y, z =z ))

fig.show()
```

In [226…
```
lr.coef_
```

Out[226… array([59.64518074, 13.20409431])

In [227…
```
lr.intercept_
```

Out[227… -7.55491251398082

In [ ]: