



Nama : Siti Sa'adah  
NIM : 2403001  
Kelas : D3 TI 2A  
Mata Kuliah : Metode Numerik

### TUGAS PRAKTIKUM

1. Menggunakan rumus statistik untuk menghitung slope dan intercept.

```
● ● ●  
1 import numpy as np;  
2  
3 x = np.array ([1,2,3,4,5,6,7,8])  
4 y = np.array ([2,4,5,4,5,9,8,9])  
5  
6 n = len(x)  
7  
8  
9 sum_x = sum(x)  
10 sum_y = sum(y)  
11  
12 sum_xy = sum(x[i] *y[i] for i in range (n))  
13 sum_x2 = sum(x[i] **2 for i in range (n))  
14  
15 b = (n * sum_xy - sum_x * sum_y) / (n, sum_x2 - sum_x*2)  
16 a = (sum_y - b * sum_x) /n  
17  
18 print (f"Slope (b):{b}")  
19 print (f"intercept(a):{a}")
```



```
import numpy as np;

x = np.array ([1,2,3,4,5,6,7,8])
y = np.array ([2,4,5,4,5,9,8,9])

n = len(x)

sum_x = sum(x)
sum_y = sum(y)

sum_xy = sum(x[i]*y[i] for i in range (n))
sum_x2 = sum(x[i]**2 for i in range (n))

b = (n * sum_xy - sum_x * sum_y) / (n, sum_x2 - sum_x**2)
a = (sum_y - b * sum_x) / n

print(f"Slope (b):{b}")
print(f"intercept(a):{a}")

✓ 0.3s
```

Slope (b):[41. 2.48484848]  
intercept(a):[-178.75 -5.43181818]

2. Fitting secara otomatis menghitung slope dan intercept, untuk meminimalisasi kesalahan kuadrat.



```
1 from sklearn.linear_model import LinearRegression
2
3 x = np.array([1,2,3,5,4,6,7]).reshape(-1,1)
4 y = np.array([9,6,4,8,5,7,3]).reshape(-1,1)
5
6 model = LinearRegression().fit(x,y)
7
8 print(f"Slope(coef_): {model.coef_[0]}")
9
10 print(f"Intercept: {model.intercept_}")
11
```



```
from sklearn.linear_model import LinearRegression

x = np.array([1,2,3,5,4,6,7]).reshape(-1,1)
y = np.array([9,6,4,8,5,7,3]).reshape(-1,1)

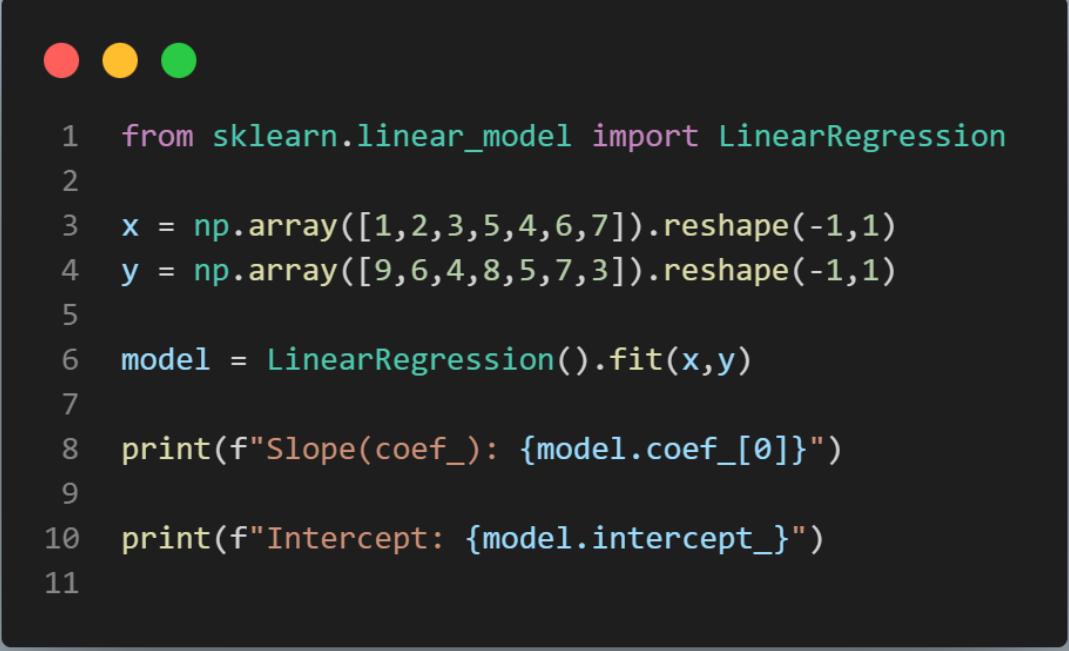
model = LinearRegression().fit(x,y)

print(f"Slope(coef_): {model.coef_[0]}")
print(f"Intercept: {model.intercept_}")

✓ 0.4s

Slope(coef_): [-0.42857143]
Intercept: [7.71428571]
```

3. Menggunakan matplotlib.pyplot untuk memvisualisasikan data scatter dan garis regresi yang dihasilkan oleh model scikit-learn.



```
1 from sklearn.linear_model import LinearRegression
2
3 x = np.array([1,2,3,5,4,6,7]).reshape(-1,1)
4 y = np.array([9,6,4,8,5,7,3]).reshape(-1,1)
5
6 model = LinearRegression().fit(x,y)
7
8 print(f"Slope(coef_): {model.coef_[0]}")
9
10 print(f"Intercept: {model.intercept_}")
11
```

