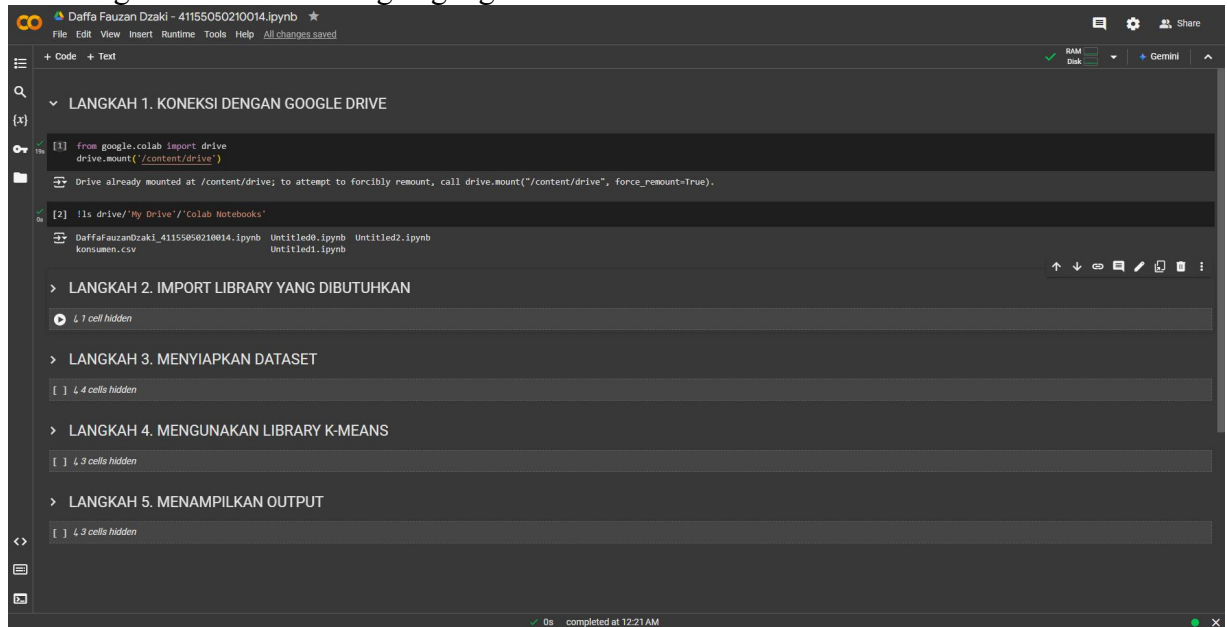


# TUGAS PERTEMUAN 9 MACHINE LEARNING

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## ● Langkah 1. Koneksi dengan google drive



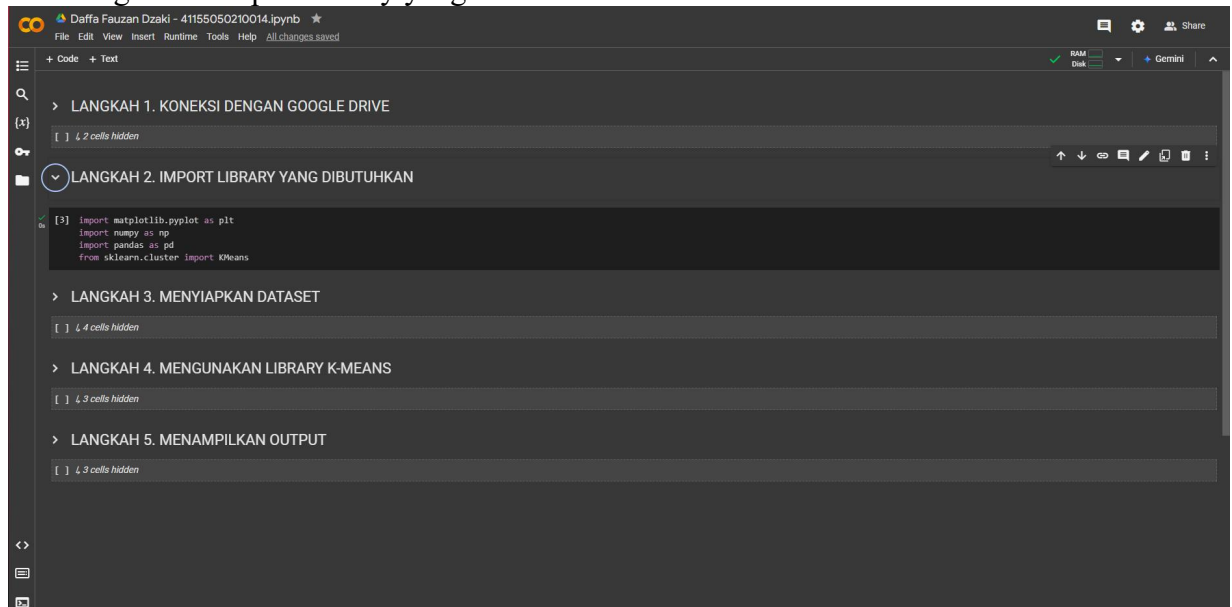
The screenshot shows the Google Colab interface for a notebook titled 'Daffa Fauzan Dzaki - 41155050210014.ipynb'. The notebook is in a dark theme. The first section, 'LANGKAH 1. KONEKSI DENGAN GOOGLE DRIVE', contains two code cells. Cell [1] imports the 'drive' module from 'google.colab' and mounts the drive to '/content/drive'. A message below the cell states: 'Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount(\"/content/drive\", force\_remount=True)'. Cell [2] lists the contents of the drive, showing 'DaffaFauzanDzaki\_41155050210014.ipynb' and 'konsumen.csv'. Below this, there are five collapsed sections: 'LANGKAH 2. IMPORT LIBRARY YANG DIBUTUHKAN' (1 cell hidden), 'LANGKAH 3. MENYIAPKAN DATASET' (4 cells hidden), 'LANGKAH 4. MENGGUNAKAN LIBRARY K-MEANS' (3 cells hidden), and 'LANGKAH 5. MENAMPILKAN OUTPUT' (3 cells hidden). The bottom status bar indicates '0s completed at 12:21 AM'.

```
[1] from google.colab import drive
drive.mount(\"/content/drive\")

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount(\"/content/drive\", force_remount=True).

[2] !ls drive/My Drive/'Colab Notebooks'
DaffaFauzanDzaki_41155050210014.ipynb  Untitled0.ipynb  Untitled2.ipynb
konsumen.csv                          Untitled1.ipynb
```

## ● Langkah 2. Import library yang dibutuhkan



The screenshot shows the same Google Colab interface, but now 'LANGKAH 2. IMPORT LIBRARY YANG DIBUTUHKAN' is expanded. It contains a code cell [3] that imports 'matplotlib.pyplot' as 'plt', 'numpy' as 'np', 'pandas' as 'pd', and 'KMeans' from 'sklearn.cluster'. Below this, the other sections remain collapsed: 'LANGKAH 3. MENYIAPKAN DATASET' (4 cells hidden), 'LANGKAH 4. MENGGUNAKAN LIBRARY K-MEANS' (3 cells hidden), and 'LANGKAH 5. MENAMPILKAN OUTPUT' (3 cells hidden). The bottom status bar is not visible in this view.

```
[3] import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
from sklearn.cluster import KMeans
```

### ● Langkah 3. Menyiapkan Dataset

Google Colab interface showing the preparation of a dataset.

File Edit View Insert Runtime Tools Help *All changes saved*

+ Code + Text

LANGKAH 3. MENYIAPKAN DATASET

```
[4] dataset = pd.read_csv('drive/My Drive/Colab Notebooks/konsumen.csv')
dataset.keys()

Index(['gaji', 'pengeluaran'], dtype='object')
```

```
[5] dataku = pd.DataFrame(dataset)
dataku.head()
```

	gaji	pengeluaran
0	2500	1750
1	3800	4200
2	3900	3800
3	4350	5500
4	4400	3200

Next steps: [Generate code with dataku](#) [View recommended plots](#) [New interactive sheet](#)

```
[7] X = np.asarray(dataset)
print(X)
```

```
[[ 2500  1750]
 [ 3800  4200]
 [ 3900  3800]
 [ 4350  5500]
 [ 4400  3200]
 [ 5500  5450]
 [ 5600  5950]
 [ 5750  4100]
 [ 6850  6050]
 [ 6900  8500]
 [ 7250  9500]
 [ 7350  6050]
 [ 7500  8500]
 [ 7800  9500]
 [ 8200  8300]
 [ 8500  8400]
 [ 8750  6000]
 [ 9100 10500]
 [ 9100  8500]]
```

0s completed at 12:21 AM

Google Colab interface showing a scatter plot of the dataset.

File Edit View Insert Runtime Tools Help *All changes saved*

+ Code + Text

```
[8] plt.scatter(X[:,0],X[:,1], label='True Position')
plt.xlabel("Gaji")
plt.ylabel("Pengeluaran")
plt.title("Grafik Konsumen")
plt.show()
```



LANGKAH 4. MENGGUNAKAN LIBRARY K-MEANS

- Langkah 4. Menggunakan library K-Means

The screenshot displays a Jupyter Notebook with the following content:

```

> LANGKAH 1. KONEKSI DENGAN GOOGLE DRIVE
[ ] 4.2 cells hidden

> LANGKAH 2. IMPORT LIBRARY YANG DIBUTUHKAN
[ ] 4.7 cell hidden

> LANGKAH 3. MENYIAPKAN DATASET
[ ] 4.4 cells hidden

< LANGKAH 4. MENGGUNAKAN LIBRARY K-MEANS

[10] kmeans = KMeans(n_clusters=2)
      kmeans.fit(x)

[11] print(kmeans.cluster_centers_)
[[7987.5  8825. ]
 [4475.  4243.75]]

[12] print(kmeans.labels_)
[1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0]

> LANGKAH 5. MENAMPILKAN OUTPUT
  
```


- Langkah 5. Menampilkan Output

```
Daiffa Fauzan Dzaki - 41155050210014.ipynb
File Edit View Insert Runtime Tools Help All changes saved

+ Code + Text

LANGKAH 5. MENAMPILKAN OUTPUT

plt.scatter(X[:,0],X[:,1], c=kmeans.labels_, cmap='rainbow')
plt.xlabel("Gaji")
plt.ylabel("Pengeluaran")
plt.title("Grafik Konsumen")
plt.show()
```



```
[15]: plt.scatter(X[:,0],X[:,1], c=kmeans.labels_,
cmap='rainbow')
plt.scatter(kmeans.cluster_centers[:,0],
kmeans.cluster_centers[:,1],
color='black')
plt.xlabel("Gaji")
plt.ylabel("Pengeluaran")
plt.title("Grafik Konsumen")
```

0s completed at 12:21 AM

The screenshot displays a Jupyter Notebook environment with the following components:

- Top Bar:** Shows the user name "Daffa Fauzan Dzaki - 41155050210014.ipynb" and standard file editing menus.
- Code Editor:** Contains Python code for K-means clustering:

```
[1]: plt.scatter(X[:,0],X[:,1], c=kmeans.labels_,  
             cmap='rainbow')  
plt.scatter(kmeans.cluster_centers_[:,0],  
            kmeans.cluster_centers_[:,1],  
            color='black')  
plt.xlabel("Gaji")  
plt.ylabel("Pengeluaran")  
plt.title("Grafik Konsumen")  
plt.show()
```
- Output Area:** Displays a scatter plot titled "Grafik Konsumen". The x-axis is labeled "Gaji" (Salary) ranging from 3000 to 9000, and the y-axis is labeled "Pengeluaran" (Expenditure) ranging from 2000 to 10000. Data points are colored by cluster (0-4), and cluster centers are marked with black dots.
- Status Bar:** Indicates "0s completed at 12:21 AM".