Laporan Tugas Machine Learning

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PROGRAM STUDI INFORMATIKA
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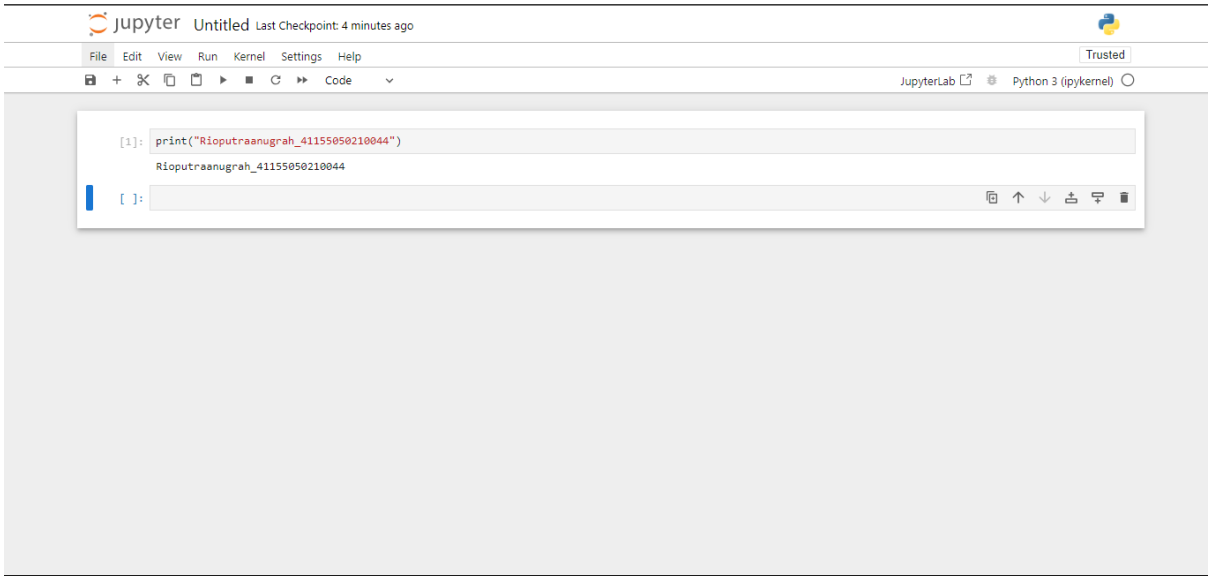
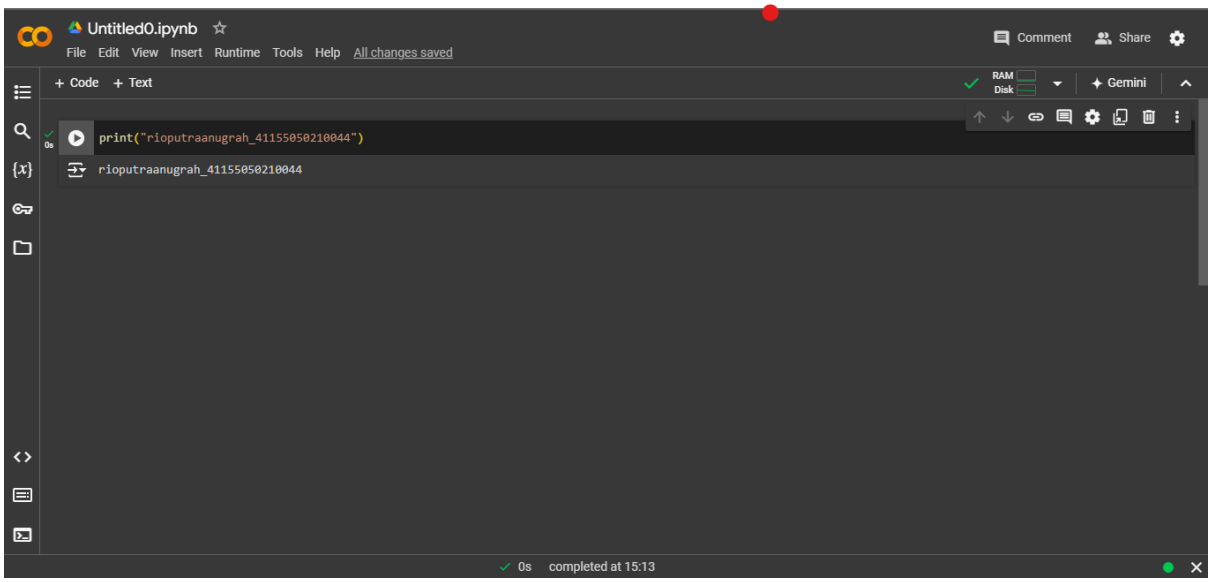
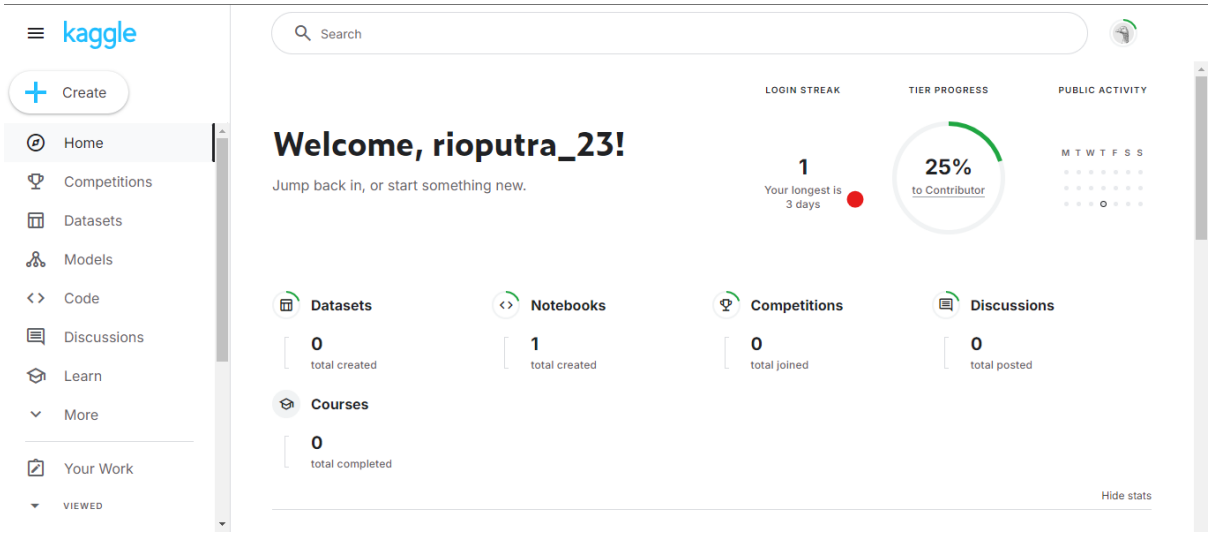
1. Istalasi jupyter notebook



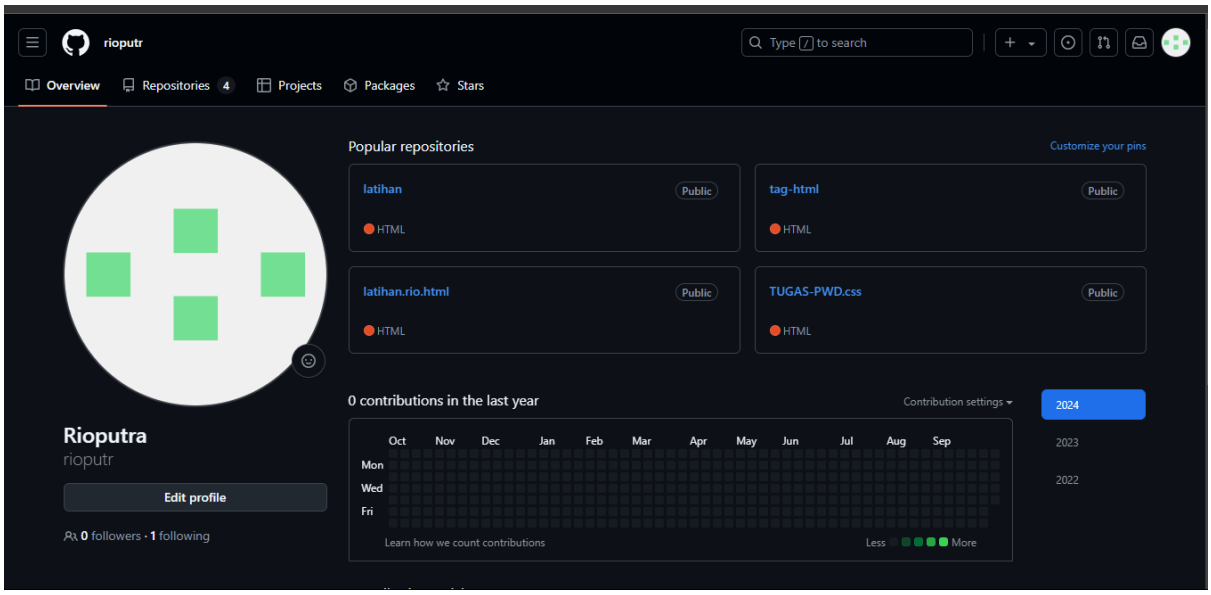
2. Google colab



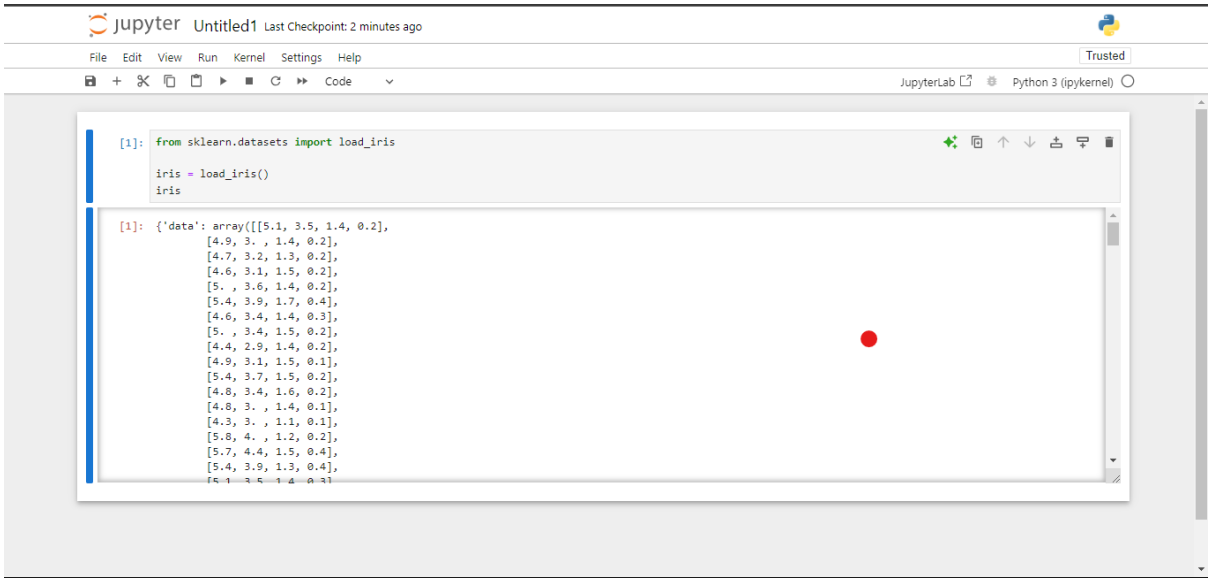
3. Pembuatan akun kaggel

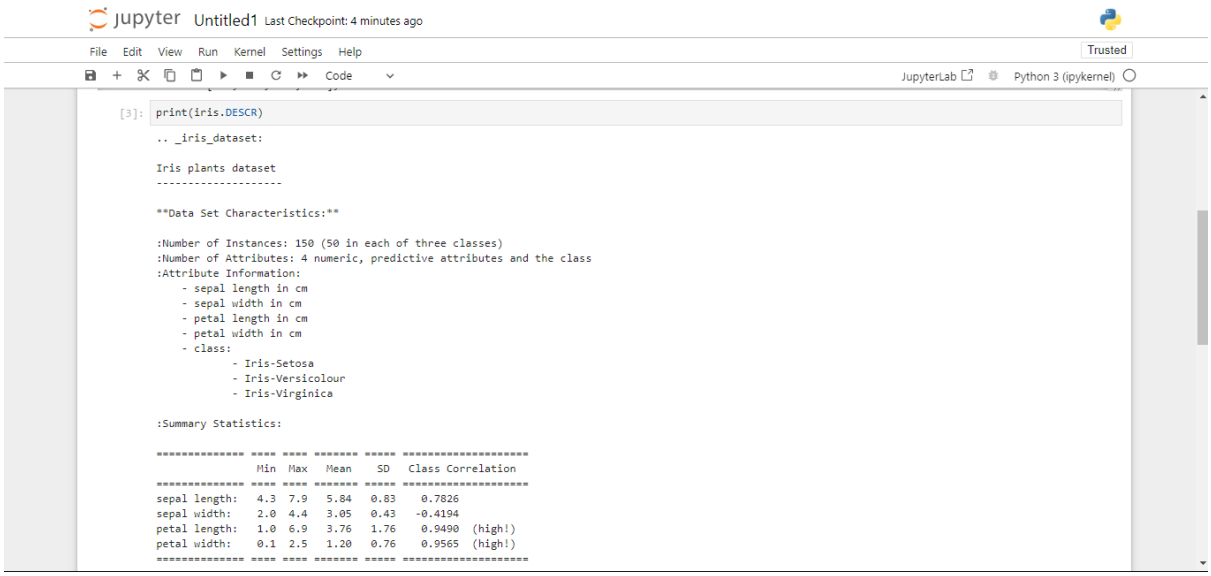


4. Pembuatan akun github



5. Melakukan praktek
   - Load sample dataset
   - Metadata
   - Explanatoru dan response variables
   - Features dan target names
   - Visualisasi data
   - Training set dan testing set
   - Load sample dataset





```
[7]: x = iris.data
     # x.shape
     x
```

```
[7]: array([[5.1, 3.5, 1.4, 0.2],
            [4.9, 3. , 1.4, 0.2],
            [4.7, 3.2, 1.3, 0.2],
            [4.6, 3.1, 1.5, 0.2],
            [5. , 3.6, 1.4, 0.2],
            [5.4, 3.9, 1.7, 0.4],
            [4.6, 3.4, 1.4, 0.3],
            [5. , 3.4, 1.5, 0.2],
            [4.4, 2.9, 1.4, 0.2],
            [4.9, 3.1, 1.5, 0.1],
            [5.4, 3.7, 1.5, 0.2],
            [4.8, 3.4, 1.6, 0.2],
            [4.8, 3. , 1.4, 0.1],
            [4.3, 3. , 1.1, 0.1],
            [5.8, 4. , 1.2, 0.2],
            [5.7, 4.4, 1.5, 0.4],
            [5.4, 3.9, 1.3, 0.4],
            [5.1, 3.5, 1.4, 0.3]
```

```
[ ]:
```

```
[13]: y = iris.target
      # y.shape
      y
```

```
[13]: array([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
             0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
             0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
             1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
             1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2,
             2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,
             2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2])
```

```
[21]: feature_names = iris.feature_names
      feature_names
```

```
[21]: ['sepal length (cm)',
       'sepal width (cm)',
       'petal length (cm)',
       'petal width (cm)']
```

```
[23]: target_names = iris.target_names
      target_names
```

```
[23]: array(['setosa', 'versicolor', 'virginica'], dtype='<U10')
```

```
[ ]:
```

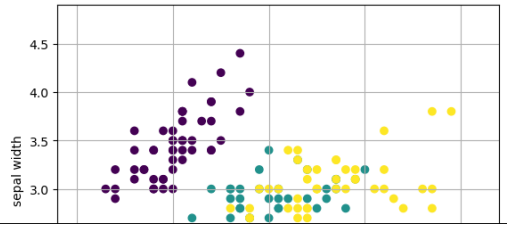
[70]:
```
import matplotlib.pyplot as plt

x = x[:, :2]

x_min, x_max = x[:, 0].min() - 0.5, x[:, 0].max() + 0.5
y_min, y_max = x[:, 1].min() - 0.5, x[:, 1].max() + 0.5

plt.scatter(x[:, 0], x[:, 1], c=y)
plt.xlabel('sepal length')
plt.ylabel('sepal width')

plt.xlim(x_min, x_max)
plt.ylim(y_min, y_max)
plt.grid(True)
plt.show()
```



[74]:
```
from sklearn.model_selection import train_test_split

x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.3,random_state=1)

print(f'x train: {x_train.shape}')
print(f'x test: {x_test.shape}')
print(f'x train: {y_train.shape}')
print(f'x test: {y_test.shape}')
```

```
x train: (105, 2)
x test: (45, 2)
x train: (105,)
x test: (45,)
```

```
x test: (45,)
```

[76]:
```
iris = load_iris(as_frame=True)

iris_features_df = iris.data
iris_features_df
```

[76]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2
...	...	...	...	...
145	6.7	3.0	5.2	2.3
146	6.3	2.5	5.0	1.9
147	6.5	3.0	5.2	2.0
148	6.2	3.4	5.4	2.3
149	5.9	3.0	5.1	1.8

150 rows × 4 columns

6. Melakukan praktek
    - Persiapan dasaset
    - Training model machine learning
    - Evaluasi model machine learning
    - Pemanfaatan trained model machine leaning
    - Deploy model machine learning

[94]:

```
from sklearn.datasets import load_iris

iris = load_iris()

x = iris.data
y = iris.target
```

[92]:

```
from sklearn.model_selection import train_test_split

x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.4,random_state=1)
```

[90]:

```
from sklearn.neighbors import KNeighborsClassifier

model = KNeighborsClassifier(n_neighbors=3)
model.fit(x_train,y_train)
```

[90]:

```
KNeighborsClassifier
KNeighborsClassifier(n_neighbors=3)
```

```
data_baru = [[5, 5, 3, 2], [2, 4, 3, 5]]

preds = model.predict(data_baru)
preds
```

[130]:

```
pred_species = [iris.target_names[p] for p in preds]
print(f'Hasil Prediksi: {pred_species}')
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[130], line 1
----> 1 pred_species = [iris.target_names[p] for p in preds]
      2 print(f'Hasil Prediksi: {pred_species}')

NameError: name 'preds' is not defined
```

[ ]:

```

```

[132]:

```
import joblib

joblib.dump(model, 'iris_classifier_knn.joblib')
```

[132]:

```
['iris_classifier_knn.joblib']
```

[138]:

```
production_model = joblib.load('iris_classifier_knn.joblib')
```

[ ]:

```

```

7. Melakukan praktek
   - Persiapan sample dataset
   - Teknik data preprocessing 1. Binarization
   - Teknik data preprocessing 2. Scaling
   - Teknik data preprocessing 3. Normalisation

[11]:

```
import numpy as np
from sklearn import preprocessing

sample_data = np.array([[2.1, -1.9, 5.5],
                        [-1.5, 2.4, 3.5],
                        [0.5, -7.9, 5.6],
                        [5.9, 2.3, -5.8]])

sample_data
```

[11]:

```
array([[ 2.1, -1.9,  5.5],
       [-1.5,  2.4,  3.5],
       [ 0.5, -7.9,  5.6],
       [ 5.9,  2.3, -5.8]])
```

```
sample_data.shape
```

[18]:

```
sample_data.shape
```

[18]:

```
(4, 3)
```

[24]:

```
sample_data
```

[24]:

```
array([[ 2.1, -1.9,  5.5],
       [-1.5,  2.4,  3.5],
       [ 0.5, -7.9,  5.6],
       [ 5.9,  2.3, -5.8]])
```

[66]:

```
preprocessor = preprocessing.binarizer(threshold=0.5)
binarised_data = preprocessor.transfrom(sample_data)
binarised_data
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[66], line 1
----> 1 preprocessor = preprocessing.binarizer(threshold=0.5)
      2 binarised_data = preprocessor.transfrom(sample_data)
      3 binarised_data

AttributeError: module 'sklearn.preprocessing' has no attribute 'binarizer'
```

[88]:

```
sample_data
```

[88]:

```
array([[ 2.1, -1.9,  5.5],
       [-1.5,  2.4,  3.5],
       [ 0.5, -7.9,  5.6],
       [ 5.9,  2.3, -5.8]])
```

[128]:

```
preprocessor = preproccessing.MinMaxScaler(feature_range=(0, 1))
preprocessor.fit(sample_data)
scaled_data = preprocessor.fit_transform(sample_data)
scaled_data
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[128], line 1
----> 1 preprocessor = preproccessing.MinMaxScaler(feature_range=(0, 1))
      2 preprocessor.fit(sample_data)
      3 scaled_data = preprocessor.fit_transform(sample_data)

NameError: name 'preproccessing' is not defined
```

[106]:

```
scaled_data = preprocessor.fit_transform(sample_data)
scaled_data
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[106], line 1
----> 1 scaled_data = preprocessor.fit_transform(sample_data)
```

[136]:
```
sample_data
```

[136]:
```
array([[ 2.1, -1.9,  5.5],
       [-1.5,  2.4,  3.5],
       [ 0.5, -7.9,  5.6],
       [ 5.9,  2.3, -5.8]])
```

[138]:
```
l1_normalised_data = preprocessing.normalize(sample_data, norm='l1')
l1_normalised_data
```

[138]:
```
array([[ 0.22105263, -0.2       ,  0.57894737],
       [-0.2027027 ,  0.32432432,  0.47297297],
       [ 0.03571429, -0.56428571,  0.4       ],
       [ 0.42142857,  0.16428571, -0.41428571]])
```

[ ]:

[144]:
```
sample_data
```

[144]:
```
array([[ 2.1, -1.9,  5.5],
       [-1.5,  2.4,  3.5],
       [ 0.5, -7.9,  5.6],
       [ 5.9,  2.3, -5.8]])
```

[146]:
```
l2_normalised_data = preprocessing.normalize(sample_data, norm='l2')
l2_normalised_data
```

[146]:
```
array([[ 0.33946114, -0.30713151,  0.88906489],
       [-0.33325106,  0.53320169,  0.7775858 ],
       [ 0.05156558, -0.81473612,  0.57753446],
       [ 0.68706914,  0.26784051, -0.6754239 ]])
```

[ ]: