

```

# load scikit-learn's datasets
from sklearn import datasets
digits = datasets.load_digits()
features = digits.data
target = digits.target
features[0]

array([ 0.,  0.,  5., 13.,  9.,  1.,  0.,  0.,  0.,  0., 13., 15.,
 10.,
        15.,  5.,  0.,  0.,  3., 15.,  2.,  0., 11.,  8.,  0.,  0.,
 4.,
        12.,  0.,  0.,  8.,  8.,  0.,  0.,  5.,  8.,  0.,  0.,  9.,
 8.,
        0.,  0.,  4., 11.,  0.,  1., 12.,  7.,  0.,  0.,  2., 14.,
 5.,
        10., 12.,  0.,  0.,  0.,  0.,  6., 13., 10.,  0.,  0.,  0.]

# Creating a Simulated Data
from sklearn.datasets import make_regression
features, target, coefficients = make_regression(n_samples = 100,
                                                n_features = 3,
                                                n_informative = 3,
                                                n_targets = 1,
                                                noise = 0.0,
                                                coef = True,
                                                random_state = 1)

print("features matrix \n {}".format(features[:3]))
print("Target Vector \n {}".format(target[:3]))

features matrix
[[ 1.29322588 -0.61736206 -0.11044703]
 [-2.793085   0.36633201  1.93752881]
 [ 0.80186103 -0.18656977  0.0465673 ]]
Target Vector
[-10.37865986  25.5124503  19.67705609]

from sklearn.datasets import make_classification
features, target = make_classification(n_samples = 100,
                                      n_features = 3,
                                      n_informative = 3,
                                      n_redundant = 0,
                                      n_classes = 2,
                                      weights = [.25, .75],
                                      random_state = 1)

print("features matrix \n {}".format(features[:3]))
print("Target Vector \n {}".format(target[:3]))

```

```

features matrix
[[ 1.06354768 -1.42632219  1.02163151]
 [ 0.23156977  1.49535261  0.33251578]
 [ 0.15972951  0.83533515 -0.40869554]]
Target Vector
[1 0 0]

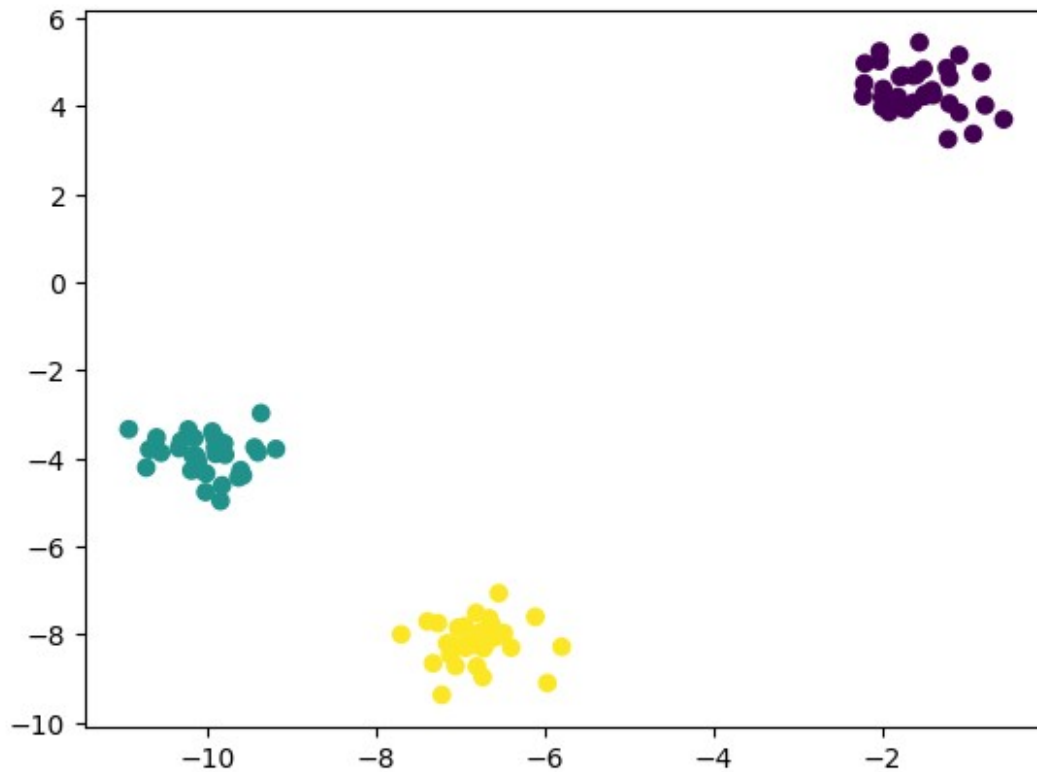
from sklearn.datasets import make_blobs
features, target = make_blobs(n_samples = 100,
                              n_features = 2,
                              centers = 3,
                              cluster_std = 0.5,
                              shuffle = True,
                              random_state = 1)

print("features matrix \n {}".format(features[:3]))
print("Target Vector \n {}".format(target[:3]))

features matrix
[[ -1.22685609  3.25572052]
 [ -9.57463218 -4.38310652]
 [-10.71976941 -4.20558148]]
Target Vector
[0 1 1]

import matplotlib.pyplot as plt
plt.scatter(features[:, 0], features[:, 1], c=target)
plt.show()

```



Loading a CSV file

```
import pandas as pd
```

```
Url = "C:/Users/Admin/Documents/personal project/python project/Data  
science college/archive/netflix_titles.csv"
```

```
df = pd.read_csv(Url)
```

```
df.head(2)
```

	show_id	type	title	director
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson \
1	s2	TV Show	Blood & Water	NaN

	cast	country
0	NaN	United States \
1	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa

	date_added	release_year	rating	duration
0	September 25, 2021	2020	PG-13	90 min \
1	September 24, 2021	2021	TV-MA	2 Seasons

	listed_in
0	Documentaries \
1	International TV Shows, TV Dramas, TV Mysteries

	description
--	-------------

```
0 As her father nears the end of his life, filmm...
1 After crossing paths at a party, a Cape Town t...
```

Loading an Excel File

```
import pandas as pd
```

```
url = "product_template.csv"
df = pd.read_csv(url, header=None)
df.head(2)
```

	0	1	2	3	
0	Handle	Title	Body (HTML)	Vendor	\
1	example-t-shirt	Example T-Shirt	NaN	Acme	

	4	5	6
7			
0	Product Category	Type	Tags
Published	\		
1	Apparel & Accessories > Clothing	Shirts	mens t-shirt example
TRUE			

	8	9	...
0	Option1 Name	Option1 Value	...
1	Title	Lithograph - Height: 9" x Width: 12"	...

	41	42
0	Google Shopping / Custom Label 2	Google Shopping / Custom Label 3
\		
1	NaN	NaN

	43	44
45		
0	Google Shopping / Custom Label 4	Variant Image
Unit	\	Variant Weight
1	NaN	NaN
9		

	46	47	48
0	Variant Tax Code	Cost per item	Price / International
1	NaN	NaN	NaN

	49	50
0	Compare At Price / International	Status
1	NaN	active

[2 rows x 51 columns]

Loading the Json file

```
import pandas as pd
```

```
url = "https://api.github.com/orgs/pandas-dev/repos"  
df = pd.read_json(url, orient="columns")  
df.head(2)
```

	id	node_id	name
0	858127	MDEwOlJlcG9zaXRvcnk4NTgxMjc=	pandas \
1	49172676	MDEwOlJlcG9zaXRvcnk00TE3MjY3Ng==	pandas-governance

	full_name	private
0	pandas-dev/pandas	False \
1	pandas-dev/pandas-governance	False

	owner
0	{'login': 'pandas-dev', 'id': 21206976, 'node_... \
1	{'login': 'pandas-dev', 'id': 21206976, 'node_...

	html_url
0	https://github.com/pandas-dev/pandas \
1	https://github.com/pandas-dev/pandas-governance

	description	fork
0	Flexible and powerful data analysis / manipula...	False \
1	Project governance documents for the pandas Pr...	True

	url	...
allow_forking		
0	https://api.github.com/repos/pandas-dev/pandas	...
True	\	
1	https://api.github.com/repos/pandas-dev/pandas...	...
True		

	is_template	web_commit_signoff_required
0	False	False \
1	False	False

	topics	visibility	forks
0	[alignment, data-analysis, data-science, flexi...	public	17127
\			
1	[]	public	1

	open_issues	watchers	default_branch
0	3622	40933	main \
1	1	34	master

permissions

```
0 {'admin': False, 'maintain': False, 'push': Fa...
1 {'admin': False, 'maintain': False, 'push': Fa...

[2 rows x 80 columns]
```

Querying a Sql Databases

```
pip install sqlalchemy
```

```
Requirement already satisfied: sqlalchemy in c:\users\admin\appdata\
local\programs\python\python311\lib\site-packages (1.3.24)
Note: you may need to restart the kernel to use updated packages.
```

```
[notice] A new release of pip is available: 23.3.1 -> 23.3.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
pip install sqlalchemy==1.3.24
```

```
Note: you may need to restart the kernel to use updated packages.
```

```
[notice] A new release of pip is available: 23.3.1 -> 23.3.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
Requirement already satisfied: sqlalchemy==1.3.24 in c:\users\admin\
appdata\local\programs\python\python311\lib\site-packages (1.3.24)
```

```
pip install --upgrade sqlalchemy[full]
```

```
Requirement already satisfied: sqlalchemy[full] in c:\users\admin\
appdata\local\programs\python\python311\lib\site-packages (2.0.25)
Requirement already satisfied: typing-extensions>=4.6.0 in c:\users\
admin\appdata\local\programs\python\python311\lib\site-packages (from
sqlalchemy[full]) (4.9.0)
```

```
Requirement already satisfied: greenlet!=0.4.17 in c:\users\admin\
appdata\local\programs\python\python311\lib\site-packages (from
sqlalchemy[full]) (3.0.3)
```

```
Note: you may need to restart the kernel to use updated packages.
```

```
WARNING: sqlalchemy 2.0.25 does not provide the extra 'full'
```

```
[notice] A new release of pip is available: 23.3.1 -> 23.3.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
pip install --upgrade typing-extensions
```

```
Requirement already satisfied: typing-extensions in c:\users\admin\
appdata\local\programs\python\python311\lib\site-packages (4.9.0)
Note: you may need to restart the kernel to use updated packages.
```

```
[notice] A new release of pip is available: 23.3.1 -> 23.3.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
pip install sqlalchemy==1.4.25
```

```
Collecting sqlalchemy==1.4.25
```

```
Using cached SQLAlchemy-1.4.25-cp311-cp311-win_amd64.whl
Requirement already satisfied: greenlet!=0.4.17 in c:\users\admin\
appdata\local\programs\python\python311\lib\site-packages (from
sqlalchemy==1.4.25) (3.0.3)
```

```
Installing collected packages: sqlalchemy
```

```
Attempting uninstall: sqlalchemy
```

```
Found existing installation: SQLAlchemy 1.3.24
```

```
Uninstalling SQLAlchemy-1.3.24:
```

```
Successfully uninstalled SQLAlchemy-1.3.24
```

```
Successfully installed sqlalchemy-1.4.25
```

```
Note: you may need to restart the kernel to use updated packages.
```

```
[notice] A new release of pip is available: 23.3.1 -> 23.3.2
```

```
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
pip install typing-extensions==4.5.0
```

```
Requirement already satisfied: typing-extensions==4.5.0 in c:\users\
admin\appdata\local\programs\python\python311\lib\site-packages
(4.5.0)Note: you may need to restart the kernel to use updated
packages.
```

```
[notice] A new release of pip is available: 23.3.1 -> 23.3.2
```

```
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
pip uninstall sqlalchemy
```

```
^C
```

```
Note: you may need to restart the kernel to use updated packages.
```

```
!pip install --upgrade SQLAlchemy
```

```
Requirement already satisfied: SQLAlchemy in c:\users\admin\appdata\
local\programs\python\python311\lib\site-packages (1.4.25)
```

```
Collecting SQLAlchemy
```

```
Using cached SQLAlchemy-2.0.25-cp311-cp311-win_amd64.whl.metadata
(9.8 kB)
```

```
Collecting typing-extensions>=4.6.0 (from SQLAlchemy)
```

```
Using cached typing_extensions-4.9.0-py3-none-any.whl.metadata (3.0
kB)
```

```
Requirement already satisfied: greenlet!=0.4.17 in c:\users\admin\
```

```
appdata\local\programs\python\python311\lib\site-packages (from
SQLAlchemy) (3.0.3)
Using cached SQLAlchemy-2.0.25-cp311-cp311-win_amd64.whl (2.1 MB)
Using cached typing_extensions-4.9.0-py3-none-any.whl (32 kB)
Installing collected packages: typing-extensions, SQLAlchemy
  Attempting uninstall: typing-extensions
    Found existing installation: typing_extensions 4.5.0
    Uninstalling typing_extensions-4.5.0:
      Successfully uninstalled typing_extensions-4.5.0
  Attempting uninstall: SQLAlchemy
    Found existing installation: SQLAlchemy 1.4.25
    Uninstalling SQLAlchemy-1.4.25:
      Successfully uninstalled SQLAlchemy-1.4.25
Successfully installed SQLAlchemy-2.0.25 typing-extensions-4.9.0
```

```
[notice] A new release of pip is available: 23.3.1 -> 23.3.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
import pandas as pd
from sqlalchemy import create_engine

db_connection = create_engine('sqlite:///sample.db')

print(db_connection.table_names())
```

```
-----
-----
ImportError                                Traceback (most recent call
last)
```

```
Cell In[122], line 2
      1 import pandas as pd
----> 2 from sqlalchemy import create_engine
      4 db_connection = create_engine('sqlite:///sample.db')
      6 print(db_connection.table_names())
```

```
File c:\Users\Admin\AppData\Local\Programs\Python\Python311\Lib\site-
packages\sqlalchemy\__init__.py:12
```

```
      8 from __future__ import annotations
     10 from typing import Any
---> 12 from . import util as _util
     13 from .engine import AdaptedConnection as AdaptedConnection
     14 from .engine import BaseRow as BaseRow
```

```
File c:\Users\Admin\AppData\Local\Programs\Python\Python311\Lib\site-
packages\sqlalchemy\util\__init__.py:15
```

```
     12 from typing import TYPE_CHECKING
     14 from . import preloaded as preloaded
---> 15 from ._collections import coerce_generator_arg as
coerce_generator_arg
```



```
16 from ._collections import coerce_to_immutabledict as
coerce_to_immutabledict
17 from ._collections import column_dict as column_dict
```

File c:\Users\Admin\AppData\Local\Programs\Python\Python311\Lib\site-packages\sqlalchemy\util_collections.py:38

```
35 import weakref
37 from ._has_cy import HAS_CYEXTENSION
--> 38 from .typing import is_non_string_iterable
39 from .typing import Literal
40 from .typing import Protocol
```

File c:\Users\Admin\AppData\Local\Programs\Python\Python311\Lib\site-packages\sqlalchemy\util\typing.py:56

```
54     from typing_extensions import TypeGuard as TypeGuard #
3.10
55     from typing_extensions import Self as Self # 3.11
--> 56     from typing_extensions import TypeAliasType as
TypeAliasType # 3.12
58     _T = TypeVar("_T", bound=Any)
59     _KT = TypeVar("_KT")
```

ImportError: cannot import name 'TypeAliasType' from
'typing_extensions' (c:\Users\Admin\AppData\Local\Programs\Python\Python311\Lib\site-packages\typing_extensions.py)