In

[1]:

In

[2]:

Out

[2]:

[

'physich', 'chemistry', 10,

12]

#151-15-4757

list1

= [

'physich'

,

'chemistry'

,

10

,

12

]

list1

In

[3]:

In

[4]:

In

[5]:

Out

[5]:

array([1, 2, 3])

import

numpy

as

np

import

pandas

as

pd

a

=

np

.

array

([

1

,

2

,

3])

a

In

[6]:

print

(

a

)

[1 2 3]

In

[7]:

b

=

np

.

arange

(

10

)

print

(

b

)

[0 1 2 3 4 5 6 7 8 9]

In

[8]:

b

=

np

.

arange

(

10

,

dtype

=

float

)

print

(

b

)

In

[9]:

np

.

arange

(

5

,

12

,

2

)

Out[9]: array([ 5, 7, 9, 11])

In

[10]:

np

.

zeros

(

6

)

Out[10]: array([ 0., 0., 0., 0., 0., 0.])

In

[11]:

np

.

ones

(

5

)

Out[11]: array([ 1., 1., 1., 1., 1.])

In [12]: b[:3]

Out[12]: array([ 0., 1., 2.])

In

[13]:

import

matplotlib

.

pyplot

as

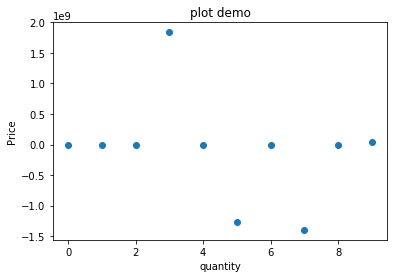
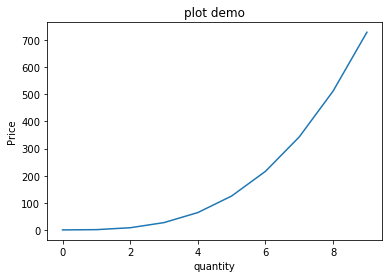
plt

In

[14]:

In

[15]:



x

=

np

.

arange

(

10

)

y

=

x

\*\*

3

plt

.

title

(

"plot demo"

)

plt

.

xlabel

(

"quantity"

)

plt

.

ylabel

(

"Price"

)

plt

.

plot

(

x

,

y

)

plt

.

show

()

x

=

np

.

arange

(

10

)

y

=

x

\*\*

101

plt

.

title

(

"plot demo"

)

plt

.

xlabel

(

"quantity"

)

plt

.

ylabel

(

"Price"

)

plt

.

scatter

(

x

,

y

)

plt

.

show

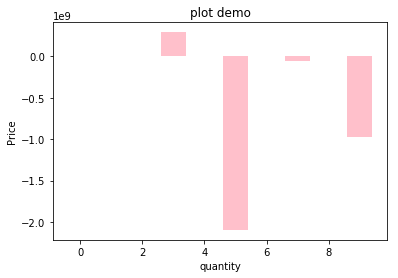
()

In

[16]:

In

[17]:



Out

[17]:

array([0, 1, 0, 0, 1, 1, 1, 1, 1, 0])

x

=

np

.

arange

(

10

)

y

=

x

\*\*

666

plt

.

title

(

"plot demo"

)

plt

.

xlabel

(

"quantity"

)

plt

.

ylabel

(

"Price"

)

plt

.

bar

(

x

,

y

,

color

=

'pink'

)

plt

.

show

()

np

.

random

.

randint

(

2

,

size

=

10

)

In

[18]:

In

[19]:

import

numpy

as

np

import

pandas

as

pd

d

=

pd

.

read\_csv

(

"iris.csv"

)

In [20]: d Out[20]:

sepal\_length

sepal\_width

petal\_length

petal\_width

species

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 0 | 5.1 | 3.5 | 1.4 | 0.2 | setosa |
| 1 | 4.9 | 3.0 | 1.4 | 0.2 | setosa |
| 2 | 4.7 | 3.2 | 1.3 | 0.2 | setosa |
| 3 | 4.6 | 3.1 | 1.5 | 0.2 | setosa |
| 4 | 5.0 | 3.6 | 1.4 | 0.2 | setosa |
| 5 | 5.4 | 3.9 | 1.7 | 0.4 | setosa |
| 6 | 4.6 | 3.4 | 1.4 | 0.3 | setosa |
| 7 | 5.0 | 3.4 | 1.5 | 0.2 | setosa |
| 8 | 4.4 | 2.9 | 1.4 | 0.2 | setosa |
| 9 | 4.9 | 3.1 | 1.5 | 0.1 | setosa |
| 10 | 5.4 | 3.7 | 1.5 | 0.2 | setosa |
| 11 | 4.8 | 3.4 | 1.6 | 0.2 | setosa |
| 12 | 4.8 | 3.0 | 1.4 | 0.1 | setosa |
| 13 | 4.3 | 3.0 | 1.1 | 0.1 | setosa |
| 14 | 5.8 | 4.0 | 1.2 | 0.2 | setosa |
| 15 | 5.7 | 4.4 | 1.5 | 0.4 | setosa |
| 16 | 5.4 | 3.9 | 1.3 | 0.4 | setosa |
| 17 | 5.1 | 3.5 | 1.4 | 0.3 | setosa |
| 18 | 5.7 | 3.8 | 1.7 | 0.3 | setosa |
| 19 | 5.1 | 3.8 | 1.5 | 0.3 | setosa |
| 20 | 5.4 | 3.4 | 1.7 | 0.2 | setosa |
| 21 | 5.1 | 3.7 | 1.5 | 0.4 | setosa |
| 22 | 4.6 | 3.6 | 1.0 | 0.2 | setosa |
| 23 | 5.1 | 3.3 | 1.7 | 0.5 | setosa |
| 24 | 4.8 | 3.4 | 1.9 | 0.2 | setosa |
| 25 | 5.0 | 3.0 | 1.6 | 0.2 | setosa |
| 26 | 5.0 | 3.4 | 1.6 | 0.4 | setosa |
| 27 | 5.2 | 3.5 | 1.5 | 0.2 | setosa |
| 28 | 5.2 | 3.4 | 1.4 | 0.2 | setosa |
| 29 | 4.7 | 3.2 | 1.6 | 0.2 | setosa |
| ... | ... | ... | ... | ... | ... |
| 120 | 6.9 | 3.2 | 5.7 | 2.3 | virginica |
| 121 | 5.6 | 2.8 | 4.9 | 2.0 | virginica |
| 122 | 7.7 | 2.8 | 6.7 | 2.0 | virginica |
| 123 | 6.3 | 2.7 | 4.9 | 1.8 | virginica |

sepal\_length sepal\_width petal\_length petal\_width species

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 124 | 6.7 | 3.3 | 5.7 | 2.1 | virginica |
| 125 | 7.2 | 3.2 | 6.0 | 1.8 | virginica |
| 126 | 6.2 | 2.8 | 4.8 | 1.8 | virginica |
| 127 | 6.1 | 3.0 | 4.9 | 1.8 | virginica |
| 128 | 6.4 | 2.8 | 5.6 | 2.1 | virginica |
| 129 | 7.2 | 3.0 | 5.8 | 1.6 | virginica |
| 130 | 7.4 | 2.8 | 6.1 | 1.9 | virginica |
| 131 | 7.9 | 3.8 | 6.4 | 2.0 | virginica |
| 132 | 6.4 | 2.8 | 5.6 | 2.2 | virginica |
| 133 | 6.3 | 2.8 | 5.1 | 1.5 | virginica |
| 134 | 6.1 | 2.6 | 5.6 | 1.4 | virginica |
| 135 | 7.7 | 3.0 | 6.1 | 2.3 | virginica |
| 136 | 6.3 | 3.4 | 5.6 | 2.4 | virginica |
| 137 | 6.4 | 3.1 | 5.5 | 1.8 | virginica |
| 138 | 6.0 | 3.0 | 4.8 | 1.8 | virginica |
| 139 | 6.9 | 3.1 | 5.4 | 2.1 | virginica |
| 140 | 6.7 | 3.1 | 5.6 | 2.4 | virginica |
| 141 | 6.9 | 3.1 | 5.1 | 2.3 | virginica |
| 142 | 5.8 | 2.7 | 5.1 | 1.9 | virginica |
| 143 | 6.8 | 3.2 | 5.9 | 2.3 | virginica |
| 144 | 6.7 | 3.3 | 5.7 | 2.5 | virginica |
| 145 | 6.7 | 3.0 | 5.2 | 2.3 | virginica |
| 146 | 6.3 | 2.5 | 5.0 | 1.9 | virginica |
| 147 | 6.5 | 3.0 | 5.2 | 2.0 | virginica |
| 148 | 6.2 | 3.4 | 5.4 | 2.3 | virginica |
| 149 | 5.9 | 3.0 | 5.1 | 1.8 | virginica |

150 rows × 5 columns

In

[21]:

df

=

pd

.

DataFrame

(

d

)

Out[22]:

In

[22]:

sepal\_length

sepal\_width

petal\_length

petal\_width

species

df

.

head

(

5

)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 0 | 5.1 | 3.5 | 1.4 | 0.2 | setosa |
| 1 | 4.9 | 3.0 | 1.4 | 0.2 | setosa |
| 2 | 4.7 | 3.2 | 1.3 | 0.2 | setosa |
| 3 | 4.6 | 3.1 | 1.5 | 0.2 | setosa |
| 4 | 5.0 | 3.6 | 1.4 | 0.2 | setosa |

Out[23]:

In

[23]:

sepal\_length

sepal\_width

petal\_length

petal\_width

species

df

.

tail

(

3

)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 147 | 6.5 | 3.0 | 5.2 | 2.0 | virginica |
| 148 | 6.2 | 3.4 | 5.4 | 2.3 | virginica |
| 149 | 5.9 | 3.0 | 5.1 | 1.8 | virginica |

In [33]:

Out[33]:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 13 | 4.3 | 3.0 | 1.1 | 0.1 | setosa |

In [34]: #task 3

df.groupby('species')['sepal\_length','sepal\_width','petal\_length','petal\_width'].m

sepal\_length

sepal\_width

petal\_length

petal\_width

species

22

4.6

3.6

1.0

0.2

setosa

# 2

df

.

sort\_values

(

'petal\_length'

).

head

(

2

)

Out[34]: sepal\_length sepal\_width petal\_length petal\_width

species

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| setosa | 5.006 | 3.418 | 1.464 | 0.244 |
| versicolor | 5.936 | 2.770 | 4.260 | 1.326 |
| virginica | 6.588 | 2.974 | 5.552 | 2.026 |

In

[ ]:

#task 4