

Numbers

In [1]:

```
x1 = 3
```

In [2]:

```
print(type(x1))
```

```
<class 'int'>
```

In [3]:

```
x = 3.0
```

In [4]:

```
print(x)
```

```
3.0
```

In [5]:

```
print(type(x))
```

```
<class 'float'>
```

In [6]:

```
print(x+1)
```

```
4.0
```

In [7]:

```
print(x*3)
```

```
9.0
```

In [8]:

```
print(x**2)
```

```
9.0
```

Booleans

In [9]:

```
t, f = True, False
```

In [10]:

```
t
```

Out[10]:

True

In [11]:

```
f
```

Out[11]:

False

In [12]:

```
print(type(t))
```

```
<class 'bool'>
```

In [13]:

```
print(t or f)
```

True

In [14]:

```
print(not t)
```

False

Strings

In [15]:

```
x = 'hello'
```

In [16]:

```
print(x)
```

hello

In [17]:

```
print(type(x))
```

```
<class 'str'>
```

In [18]:

```
y = 'world'
```

In [19]:

```
hw = x+' '+y
```

In [20]:

```
print(hw)
```

hello world

In [21]:

```
print(hw.capitalize())
```

Hello world

Lists

In [22]:

```
xs = [3,1,2]
```

In [23]:

```
xs
```

Out[23]:

```
[3, 1, 2]
```

In [24]:

```
print(type(xs))
```

```
<class 'list'>
```

In [25]:

```
xt = (3,1,2)
```

In [26]:

```
print(type(xt))
```

```
<class 'tuple'>
```

In [27]:

```
xs.append(4)
```

In [28]:

```
xs
```

Out[28]:

```
[3, 1, 2, 4]
```

In [29]:

```
for i in xs:  
    print(i)
```

```
3  
1  
2  
4
```

In [30]:

```
from sklearn.datasets import load_iris  
import math  
import matplotlib.pyplot as plt  
import numpy as np
```

In [31]:

```
iris = load_iris()
```

In [32]:

```
print(iris.keys())  
dict_keys(['data', 'target', 'target_names', 'DESCR', 'feature_names'])
```

In [33]:

```
print(iris.data[:10]) # 10개까지만 출력
```

```
[[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]]
```

In [34]:

```
iris.feature_names
```

Out[34]:

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

In [35]:

```
iris.target
```

Out[35]:

```
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, 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])
```

In [36]:

```
iris.target_names
```

Out[36]:

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

In [37]:

```
features = iris.data  
feature_names = iris.feature_names  
target = iris.target  
target_names = iris.target_names
```

In [38]:

```
for t in range(3):
    if t == 0:
        c='r'
        marker='>'
    elif t == 1:
        c='g'
        marker='o'
    elif t == 2:
        c='b'
        marker='x'
    plt.scatter(features[target == t, 0],
                features[target == t, 1],
                marker = marker,
                c=c)
plt.xlabel("sepal length")
plt.ylabel("sepal width")
```

