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# -*- coding: utf-8 -*-
"""
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Reference: https://docs.python.org/3/tutorial/index.html
"""

print ()

# A set is an unordered collection with no duplicate elements.
# Basic uses include membership testing and eliminating duplicate entries.
# Set objects also support mathematical operations like union, intersection,
# difference, and symmetric difference.

# duplicates will automatically be removed
basket = {'apple', 'orange', 'apple', 'pear', 'orange', 'banana'}
print (basket)
print ()

# test for membership
print ('orange' in basket)
print ()

# another way to declare single character sets
someChars = set ('235345#$%^$&abdfsdf')
print (someChars)
print ()

# set operations

set1 = set ('abracadabra')
set2 = set ('alacazam')

print ("set1:      ", set1)
print ("set2:      ", set2)

# union
print ("set1 | set2: ", set1 | set2)

# intersection
print ("set1 & set2: ", set1 & set2)

# difference
print ("set1 - set2: ", set1 - set2)

# symmetric difference
print ("set1 ^ set2: ", set1 ^ set2)

print ()

# test

set1 = set ('abracadabra')
set2 = set ('alacazam')
print ((set1 ^ set2) - ((set1 | set2) - (set1 & set2)))
print ((set1 ^ set2) - ((set1 - set2) | (set2 - set1)))

```

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set1 = {'dog', 'cat', 'deer'}  
print (set1)  
  
set2 = set ('sparrow', 'hawk', 'eagle')  
print (set2)  
  
set3 = set ('abc123')  
print (set3)  
  
set4 = set ('\abc123\')  
print (set4)  
  
print ()
```