

set-ds

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1 Set

1. Set is one among the data structures in python which is used for storing multiple values on to a single variable.
2. Set is created using curly brackets and can have elements of any data type.
3. Characteristics of a set is,

1. Unordered
2. Unindexable
3. Countable
4. Immutable
5. No duplicate values
6. Empty set is not possible
7. Used where unordered collection of unique elements are needed. Also used when

2 Basic Operations

1. len
2. type
3. check for a sequence
4. Accessing(Not possible since it is unordered)
5. Looping

```
[1]: # Set  
  
a={'Hyundai', 'Maruti', 'Skoda', 'BMW', 'Benz', 'Chevrolet', 'Honda', 'MG', 'Skoda'}
```

```
[3]: a
```

```
[3]: {'BMW', 'Benz', 'Chevrolet', 'Honda', 'Hyundai', 'MG', 'Maruti', 'Skoda'}
```

```
[4]: # Length  
  
len(a)
```

```
[4]: 8
```

```
[5]: # Type
type(a)
```

```
[5]: set
```

```
[7]: # Empty set
b={}
type(b)
```

```
[7]: dict
```

```
[8]: # Checking for a sequence
if 'Hyundai' in a:
    print("Yes")
else:
    print("No")
```

Yes

3 Accessing

Since set items are unindexable, it cannot be accessed by referring to its index number as other data structures like list, tuple etc.

4 Looping

```
[10]: for i in a:
    print("The car brand is",i)
```

```
The car brand is Hyundai
The car brand is BMW
The car brand is Maruti
The car brand is Chevrolet
The car brand is Skoda
The car brand is MG
The car brand is Honda
The car brand is Benz
```

5 Advanced Operations

1. Change(Once after creating a set, we cannot change the set items; However, we can add or remove the items).
2. Add

3. Remove
4. Join

6 Change the set items

- (Once after creating a set, we cannot change the set items; However, we can add or remove the items.

7 Adding

```
[11]: a
```

```
[11]: {'BMW', 'Benz', 'Chevrolet', 'Honda', 'Hyundai', 'MG', 'Maruti', 'Skoda'}
```

```
[12]: a.add('Tata')
a
```

```
[12]: {'BMW',
      'Benz',
      'Chevrolet',
      'Honda',
      'Hyundai',
      'MG',
      'Maruti',
      'Skoda',
      'Tata'}
```

```
[13]: a.update({1,2,3,4})
a
```

```
[13]: {1,
      2,
      3,
      4,
      'BMW',
      'Benz',
      'Chevrolet',
      'Honda',
      'Hyundai',
      'MG',
      'Maruti',
      'Skoda',
      'Tata'}
```

```
[17]: a.update('veggies')
a
```

```
[17]: {1,  
        2,  
        3,  
        4,  
        'BMW',  
        'Benz',  
        'Chevrolet',  
        'Honda',  
        'Hyundai',  
        'MG',  
        'Maruti',  
        'Skoda',  
        'Tata',  
        'e',  
        'g',  
        'i',  
        's',  
        'v'}
```

8 Removing

```
[18]: a.remove('BMW')  
a
```

```
[18]: {1,  
        2,  
        3,  
        4,  
        'Benz',  
        'Chevrolet',  
        'Honda',  
        'Hyundai',  
        'MG',  
        'Maruti',  
        'Skoda',  
        'Tata',  
        'e',  
        'g',  
        'i',  
        's',  
        'v'}
```

```
[20]: a.discard("g")  
a
```

```
[20]: {1,
      2,
      3,
      4,
      'Benz',
      'Chevrolet',
      'Honda',
      'Hyundai',
      'MG',
      'Maruti',
      'Skoda',
      'Tata',
      'e',
      'i',
      's',
      'v'}
```

```
[22]: a.pop()
```

```
[22]: 'Tata'
```

```
[23]: del a
```

```
[24]: a          # Since the set is deleted, it will throw up an error
```

```
-----
NameError                                Traceback (most recent call last)
<ipython-input-24-3f786850e387> in <cell line: 1>()
----> 1 a

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

```
[25]: b={'Honda', 'Skoda', 'Creta', 'Folkswagen'}
      b.clear()          # Clear method will only clear the
      ↪ contents of the set and the set will remain alive.
      b
```

```
[25]: set()
```

9 Joining Set

```
[28]: c={1,2,3}
      d={9,4,8,2,6,3}
```

```
[29]: e=c.union(d)
      e
```

```
[29]: {1, 2, 3, 4, 6, 8, 9}
```

```
[30]: c.update(d)
      c
```

```
[30]: {1, 2, 3, 4, 6, 8, 9}
```

```
[32]: f=c.intersection(d)
      f
```

```
[32]: {2, 3, 4, 6, 8, 9}
```

```
[33]: c.intersection_update(d)
      c
```

```
[33]: {2, 3, 4, 6, 8, 9}
```

```
[35]: h={1,2,3}
      c={2, 3, 4, 6, 8, 9}

      i=h.symmetric_difference(c)
      i
```

```
[35]: {1, 4, 6, 8, 9}
```

```
[36]: h.symmetric_difference_update(c)
      h
```

```
[36]: {1, 4, 6, 8, 9}
```

10 Set Methods

```
[37]: p={1,2,3,4}
      r={2,7,9,4,1,3}

      p.isdisjoint(r)
```

```
[37]: False
```

```
[38]: p.issubset(r)
```

```
[38]: False
```

```
[43]: p.issuperset(r)
```

```
[43]: False
```