Datatypes

Range

```
range_val = range(5)
print(range_val)
print(type(range_val))
print(id(range_val))
```

```
range(0, 5)
<class 'range'>
132306011132416
```

```
list(range_val)
```

```
[0, 1, 2, 3, 4]
```

```
range_val2 = range(10,15)
print(list(range_val2))
```

```
[10, 11, 12, 13, 14]
```

```
range_val3 = range(10,29,3)
print(list(range_val3))
```

```
[10, 13, 16, 19, 22, 25, 28]
```

```
range_val4 = range(-5)
print(list(range_val4))
```

```
[]
```

```
range_val5 = range(-5,0)
print(list(range_val5))
```

```
[-5, -4, -3, -2, -1]
```

```
range_val6 = range(0,-5,-1)
print(list(range_val6))
```

```
[0, -1, -2, -3, -4]
```

```
range_val7 = range(0,5,2.5)
print(list(range_val7))
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-26-9976d885ace4> in <cell line: 1>()
----> 1 range_val7 = range(0,5,2.5)
      2 print(list(range_val7))

TypeError: 'float' object cannot be interpreted as an integer
```

Sets

```
set_1 = {1,2,3,4,5}
print(set_1)
print(type(set_1))
```

```
{1, 2, 3, 4, 5}
<class 'set'>
```

```
set_2 = set((1,2,3,4,5))
print(set_2)
print(type(set_2))
```

```
{1, 2, 3, 4, 5}
<class 'set'>
```

```
# set is unordered, so indexing is not applicable
set_3 = {1,4,2,2.0,2.5,3.7,3,"Virat", "Rajini", "RBR"}
print(set_3)
```

```
{1, 2.5, 2, 3.7, 4, 3, 'RBR', 'Rajini', 'Virat'}
```

```
2==2.0
```

```
True
```

```
# set will contain unique values only

set_3.add("Rohit")
print(set_3)
```

```
{1, 2.5, 2, 3.7, 4, 3, 'RBR', 'Rajini', 'Virat', 'Rohit'}
```

```
set_3.add("RBR")
print(set_3)
```

```
{1, 2.5, 2, 3.7, 4, 3, 'RBR', 'Rajini', 'Virat', 'Rohit'}
```

```
# cannot use indexing
set_3[0]
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-33-c01e7170954c> in <cell line: 1>()
----> 1 set_3[0]

TypeError: 'set' object is not subscriptable
```

```
# set is unordered, so indexing is not applicable
set_4 = {1,4,2.0,2,2.5,3.7,3,"Virat", "Rajini", "RBR"}
print(set_4)
```

```
{1, 2.5, 3.7, 2.0, 4, 3, 'RBR', 'Rajini', 'Virat'}
```

```
Start coding or generate with AI.
```

```
l = [1,4,2,2.0,2.5,3.7,3,"Virat", "Rajini", "RBR"]
l
```

```
[1, 4, 2, 2.0, 2.5, 3.7, 3, 'Virat', 'Rajini', 'RBR']
```

```
l[-1]
```

```
'RBR'
```

```
a = false
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-41-4f820b6cc046> in <cell line: 1>()
----> 1 a = false

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

```
a = False
print(type(a))
print(a)
```

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

Start coding or generate with AI.

```
False==0
```

```
True
```

```
True==1
```

```
True
```

```
set_5 = {"Virat", "123", True,12,1.2,1.0, False, 0.5}
print(set_5)
```

```
{False, 1.2, '123', True, 0.5, 12, 'Virat'}
```

```
set_5.add(0)
print(set_5)
```

```
{False, 1.2, '123', True, 0.5, 12, 'Virat'}
```

```
l = ['A','B','VIRAT','ROHIT','RAJINI']
l[2] = 'KOHLI'
l
```

```
['A', 'B', 'KOHLI', 'ROHIT', 'RAJINI']
```

```
s = {'A','B','VIRAT','ROHIT','RAJINI'}
s[2] = 'KOHLI'
s
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-50-155e2e38eea1> in <cell line: 2>()
      1 s = {'A','B','VIRAT','ROHIT','RAJINI'}
----> 2 s[2] = 'KOHLI'
      3 s

TypeError: 'set' object does not support item assignment
```

```
# Mutability of a set - Set is Mutable

set_a = {1,2,5,9,10.2,"Kamal","Gayle"}
print(id(set_a))
```

```
132305433671744
```

```
set_a.add("Sachin")
print(set_a)
print(id(set_a))
```

```
{1, 2, 'Gayle', 5, 'Sachin', 9, 10.2, 'Kamal'}
132305433671744
```

```
set_b = {"1","2",1,2}
print(set_b)
```

```
{1, 2, '2', '1'}
```

```
set_b.add(["A","B"])
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-55-fb36dfdc4c59> in <cell line: 1>()
----> 1 set_b.add(["A","B"])

TypeError: unhashable type: 'list'
```

```
set_b.add(("A","B"))
print(set_b)
```

```
{1, 2, '2', '1', ('A', 'B')}
```

```
set_c = {1,2,('A','B'),{1,2,3}}
print(set_c)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-57-32d8f0fd0dca> in <cell line: 1>()
----> 1 set_c = {1,2,('A','B'),{1,2,3}}
      2 print(set_c)

TypeError: unhashable type: 'set'
```

```
l = [('A','B'),{1,2,3},[1,2],"2",1,1.0]
print(l)
```

```
[('A', 'B'), {1, 2, 3}, [1, 2], '2', 1, 1.0]
```

Frozen Sets

```
f_set_1 = frozenset((1,2,1.0,"KKR","CSK","MI"))
print(f_set_1)
print(type(f_set_1))
```

```
frozenset({1, 2, 'MI', 'CSK', 'KKR'})
<class 'frozenset'>
```

Dictionary

```
rcb_batter_scores = {"Virat":55, "Faf":25, "Green":20, "Maxi":0, 7:12}
print(rcb_batter_scores)
print(type(rcb_batter_scores))
print(id(rcb_batter_scores))
```

```
{'Virat': 55, 'Faf': 25, 'Green': 20, 'Maxi': 0, 7: 12}
<class 'dict'>
132305433293888
```

```
rcb_batter_scores.update({"DK":35})
print(rcb_batter_scores)
print(id(rcb_batter_scores))
```

```
{'Virat': 55, 'Faf': 25, 'Green': 20, 'Maxi': 0, 7: 12, 'DK': 35}
132305433293888
```

```
rcb_batter_scores['Lomrror']
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
<ipython-input-68-87ed05bb3d09> in <cell line: 1>()
----> 1 rcb_batter_scores['Lomrror']

KeyError: 'Lomrror'
```

```
rcb_batter_scores.update({"Virat":100})
print(rcb_batter_scores)
print(id(rcb_batter_scores))
```

```
{'Virat': 100, 'Faf': 25, 'Green': 20, 'Maxi': 0, 7: 12, 'DK': 35}
132305433293888
```

```
aus_batter_scores = {"Warner": 75, "Head": 100, "Maxi": 120, "David": 20, "Maxi": 70}
print(aus_batter_scores)
print(id(aus_batter_scores))
```

```
{'Warner': 75, 'Head': 100, 'Maxi': 70, 'David': 20}
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```

```
dict_a = {"Virat":[56,25,26,100,85], "Rohit":[12,4,50,100,2]}
print(dict_a)
```

```
{'Virat': [56, 25, 26, 100, 85], 'Rohit': [12, 4, 50, 100, 2]}
```

```
dict_b = {"Virat":(56,25,26,100,85), "Rohit":(12,4,50,100,2)}
print(dict_b)
```

```
{'Virat': (56, 25, 26, 100, 85), 'Rohit': (12, 4, 50, 100, 2)}
```

```
dict_c = {{1,2}:"str",2:4}
print(dict_c)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-75-567c1258695c> in <cell line: 1>()
----> 1 dict_c = {{1,2}:"str",2:4}
      2 print(dict_c)

TypeError: unhashable type: 'set'
```

```
dict_d = {(1,2):"str",2:4}
print(dict_d)
```

```
{(1, 2): 'str', 2: 4}
```

```
# dictionary as a key
dict_e = {{"Virat":12, "rohit":12}:"Indian Players"}
dict_e
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-77-50c82ef7d856> in <cell line: 2>()
      1 # dictionary as a key
----> 2 dict_e = {{"Virat":12, "rohit":12}:"Indian Players"}
      3 dict_e

TypeError: unhashable type: 'dict'
```

```
# dictionary as a value
dict_e = {"Indian Players": {"Virat":12, "rohit":12}}
dict_e
```

```
{'Indian Players': {'Virat': 12, 'rohit': 12}}
```

```
dict_e['Indian Players']
```

```
{'Virat': 12, 'rohit': 12}
```

```
dict_f = {frozenset((1,2)):"Check Frozen"}
print(dict_f)
```

```
{frozenset({1, 2}): 'Check Frozen'}
```

Boolean

```
print(bool(False))
print(bool(0))
print(bool(0.0))
print(bool(None))
```

```
False
False
False
False
```

```
print(bool(True))
print(bool(1))
print(bool(1.0))
print(bool("STRING1"))
print(bool([1,2]))
print(bool((1,2)))
```

```
True
True
True
True
True
True
```

```
bool('0')
```

```
True
```

```
print(bool([]))
print(bool(()))
print(bool({}))
print(bool(""))
```

```
False
False
False
False
```

```
print(bool(" "))
print(bool(0.00000000000000000000000000000000000000000000001))
```

```
True
True
```

```
bool(complex(0.0,0.0001))
```

```
True
```

```
a = bool(False)
b = bool(0)
c = bool(0.0)
d = bool([])
e = bool(())

print(id(a))
print(id(b))
print(id(c))
print(id(d))
print(id(e))
```

```
101368900768768
101368900768768
101368900768768
101368900768768
101368900768768
```

None

```
a = None
print(type(a))
```

```
<class 'NoneType'>
```

User Input

```
name = input("Enter your name: ")
print(name)
print(type(name))
```

```
Enter your name: Viky
Viky
<class 'str'>
```

```
marks = int(input("Enter Your Marks: "))
print(marks)
print(type(marks))
```

```
Enter Your Marks: 80
80
<class 'int'>
```

```
type(marks)
```

```
str
```