```
a = 10
b = 20
c = a + b
print(c, type(c))
a = 'python'
b = 'django'
c = a + b
print(c, type(c))
a = True
b = 1
c = a + b
print(c, type(c))
a = True
b = False
c = a + b
print(c, type(c))
```

```
30 <class 'int'>
pythondjango <class 'str'>
2 <class 'int'>
1 <class 'int'>
```

```
a = 10
b = 'python'
c = a + b
print(c, type(c))
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-8-8f9c84a04495> in <cell line: 3>()
      1 a = 10
      2 b = 'python'
----> 3 c = a + b
      4 print(c, type(c))

TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

```
a = 100
b = 50
c = a - b
print(c, type(c))
a = True
b = 1
c = a - b
print(c, type(c))
a = True
b = False
c = b - a
print(c, type(c))
```

```
50 <class 'int'>
0 <class 'int'>
-1 <class 'int'>
```

```
a = 'python'
b = 'django'
c = a - b
print(c, type(c))
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-10-1d3b6822499f> in <cell line: 3>()
      1 a = 'python'
      2 b = 'django'
----> 3 c = a - b
      4 print(c, type(c))

TypeError: unsupported operand type(s) for -: 'str' and 'str'
```

```
a = 10
b = 5
c = a / b
print(c, type(c))
a = 11.0
b = 5
c = a / b
print(c, type(c))
a = 11
b = 5.0
c = a // b
print(c, type(c))
a = 11.0
b = 5.0
c = a // b
print(c, type(c))
```

```
2.0 <class 'float'>
2.2 <class 'float'>
2.0 <class 'float'>
2.0 <class 'float'>
```

```
a = 10.0
b = 3
c = a % b
print(c, type(c))
a = 10
b = 3.0
c = a % b
print(c, type(c))
```

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

```
a = 10
b = 20
c = a * b
print(c, type(c))  # 200
a = 10.0
b = True
c = a * b
print(c, type(c))  # 10.0
a = 10.0
b = False
c = a * b
print(c, type(c))  # 0.0
a = True
b = False
c = a * b
print(c, type(c))  # 0
a = 3
b = 'python'
c = a * b
print(c, type(c))
```

```
200 <class 'int'>
10.0 <class 'float'>
0.0 <class 'float'>
0 <class 'int'>
pythonpythonpython <class 'str'>
```

```
a = 'python'
b = 'python'
c = a * b
print(c, type(c))  # error
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-18-dd50b69da5be> in <cell line: 3>()
      1 a = 'python'
      2 b = 'python'
----> 3 c = a * b
      4 print(c, type(c))  # error

TypeError: can't multiply sequence by non-int of type 'str'
```

```
a = 5
b = 2
c = a ** b
print(c, type(c))
a = 5.0
b = 3
c = a ** b
print(c, type(c))
```

```
25 <class 'int'>
125.0 <class 'float'>
```

```
a = 'python'
b = 2
c = a ** b
print(c, type(c))
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-22-944589131941> in <cell line: 3>()
      1 a = 'python'
      2 b = 2
----> 3 c = a ** b
      4 print(c, type(c))

TypeError: unsupported operand type(s) for ** or pow(): 'str' and 'int'
```

```
amount = 11800
print('2000 notes :',amount//2000)
amount = amount % 2000
print('500 notes :',amount//500)
amount = amount % 500
print('200 notes :',amount//200)
amount = amount % 200
print('100 notes :',amount//100)
amount = amount % 100
```

```
2000 notes : 5
500 notes : 3
200 notes : 1
100 notes : 1
```

```
a = 100
b = 200
c = a == b
print(c, type(c))  # False
a = 100
b = 100
c = a == b
print(c, type(c))  # True
a = 100
b = 100.0
c = a == b
print(c, type(c))  # True
a = 0.0
b = False
c = a == b
print(c, type(c))  # True
a = 'pyThon'
b = 'python'
c = a < b
print(c, type(c))  # True
a = 'Python'
b = 'p'
c = a < b
print(c, type(c))  # True
print('$')
print(ord('$'))
```

```
False <class 'bool'>
True <class 'bool'>
True <class 'bool'>
True <class 'bool'>
True <class 'bool'>
True <class 'bool'>
$
36
```

```
a = 'python'
b = 'python'
c = a <= b
print(c, type(c))
a = 'python'
b = 'python'
c = a >= b
print(c, type(c))
a = 100
b = 200
c = a != b
print(c, type(c))
```

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

```
a = 10
b = 5
a = a + 1
print(a)
a+=1      # a = a + 1
print(a)
a+=b      # a = a + b
print(a)
a = 'python'
b = 'hello'
a+=b
print(a)
```

```
11
12
17
pythonhello
```

```
a = 10
a-=1       # a = a - 1
print(a)
a = - 1
print(a)
a=25
a%=6       # a = a % 6
print(a)
a = 45
a//=5      # a = a // 5
print(a)
a = 4
a*=2       # a = a * 2
print(a)
a = 4
a*='python' # a = a * 'python
print(a)
a = 50
a/=1        # a = a / 1
print(a)
a = 5
a**=a       # a = a ** a
print(a)
```

```
9
-1
1
9
8
pythonpythonpythonpython
50.0
3125
```

```
a = 20
a/=0
print(a)
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
<ipython-input-44-763259d6df42> in <cell line: 2>()
      1 a = 20
----> 2 a/=0
      3 print(a)

ZeroDivisionError: division by zero
```

```
val1 = 'p'
val2 = 'python'
print(val1 in val2)
print('p' in 'python')
print('p' not in val2)
print('h' not in 'welcome')
```

```
True
True
False
True
```

```
print( 1 in 10)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-5-a873c738f4ae> in <cell line: 1>()
----> 1 print( 1 in 10)

TypeError: argument of type 'int' is not iterable
```

Next steps: Explain error

```
print(1 in 'python')
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-6-7c6225ecb728> in <cell line: 1>()
----> 1 print(1 in 'python')

TypeError: 'in <string>' requires string as left operand, not int
```

Next steps: Explain error

```
s1 = 'python'
s2 = s1.lower()
print(s1 is s2)  # False
print(s1, id(s1))
print(s2, id(s2))
print(s1 == s2)  # True
s1 = 'hyderabad'
s2 = s1
print(s1 is s2)  # True
print(s1, id(s1))
print(s2, id(s2))
print(s1 is not s2)  # False
print(s1, id(s1))
print(s2, id(s2))
```

```
False
python 139585409999472
python 139584569367216
True
True
hyderabad 139584988328048
hyderabad 139584988328048
False
hyderabad 139584988328048
hyderabad 139584988328048
```

```
print(True or True)
print(True or False)
print(False or True)
print(False or False)
print(10 or True)
print(10 or 0)
print(-100 or 100)
```

```
True
True
True
False
10
10
-100
```

```
print(False or None)
print(False or 10)
print(False or -0.39)
print(0 or None)
```

```
None
10
-0.39
None
```

```
print(True and True)
print(True and False)
print(False and True)
print(False and False)
print(10 and 20)
print(20 and False)
print(0 and None)
```

```
True
False
False
False
20
False
0
```

```
print(not True)
print(not False)
print(not 10)
print(not None)
print(not 100)
```

```
False
True
False
True
False
```

```
print(162 and 'sai' or 'python' or 0.2)
```

```
sai
```

```
a = 10
b = 14
print(a|b)
a = 8
b = 12
print(a|b)
a = 10
b = 12
print(a&b)
a = 10
b = 12
print(a^b)
```

```
14
12
8
6
```

```
a = 10
print(a>>1)
a = 100
print(a>>2)
a = 20
print(a>>1)
a = 10
print(a<<1)
a = 35
print(a<<4)
a = 10
print(~a)
a = -587
print(~a)
```

```
5
25
10
20
560
-11
```

```
586
```

Start coding or generate with AI.