In [1]:
```
age=  50

_age =  50

name = "john"

name1 = "bob"
```

In [2]:
```
print(type(name))
```

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

In [5]:
```
print(isinstance(name,str))
```

```
True
```

In [6]:
```
price = 10.5

print(type(price))
```

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

Basic Data Types

Numbers

In [ ]:
```
height = 157 # integer

cost= 1200.2345 # flaot

z = 3 + 4j  # complex
```

In [ ]:
```
# characteristics

1- Arithematic operation ==> +,-,/,//,%,**

# Use cases

1- mathematical calculation
2- index values
3- Counter varaible
4- boolean flags
```

In [ ]:
```
# Integer Operations
```

In [27]:
```
x, y =  10,3

print(f" addition {x + y}")
print(f" substraction {x - y}")
print(f" multiplication {x * y}")
print(f" division {x / y}")
print(f" floor division {x // y}")
print(f" modulo {x % y}") # remainder
print(f" power {x ** y}")
```

```
addition 13
substraction 7
multiplication 30
division 3.3333333333333335
floor division 3
modulo 1
power 1000
```

In [36]:
```python
# float

price =  99.9098988
print(price)

print(round(price,2))
print(f"Price values with 2 letter : {price:.2f}" )
```

```
99.9098988
99.91
Price values with 2 letter : 99.91
```

In [40]:
```python
# complex

z1 = 3 + 4j
z2 =  1 -  2j

print(f"sum {z1+z2}")

z3 =z1+z2

print(z3.real)
print(z3.imag)
```

```
sum (4+2j)
4.0
2.0
```

In [48]:
```python
# Type Conversion

# conversion string to int
print("========== conversion string to int ========================")
value = "42"
print(type(value))

convert_to_integer = int(value)
print(convert_to_integer)
print(type(convert_to_integer))

# conversion int to string

print("========== conversion int to string ========================")
value1 = 42
print(type(value1))

convert_to_string = str(value1)
print(convert_to_string)
print(type(convert_to_string))

print("========== conversion int to float ========================")

value2 = 42
print(type(value2))
```

```
convert_to_float = float(value2)
print(convert_to_float)
print(type(convert_to_float))

print("========== conversion float to int ========================")

value3 = 42.03433
print(type(value3))

convert_to_int = int(value3)
print(convert_to_int)
print(type(convert_to_int))
```

```
========== conversion string to int ========================
<class 'str'>
42
<class 'int'>
========== conversion int to string ========================
<class 'int'>
42
<class 'str'>
========== conversion int to float ========================
<class 'int'>
42.0
<class 'float'>
========== conversion float to int ========================
<class 'float'>
42
<class 'int'>
```

In [49]:
```
s = "ajay gurjar"
list(s)
```

Out[49]:
```
['a', 'j', 'a', 'y', ' ', 'g', 'u', 'r', 'j', 'a', 'r']
```

In [ ]:

In [23]:
```
x
```

Out[23]:
```
10
```

In [ ]:
```
# mutable and Immutable

Mutable - can be changes after creation

Immutable - can not be changes after creation
```

In [ ]:

In [ ]:

Strings

In [7]:
```
# strings

single_quote = 'hello world'
```

```
double_quote = "Next world"

triple_quote = """ Hi, world"""
```

In [8]:
```
# strings operations

greet = "good" + " " + "morning"
greet
```

Out[8]: 'good morning'

In [10]:
```
print("hello " * 5)
```

```
hello hello hello hello hello
```

In [16]:
```
# formatting
name = "john"
age =  29
f1 = f"my name is {name} and I'm {age}"
f1
```

Out[16]: "my name is john and I'm 29"

In [14]:
```
f2 = "my name is {} and I'm {}".format(name,age)
f2
```

Out[14]: "my name is john and I'm 29"

In [15]:
```
f3 = "my name is %s and I'm %d"%(name,age)
f3
```

Out[15]: "my name is john and I'm 29"

In [ ]:
```

```

In [19]:
```
# Boolean

is_true = True
is_false = False

var = 50 < 3
```

In [20]:
```
var
```

Out[20]: False

In [21]:
```
# None Type
age = None
```