Creating variables

In [39]:

```
rollno=111 #assigning int data type to variable
print(id(rollno),rollno,type(rollno),sep="  ,  ")
```

```
1977585456944  ,  111  ,  <class 'int'>
```

In [21]:

```
firstname="Praveen" #assigning string data type to variable
print(id(firstname),firstname,type(firstname),sep="  ,  ")
```

```
1977662605488 Praveen <class 'str'>
```

In [22]:

```
lastname="Kumar" #assigning string data type to variable
print(id(lastname),lastname,type(lastname),sep="  ,  ")
```

```
1977662606704 Kumar <class 'str'>
```

In [23]:

```
maxmarks=50 #assigning string data type to variable
print(id(maxmarks),maxmarks,type(maxmarks),sep="  ,  ")
```

```
1977585266512 50 <class 'int'>
```

In [94]:

```
fullname=firstname+" "+lastname
fullname
```

Out[94]:

```
'Praveen Kumar'
```

Naming a variable

In [24]:

```
var1=2 #assigning int data type to variable
```

In [25]:

```
2var=2 #We are getting syntax error because a variable's name cannot start with a number
```

```
  File "C:\Users\91988\AppData\Local\Temp/ipykernel_26060/710794633.py", lin
e 1
    2var=2 #We are getting syntax error because a variable's name cannot sta
rt with a number
     ^
SyntaxError: invalid syntax
```

In [26]:

```
var 2=2 #We are getting syntax error because a variable's name cannot have spaces between t
```

```
  File "C:\Users\91988\AppData\Local\Temp/ipykernel_26060/1809887568.py", li
ne 1
    var 2=2 #We are getting syntax error because a variable's name cannot ha
ve spaces between them
        ^
SyntaxError: invalid syntax
```

In [27]:

```
var$2=2 #We are getting syntax error because a variable's name cannot use special charatcer
```

```
  File "C:\Users\91988\AppData\Local\Temp/ipykernel_26060/3316679618.py", li
ne 1
    var$2=2 #We are getting syntax error because a variable's name cannot us
e special charatcers.
       ^
SyntaxError: invalid syntax
```

Assigning values to the variables

In [28]:

```
Class=15 #assigning int data type to variable
```

In [29]:

```
1 class=14#We get error because class is a inbuilt keyword in python
```

```
  File "C:\Users\91988\AppData\Local\Temp/ipykernel_26060/1422112804.py", li
ne 1
    class=14#We get error because class is a inbuilt keyword in python
          ^
SyntaxError: invalid syntax
```

In [30]:

```
DEF=12 #assigning int data type to variable
```

In [31]:

```
def=11#We are getting error because def is a inbuilt keyword and also casesensitive
```

```
  File "C:\Users\91988\AppData\Local\Temp/ipykernel_26060/3217749865.py", li
ne 1
    def=11#We are getting error because def is a inbuilt keyword and also ca
sesensitive
       ^
SyntaxError: invalid syntax
```

In [34]:

```
a=True #We are assigning a boolean value to a variable which is possible.
```

In [33]:

```
b=false#since we have'nt enclosed string in " " we get this error because python consider.
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
~\AppData\Local\Temp/ipykernel_26060/2907270223.py in <module>
----> 1 b=false#since we have'nt enclosed string in " " we get this error be
cause python considers it as a undefined variable

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

Using id()

In [69]:

```
marks=13.0 #We are assigning a float data type to a variable.
print(id(marks),marks,type(marks),sep="  ,  ")
marks=35.0
print(id(marks),marks,type(marks),sep="  ,  ")
'''Replacing value of marks also we can see both id() values are different this
is because the values of all variables are unique for lifetime in global scope in
this case we have changed values from 13 to 18 thus they have changed'''
```

```
1977662578288  ,  13.0  ,  <class 'float'>
1977663422864  ,  35.0  ,  <class 'float'>
```

Out[69]:

```
'Replacing value of marks also we can see both id() values are different thi
s\nis because the values of all variables are unique for lifetime in global
scope in\nthis case we have changed values from 13 to 18 thus they have chan
ged'
```

In [70]:

```
print((marks/maxmarks)*100,"%") #String concantenation
print(firstname+" "+lastname)
print(firstname+" "+lastname+" scored "+str(marks/maxmarks*100)+"%")
```

```
70.0 %
Praveen Kumar
Praveen Kumar scored 70.0%
```

Creating dictionary and list

In [71]:

```
student_details={111:"Praveen Kumar",77:"Vijay",118:"Rahul"}
student_list=[rollno,firstname+" "+lastname,marks]
print(student_list)
'''Created a dictionary and list data structure '''
```

```
[111, 'Praveen Kumar', 35.0]
```

Arithmetic operations

In [74]:

```
1+"2"
'''This is because we are trying to add two different data types since python is a strongly
language it throws an error'''
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
~\AppData\Local\Temp/ipykernel_26060/4279838764.py in <module>
----> 1 1+"2"
      2 '''This is because we are trying to add two different data types sin
ce python is a strongly typed
      3 language it throws an error'''

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

In [75]:

```
"1"+"2" #String concatenation 2 string objects can be added into one.
```

Out[75]:

```
'12'
```

In [80]:

```
1/2
'''Returns a float value because / is division operator which returns float '''
```

Out[80]:

```
'Returns a float value because / is division operator which returns float '
```

In [85]:

```
print(1//2)
'''Returns zero value because // is integer division since 0.5 is float zero is returned ''
```

```
0
```

Out[85]:

```
'Returns zero value because // is integer division since 0.5 is float zero i
s returned '
```

Logical operations

In [88]:

```
True and True
#"""The and operator returns true if and only if when both conditions given to it are True
```

Out[88]:

```
True
```

In [89]:

```
True and False
#"""The and operator returns true if and only if when both conditions given to it are True
```

Out[89]:

```
False
```

In [90]:

```
True or False
#"""The or operator returns true even if one of the conditions given to it are True """
```

Out[90]:

```
True
```

In [92]:

```
False or False
#"""The or operator returns true even if one of the conditions given to it are True """
```

Out[92]:

```
False
```

Identity and Membership

In [96]:

```
print(firstname in fullname) #This is true because the in operator checks if given value is
```

```
True
```

In [97]:

```
print(firstname is fullname) #This is False because is operator checks if given value is sa
```

```
False
```

Associativity

In [102]:

```
a=4
b=3
c=2
d=a**b+c
e=a**(b+c)
print(e,d) #The answers are different due to order of precedence when we mention in bracket
```

```
1024 66
```

Area of circle

In [109]:

```
area_of_circle=22/7*6**2
area_of_circle
```

Out[109]:

```
113.14285714285714
```

Tax problem

In [112]:

```
price=85
tax=85*18/100
total=tax+price
total
```

Out[112]:

```
100.3
```

In [ ]:

```

```

Dollars

In [113]:

```
dollar=75
rupees=3333
total_dollars=rupees//dollar
total_dollars
```

Out[113]:

```
44
```

Inflation

In [115]:

```
cost=500
inflation=7/100
cost_year_ago=cost-cost*inflation
cost_year_ago
```

Out[115]:

```
465.0
```