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Variable : Storing some valve

- A variable is a location in memory used to store some data (value)
- In python, variables are Dynamic (We don't even have to declare the type of the variable).

How to create variables (Rules to define variables names)

1. A variable name must start only with alphabet & cannot start with a number
2. A variable accepts only underscore "_"symbol only (No other symbol is accepted)
3. A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
4. Variable names are case-sensitive (age, Age and AGE are threedifferent variables)
5. It cant't accept reserve/keywords
6. print( ), is used to output variables

- can start and end with "*" where starting or ending with "*" indicates it is a private variable

Single Variable Assignment

- it is assigned by using "=" operator

In [1]:
```
# this is first variable assignment
a=9
```

In [2]:
```
#print single variable
a
```

Out[2]: 9

In [3]:
```
#print single variable
print(a)
```

```
9
```

In [4]:
```
A=2
A
```

Out[4]: 2

In [5]:
```
a1=40
a1
```

Out[5]: 40

In [6]:
```
1a=50
```

```
  File "<ipython-input-6-3989605cc5f2>", line 1
    1a=50
     ^
SyntaxError: invalid syntax
```

In [7]:
```
a_1=60
a_1
```

Out[7]:
```
60
```

In [8]:
```
# keywords = reserved words (keywords cannot be used as variable names)
if = 5
```

```
  File "<ipython-input-8-2a62bfd50ad5>", line 2
    if = 5
       ^
SyntaxError: invalid syntax
```

Python Keywords

- Keywords are the reserved words in python
- We can't use a keyword as variable name, function name or any other identifier
- Keywords are case sentive

In [9]:
```
#Get all keywords in python 3
import keyword
print(keyword.kwlist)

print("\n Total number of keywords:", len(keyword.kwlist))
```

```
['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break',
'class', 'continue', 'def', 'del', 'elif', 'else', 'except', 'finally', 'fo
r', 'from', 'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'no
t', 'or', 'pass', 'raise', 'return', 'try', 'while', 'with', 'yield']

 Total number of keywords: 35
```

In [10]:
```
# In python, the latest value will stored in a variable name
a = 9
a = "siva"
print(a)
```

```
siva
```

Storage Locations

In [11]:
```
a = 10
b = 10
```

In [12]:
```
a
```

Out[12]:
```
10
```

In [13]:
```
b
```

Out[13]:
```
10
```

In [14]:
```
# get address using id()
id(a)
```

Out[14]:
```
140706160851008
```

In [15]:
```
id(b)
```

Out[15]:
```
140706160851008
```

In [16]:
```
k = 10
```

In [17]:
```
id(k)
```

Out[17]:
```
140706160851008
```

In [18]:
```
# In Python, the code will be executed line by line

z=90
y=60
x=z+y+i
i=60
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-18-42d6ad9f5d7f> in <module>
      3 z=90
      4 y=60
----> 5 x=z+y+i
      6 i=60

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

In [19]:
```
i
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-19-397d543883c5> in <module>
----> 1 i

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

Delete required variable

In [20]:
```
a=10
print(a)
```

```
10
```

In [21]:
```
# to delete single variable
del a
```

In [22]:
```
# to delete multiple variables at a time

a=10
b=20
c=30
del a,b
```

In [23]:
```
print(c)
```

```
30
```

Multiple Assignments

In [24]:
```
a=10
b=20
c=30
print(a,b,c)
```

```
10 20 30
```

In [25]:
```
# we can asssign multiple variables in a single line
a,b,c = 10,20,30
print(a,b,c)
```

```
10 20 30
```

In [26]:
```
# assign the same value to multiple variables at once
a = b = c = "AI"
print(c)
```

```
AI
```

Python Output

- We use the print() function to output data to the standard output function

In [27]:
```
# print numeric
print(10)
```

```
10
```

In [28]:
```
# print text
print("rama")
```

```
rama
```

In [29]:
```
#print single variable
a=10
print(a)
```

```
10
```

In [30]:
```
print(rama)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-30-bd35eca7531f> in <module>
----> 1 print(rama)

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

In [31]:
```
# print multiple variables

a=10
b=20
c=30
d=40

print(a,b,c,d)  # default separator is space between the values
```

```
10 20 30 40
```

In [32]:
```
a = "The value of a :"
b = 10

print(a,b)
```

```
The value of a : 10
```

In [33]:
```
print("The value of a :",b)
```

```
The value of a : 10
```

In [34]:
```
num = 12
name = 'Sam'
```

In [35]:
```
print("My number is:",num,"and my name is:",name) #variable separator
```

```
My number is: 12 and my name is: Sam
```

In [36]:
```
print('My number is: {} and my name is: {}'.format(num,name))  #positional argument
```

```
My number is: 12 and my name is: Sam
```

In [37]:
```
print('navin "laptop"')
```

```
navin "laptop"
```

In [38]:
```
print('navin's "laptop"')
```

```
  File "<ipython-input-38-777df7b62093>", line 1
    print('navin's "laptop"')
                  ^
SyntaxError: invalid syntax
```

In [39]:
```
print('navin\'s "laptop"')
```

```
navin's "laptop"
```