```
In [8]:  #1- PYTHON INTRODUCTION - (TASK - 1)¶
         #hope everybody install Anconda software which i share to you guys right
         #Just wanted to know how many of know any programming language
         #If you dont know any programming language then you are the best person to learn PYTHON
         #python is very easy language
         #what is python? Ans - python is highly recommanded programming language & object oriented language
         #Father of python - Guido van Rosam
         #Python came from fun tv show called ''complete monty python's flying circus'' - broadcasted in BBC channel
         #Python borrowed all concept from c,c++,java,unix (so python is everything) thats why python very very powerfull tool
         #Python developed in NRI - (Netherland) & lot of people say that python is new language
         #Java released on 1995. python was released on 1989 officialy released on (feb 20th 1991)
         #It has a large and comprehensive standard library.

In [1]:  A=2
         A
Out[1]:  2

In [3]:  B=15
         B
         type(B)
Out[3]:  int
```

/*Now python is very popular based on software industry requirment because everybody wants to write very less code/concile code market trend is - Machine learing, Artificial intelligence, data science & Iot(Internet of things) which companies are used python - google,nasa,uber,netfliz,reddit,facebook/meta, everywhere python used everywhere python code can understand everybody & python is dynamic programming language In python everything done by PVM (python virtual machine) you can access python in any platform independent- windows, linux, mac one code can run in all the 4 platform & no need to write separate programe for every platform. Once you write code you can run in platform Python is dynamically programming language (not required to declared data types) Python is freeware and open source. Moving from one platform to other platform without changeing any code Python contains rich libray - numpy,pandas so python is the best application for datascience which scenario python can't be used - (python can not perform in mobile application like android) Flavours of python - cpython(C programming),jpython(java programming),Iron python(c#.net),Ruby python(Ruby based application programme),Anaconda python(Bigdata,datascience)

Python 1.0 introduce in jan 1994 -- Noorganization is working now

Python 2.0 introduce in oct 2000 -- Noorganization is working now Python 3.0 introduce in Dec 2008, 2016, 2017,---- latest version - 3.6, 3.6, 3.7, 3.8, 3.9, 3.10*/

```
In [4]:  import sys
         sys.version
Out[4]:  '3.10.9 | packaged by Anaconda, Inc. | (main, Mar  1 2023, 18:18:15) [MSC v.1916 64 bit (AMD64)]'

In [6]:  #GETTING STARTED WITH PYTHON LANG
         x=24
         x
         type(x)
Out[6]:  int

In [7]:  6=y

           Cell In[7], line 1
             6=y
             ^
         SyntaxError: cannot assign to literal here. Maybe you meant '==' instead of '='?

In [9]:  #CREATING VARIABLES AND ASSIGNING VALUES
         #RULES FOR ASSIGNING VARIABLES
         # 1.VARIABLES MUST BE START ALPHABET
         # 2.VARAIBLES CAN'T START DIGITS AND SYMBOLS BUT UNDERSCORE(_)IS ALLOWED
         # 3.UPPER CASE AND LOWER CASE LETTER ARE TREATED AS DIFFERENT
         #******************

In [10]: M=1310
         M
Out[10]: 1310

In [15]: m@ =3 #symbols are not allowed
         m@

           Cell In[15], line 1
             m@ =3
               ^
         SyntaxError: invalid syntax

In [16]: 2h=54 #numericals are not allowed
         2h

           Cell In[16], line 1
             2h=54
             ^
         SyntaxError: invalid decimal literal

In [17]: _a=6575  #underscore is allowed
         _a
Out[17]: 6575

In [18]: a=123
         A=234
         print(a)
         print(A)

         123
         234

In [61]: # VARIABLES COMPLETED

In [62]: ## DATATYEPS

In [80]: #INTEGER
         s=12
         print(s)
         type(s)

         12
Out[80]: int

In [82]: s
         id(s)
Out[82]: 2241246462544

In [ ]:  #INT DATATYPE
         #BINARY
         #OCTAL

In [78]: W=0b01010 # BINARY
         W
Out[78]: 10

In [84]: B=0b1111
         print(B)
         type(B)

         15
Out[84]: int

In [85]: B_12=0B101010
         B_12
Out[85]: 42

In [89]: A=0o1000
         A
Out[89]: 4096

In [90]: b=0o010101
         print(b)
         type(b)

         4161
Out[90]: int

In [91]: n=0b2232
         n

           Cell In[91], line 1
             n=0b2232
                ^
         SyntaxError: invalid digit '2' in binary literal

In [93]: h=0o3426
         h
Out[93]: 1814

In [94]: u=0o975
         u

           Cell In[94], line 1
             u=0o975
                ^
         SyntaxError: invalid digit '9' in octal literal

In [97]: a=10
         b=0b10
         c=0o100
         print(a)
         print(b)
         print(c)

         10
         2
         64

In [98]: c1=0o676.43
         c1

           Cell In[98], line 1
             c1=0o676.43
                     ^
         SyntaxError: invalid syntax

In [106… f= 1e2
         f
Out[106]: 100.0

In [103… t= 4e4
         t
Out[103]: 40000.0

In [36]: #FLOAT
         d=234.98
         print(d)
         type(d)

         234.98
Out[36]: float

In [35]: #STRING
         f='monika'
         print(f)
         type(f)

         monika
Out[35]: str

In [ ]:  r="jaga"
         print(r)

In [ ]:  r

In [ ]:  s='''nisha'''
         print(s)

In [34]: #BOOLEAN
         h=True
         print(h)
         type(h)

         True
Out[34]: bool

In [33]: #BOOLEAN
         j=False
         print(j)
         type(j)

         False
Out[33]: bool

In [123… a=56
         b=87
         a==b
         a>b
Out[123]: False

In [119… a<b
Out[119]: True

In [124… s=9675
         b=4567
         s==b
Out[124]: False

In [111… a=2+5j
         b=3+7j
         print(type(a))
         print(type(b))
         type(b)
         print(a+b)
         print(a-b)
         print(a*b)
         print(a/b)

         <class 'complex'>
         <class 'complex'>
         (5+12j)
         (-1-2j)
         (-29+29j)
         (0.706896551724138+0.01724137931034482j)

In [112… t=25+67m
         t

           Cell In[112], line 1
             t=25+67m
                   ^
         SyntaxError: invalid decimal literal

In [114… a=5+45j
         a
         a.real
Out[114]: 5.0

In [115… a.imag
Out[115]: 45.0

In [116… type(a)
Out[116]: complex

In [117… id(a)
Out[117]: 2241377581040

In [28]: a=32
         print(a)

         32

In [31]: type(a)
Out[31]: int

In [29]: pi=3.17
         print(pi)

         3.17

In [30]: type(pi)
Out[30]: float

In [38]: R=None
         print(R)
         type(R)

         None
Out[38]: NoneType

In [39]: 34=hg

           Cell In[39], line 1
             34=hg
             ^
         SyntaxError: cannot assign to literal here. Maybe you meant '==' instead of '='?

In [40]: w=6876
         w
Out[40]: 6876

In [59]: # DATATYPES COMPLETED

In [60]: #IDENTIFERS
         #There is a person whose name - Multiple names are to identify person.so finally the Name which can be used for identification purpose.
         #Name in the python programme is called IDENTIFIER (x = 10) (X - identifier)
         #*'''

         #Nameing ceremoney we have some rules to naming a child . e.g - Gods name,Ancestor Name,have to do some R & D. you cannot keep the child name as - Cat or dog r
         # *Rules to define Python Identifier & we will check those rules ==

         #  <1 Alphabet (uppercae & lowercase) <2> Digits (0-9) # should not stat with digit <3> underscore(_)*/

In [42]: NMG=46545
         NMG
Out[42]: 46545

In [43]: FHGR=24176
         FHGR
Out[43]: 24176

In [45]: MONI=1013
         moni

         ---------------------------------------------------------------------------
         NameError                                 Traceback (most recent call last)
         Cell In[45], line 2
               1 MONI=1013
         ----> 2 moni

         NameError: name 'moni' is not defined

In [46]: GATE=54
         FGH

         ---------------------------------------------------------------------------
         NameError                                 Traceback (most recent call last)
         Cell In[46], line 2
               1 GATE=54
         ----> 2 FGH

         NameError: name 'FGH' is not defined

In [47]: 34JG=56
         34JG

           Cell In[47], line 1
             34JG=56
               ^
         SyntaxError: invalid imaginary literal

In [48]: cash=209
         cash
Out[48]: 209

In [49]: tra$h=567
         tra$h

           Cell In[49], line 1
             tra$h=567
                ^
         SyntaxError: invalid syntax

In [50]: cash2=56
         cash2
Out[50]: 56

In [51]: 123ha=986
         123ha

           Cell In[51], line 1
             123ha=986
               ^
         SyntaxError: invalid decimal literal

In [52]: acde=20
         type(acde)
Out[52]: int

In [53]: new=75
         NEW

         ---------------------------------------------------------------------------
         NameError                                 Traceback (most recent call last)
         Cell In[53], line 2
               1 new=75
         ----> 2 NEW

         NameError: name 'NEW' is not defined

In [54]: def=876
         def

           Cell In[54], line 1
             def=876
                ^
         SyntaxError: invalid syntax

In [55]: DEF=875
         DEF
Out[55]: 875

In [56]: IF=876
         IF
Out[56]: 876

In [57]: if=876
         if

           Cell In[57], line 1
             if=876
               ^
         SyntaxError: invalid syntax

In [58]: # COMPLETED IDENTIFERS

In [63]: #PYTHON KEYWORDS

In [64]: ##35 RESERVED WORDS---

         #True, False, None ==> Represent Boolean data types
         #if, else, elif ==> Represent the statement (# python switch,do..while statament is not available)
         #while, for, break, continue, return, in, yield ==> Represent the loop concept
         #try, except, finally, raise, assert ==> Represent for functionallity
         #import,from,as,class,def,pass,global,nonlocal,lambda,del,with==>Represent the class,method,function
         #*NOTES -- 35 RESERVED WORDS ARE (ALPHABET) // *EXCEPT (True,False,None)

In [65]: A=True
         A
Out[65]: True

In [66]: A1=true
         A1

         ---------------------------------------------------------------------------
         NameError                                 Traceback (most recent call last)
         Cell In[66], line 1
         ----> 1 A1=true
               2 A1

         NameError: name 'true' is not defined

In [67]: True=a

           Cell In[67], line 1
             True=a
             ^
         SyntaxError: cannot assign to True

In [68]: False=ty

           Cell In[68], line 1
             False=ty
             ^
         SyntaxError: cannot assign to False

In [71]: g=None
         g
         type(g)
Out[71]: NoneType

In [72]: G=none
         G

         ---------------------------------------------------------------------------
         NameError                                 Traceback (most recent call last)
         Cell In[72], line 1
         ----> 1 G=none
               2 G

         NameError: name 'none' is not defined
```

import pandas as pd df=pd.DataFrame(keyword.kwlist) df

```
In [ ]:  #KEYWPRDS COMPLETED

In [ ]:  #TYPE CASTING
         #int()

In [132… int(48.9)
Out[132]: 48

In [133… int(True)
Out[133]: 1

In [172… int(-9)
Out[172]: -9

In [134… int(False)
Out[134]: 0

In [135… int('monika')

         ---------------------------------------------------------------------------
         ValueError                                Traceback (most recent call last)
         Cell In[135], line 1
         ----> 1 int('monika')

         ValueError: invalid literal for int() with base 10: 'monika'

In [136… int('123')
Out[136]: 123

In [137… int(2+4j)

         ---------------------------------------------------------------------------
         TypeError                                 Traceback (most recent call last)
         Cell In[137], line 1
         ----> 1 int(2+4j)

         TypeError: int() argument must be a string, a bytes-like object or a real number, not 'complex'

In [138… #FLOAT()

In [139… float(12)
Out[139]: 12.0

In [140… float('13')
Out[140]: 13.0

In [142… float(False)
Out[142]: 0.0

In [143… float(True)
Out[143]: 1.0

In [144… float(5+7j)

         ---------------------------------------------------------------------------
         TypeError                                 Traceback (most recent call last)
         Cell In[144], line 1
         ----> 1 float(5+7j)

         TypeError: float() argument must be a string or a real number, not 'complex'

In [170… float(-6)
Out[170]: -6.0

In [171… float(0
              )
Out[171]: 0.0

In [145… float('jaga')

         ---------------------------------------------------------------------------
         ValueError                                Traceback (most recent call last)
         Cell In[145], line 1
         ----> 1 float('jaga')

         ValueError: could not convert string to float: 'jaga'

In [146… #BOOLEAN

In [147… bool(12)
Out[147]: True

In [148… bool(1)
Out[148]: True

In [149… bool(0)
Out[149]: False

In [150… bool(3+6j)
Out[150]: True

In [151… bool(True)
Out[151]: True

In [152… bool(False)
Out[152]: False

In [153… bool(9.67)
Out[153]: True

In [154… bool('hi')
Out[154]: True

In [155… bool("gdudr")
Out[155]: True

In [168… bool(-56)
Out[168]: True

In [169… bool(0)
Out[169]: False

In [156… #COMPLEX()

In [157… complex(12
                )
Out[157]: (12+0j)

In [158… complex(23.8)
Out[158]: (23.8+0j)

In [159… complex(3,2)
Out[159]: (3+2j)

In [161… complex(True)
Out[161]: (1+0j)

In [163… complex(False)
Out[163]: 0j

In [164… complex(0)
Out[164]: 0j

In [165… complex('hi')

         ---------------------------------------------------------------------------
         ValueError                                Traceback (most recent call last)
         Cell In[165], line 1
         ----> 1 complex('hi')

         ValueError: complex() arg is a malformed string

In [166… complex('10')
Out[166]: (10+0j)

In [167… complex(-2)
Out[167]: (-2+0j)

In [173… #COMPLETED TYPE CASTING

In [180… #FUNDAMENTAL DATATYPES AND IMMUTABILITY

In [174… X2=10
         Y2=10
         Z2=60
         print(id(X2))
         print(id(Y2))
         print(id(Z2))

         2241246462480
         2241246462480
         2241246464080

In [175… x=50
         y=50
         print(id(x))
         print(id(y))

         2241246463760
         2241246463760

In [176… a=12
         b=12
         a is b
         b is a
Out[176]: True

In [179… X=True
         Y=True
         Z=False
         X is Y
         Y is Z
         Z is X
         X is Z
         Z is Y
         Y is X
Out[179]: True

In [181… #COMPLETED THE CONCEPT OF FUND DATATYPE AND IMMUTABILITY

In [182… # END OF THE TASK 1

In [ ]:
```