In [ ]: In [1]: In [2]:

variables varies the values

a=10
# 10 is a values stored in a

variable name called 'a' a

variables

store the value
Out[2]: 10
        [3]:
        a=20 a
In

Out[3]: 20

In [4]:
num1=200 #
num1=200
num2=300 #
num2=300
num1=num2 #
num1=300

        num2=num1 #
        num2=300
        num1=500 #
        num1=500
        num1=num2
        #num1=300
        num1

Out[4]: 300
        number=10
        0 number
In [5]:

Out[5]: 100
        NUMBER=20
        0 NUMBER
In [6]:

Out[6]: 200
        NUMber=30
        0 NUMber
In [7]:

Out[7]: 300
        number,NUMBER,
        NUMber
In [8]:

Out[8]: (100, 200, 300)
        500
        number123
In [9]:
number123=

Out[9]: 500
In [10]: In [11]: In [12]:

In [13]:
123number=600
123number

Cell In[10], line 1
 123number=600
 ^
SyntaxError: invalid decimal literal

```python
number$one=800
number$ne
```

```python
numer@two=2
number@two
```

Out[13]: 900

```python
    _=1000
```

In   —
[14]:

Out[14]: 1000

```python
if=900
```
 ^
SyntaxError:

In [15]: In [17]:

invalid syntax

```python
number_one=600
```

```python
if=900
if
```

In [18]:

```python
number_one=900
number_one
```

In [20]: In [ ]:

```python
# green colours keywords
# black colour variables
if for while print
sum
max
min
```

variables can be case sensitive

variables allows upper case ,lower case and combinations number

NUMBER

NUMber

Variables allows numbers as suffix

number123

Variables allows underscore

number_

Variables are not allowed spl charcaters

number$

Variables are not allowed numbers as prefix

123number

Variables are not allowed keywords, except math keywords if for while (not allowed)

```
In [ ]:
for=900
```

```
Cell In[18], line 1
  for=900
     ^
SyntaxError: invalid syntax
```

```
max=800
In [ ]:
```

Packages

```python
# what is the english meaning
of package:
```

In [21]: In [22]: In [23]: In [24]: In

[ ]:

In [ ]: In [25]:

In [ ]: In [ ]: In [ ]:

Manohar

he created python code: addition of

two numbers

he felt that that program **is** very

importnat **====** serve that to world he

created a package **for** python program

then you went to anaconda organization

you **and** anaconda made an agreement

if any one downloads anaconda **=====**

packages **====** laptop package name:

summation

import <package_name>

import summation

 # package name: random
 # package name: time
 # package name: math
In [26]: *# step-2:*
        dir(random)

        randint
Out[26]: ['BPF',
        'LOG4',
        'NV_MAGICCONST',
        'RECIP_BPF',
        'Random',
        'SG_MAGICCONST',
        'SystemRandom',
        'TWOPI',
        '_ONE',
        '_Sequence',
        '_Set',
        '__all__',
        '__builtins__',
        '__cached__',
        '__doc__',
        '__file__',
        '__loader__',
        '__name__',
        '__package__',
        '__spec__',
        '_accumulate',
        '_acos',
        '_bisect',
        '_ceil',
        '_cos',
        '_e',
        '_exp',
        '_floor',
        '_index',

 # package name: cv2 computer vision

import random

import time

import math

import cv2

cv2 package **is not** there **in** your
laptop

whenever you **try** to **import** (use it)

module **not** found

 # package name or module name: random

 # step-1:
import random

```
'_inst',
'_isfinite',
'_log',
'_os',
'_pi',
'_random',
'_repeat',
'_sha512',
'_sin',
'_sqrt',
'_test',
'_test_generator',
'_urandom',
'_warn',
'betavariate',
'choice',
'choices',
'expovariate',
'gammavariate',
'gauss',
'getrandbits',
'getstate',
'lognormvariate',
'normalvariate',
'paretovariate',
'randbytes',
'randint',
'random',
'randrange',
'sample',
'seed',
'setstate',
```

```
'uniform',
'vonmisesvariate',
'weibullvariate']
```

manohar ==== addition
 ==== subt
 ==== div
 === mul

one package : dir(all in one)

```python
# step-1:
import random

# step-2:
dir(random)

# step-3: method: randint
```

<package_name>.<method_name>

```python
help(random.randint)
```

Help on method randint in module
random:

In [ ]: In [ ]:

In [ ]: In [27]:

In [30]:
'shuffle',
'triangular',

```
                                random.randint(10,20)
randint(a, b) method of random.Random
instance
 Return random integer in range [a, b],


including both end points.
```

```
  In [ ]: In [ ]:
```

```
  # step-1: import <package_name> import random

  # step-2: dir(<package_name>) # it will display all the methods dir(random)

  # step-3: we are picking method name # help(<package_name>.<method_name>)
  help(random.randint)

  # step-4: Run the functionality # <package_name>.<method_name>
  random.randint(10,20)

  # package name math
In [31]: import math
In [32]: dir(math)
Out[32]: ['__doc__',
         '__loader__',
         '__name__',
         '__package__',
         '__spec__',
         'acos',
         'acosh',
         'asin',
         'asinh',
         'atan',
         'atan2',
         'atanh',
         'cbrt',
         'ceil',
         'comb',
         'copysign',
         'cos',
         'cosh',
         'degrees',
```

```
            'dist',
            'e',
            'erf',
            'erfc',
            'exp',
            'exp2',
            'expm1',
            'fabs',
            'factorial',
            'floor',
            'fmod',
            'frexp',
            'fsum',
            'gamma',
            'gcd',
            'hypot',
            'inf',
            'isclose',
            'isfinite',
            'isinf',
            'isnan',
            'isqrt',
            'lcm',
            'ldexp',
            'lgamma',
            'log',
            'log10',
            'log1p',
            'log2',
            'modf',
            'nan',
            'nextafter',
            'perm',
            'pi',
            'pow',
            'prod',
            'radians',
            'remainder',
            'sin',
            'sinh',
            'sqrt',
            'tan',
                              'ulp']


                              # Method name: sin

                              help(math.sin)

In [33]: In [34]:          Help on built-in function
                           sin in module math:

                           sin(x, /)
                            Return the sine of x


                           (measured in radians).

'tanh',
'tau',
'trunc',
```

```python
math.sin(90)
```

Out[34]: 0.8939966636005579

                                    sin in module math:

In [35]:
```python
import math
dir(math) # many methods
help(math.sin)
math.sin(90)
```
                                    sin(x, /)
                                     Return the sine of x
                                    (measured in radians).

Help on built-in function

Out[35]: 0.8939966636005579
                        # method name pi
                        : 3.14 math.pi
In [38]:

Out[38]: 3.141592653589793
                        name: time
                        import time
In [39]:
package
In [40]: dir(time)

Out[40]: ['_STRUCT_TM_ITEMS',
         '__doc__',
         '__loader__',
         '__name__',
         '__package__',
         '__spec__',
         'altzone',
         'asctime',
         'ctime',
         'daylight',
         'get_clock_info',
         'gmtime',
         'localtime',
         'mktime',
         'monotonic',
         'monotonic_ns',
         'perf_counter',
         'perf_counter_ns',
         'process_time',
         'process_time_ns',
         'sleep',
         'strftime',
         'strptime',
         'struct_time',
         'thread_time',
         'thread_time_ns',
         'time',
         'time_ns',
         'timezone',
         'tzname']

In [41]:

```
module time:

sleep(...)
 sleep(seconds)

 Delay execution for a given number of
seconds. The argument may be  a floating
point number for subsecond precision.
```

In [43]: In [ ]:

```
import time
print("hello")
time.sleep(5)
print("how are you")

hello
how are you
```

```
# package name: keyword
# method name: kwlist list of keywords
```

```
# method name : sleep
help(time.sleep)
```

```
Help on built-in function sleep in
```
In [51]:   len(keyword.kw
```
import keyword list)
#dir(keyword)
```

Out[51]: 35

In [ ]:   math

                 time

                 keyword

                 import

In [52]: In random

[53]:   random

random
Out[53]: <module 'random' from 'C:\\Users\\omkar\\anaconda3\\Lib\\random.py'>
In [54]: dir(random)
Out[54]: ['BPF',
         'LOG4',
         'NV_MAGICCONST',
         'RECIP_BPF',
         'Random',
         'SG_MAGICCONST',
         'SystemRandom',
         'TWOPI',
         '_ONE',
         '_Sequence',
         '_Set',
```

```
'__all__',
'__builtins__',
'__cached__',
'__doc__',
'__file__',
'__loader__',
'__name__',
'__package__',
'__spec__',
'_accumulate',
'_acos',
'_bisect',
'_ceil',
'_cos',
'_e',
'_exp',
'_floor',
'_index',
'_inst',
'_isfinite',
'_log',
'_os',
'_pi',
'_random',
'_repeat',
'_sha512',
'_sin',
'_sqrt',
'_test',
'_test_generator',
'_urandom',
'_warn',
'betavariate',
'choice',
'choices',
'expovariate',
'gammavariate',
'gauss',
'getrandbits',
'getstate',
'lognormvariate',
'normalvariate',
'paretovariate',
'randbytes',
'randint',
'random',
'randrange',
'sample',
'seed',
'setstate',
```

```
'shuffle',
'triangular',
'uniform',
'vonmisesvariate',
```

```
    'weibullvariate']
                                    random() method of
                                    random.Random instance
    # package name: random          random() -> x in the
    # method name: random           interval [0, 1).


    help(random.random)
                                    random.random()
    Help on built-in function
    random:

    Out[57]: 0.7195485354415533
                                            instance
                                             Return random integer in range [a, b],
    In [56]: In [ ]:                        including both end points.



                                            cv2 is not there will install that


                                            90% packages pip install
                                            take the help of google
                                            you required internet connection
    In [58]: In [ ]:


    help(random.randint)                    import cv2

    Help on method randint in module
    random:                                 #pip freeze to display all the packages

    randint(a, b) method of random.Random
     In [ ]:
```

```
################################
9) NLTK: Natural language tool
kit
10) Scipy


#######################
Cloud#########################
11) Azure
12) google
13) aws


####################### other
third ################ 14)
Transformers (hugging face) BERT
15) math
16) random
17) time
18) pickle : to save the model
19) joblib: to save the model
20) allen nlp company


sir,we need to import package in

every new session? import

package code this need to be run


Sir, we need to import package
in every session? or installing
one time only will work?


one time installation is enough

======== in your laptop if you

want tu use: import
```

```
##################
EDA############################
##### 1)Numpy : maths
applications
2)Pandas : Data base /tables
applications
3)matplotlib : plotting
4)seaborn : plotting


################### ML
################################
5) Sickit-learn : sklearn


################# DL
################################
### 6) Tensorflow
7) keras
8) pytorch


####################### NLP
```

```
In [ ]: In [ ]: In [ ]:


In [ ]: In [ ]:
```

```
1 #
```