

In declarative eg we tell machine what to do & it will take care eg: Lambda in Python (0 to PhD)

In imperative eg we tell how to do as well. Python is a OOPS based # consider it as an array. We can write some code into C, C++ & we can compile that code in C/C++ anything just like REPL in Scala is executed dynamically typed

→ Guido Van Rossum

→ Python is both imperative & declarative

→ 3.11.0 current version of Python

12/12/2023

Python Popular Frameworks

① Web development (server-side)
- Django, Flask, Pyramid, CherryPy.

② GUI Based Applications
- Tk, PyGTK, PyQT, PyJS

③ Machine learning - [TensorFlow, PyTorch, ScikitLearn, Matplotlib, SciPy]

④ Mathematics [NumPy, Pandas etc.]

Print fn

print(*objects, sep=' ', end='\n'
file=sys.stdout, flush=False)

Objects - An object is nothing but a str that is to be printed.

sep - separate the above print values

file - It must be an object with a write(string) method.

flush - The stream or file is forcibly flushed if it is true. By default its value is false.

Eg:
print("Jack", " & Jill", sep=',',
end='.\n')

print("Went up the hill", end='\n')

Python Datastructures

① Python List

↳ It is mutable
L1 = ["John", 100, "USA"]
L2 = [1, 2, 3, 4, 5, 6]
print(type(L1))

o/p
class 'list'

② Python Tuple

↳ It is immutable
T1 = ("Apple", "Mango", 120)

③ Python String

④ Dictionaries

↳ stores in key value format
↳ mutable
↳ keys must be unique & value can be any type like Integer, List, tuple etc.

employee = {
"Name": "John",
"Age": 29,
"Salary": 35000}

⑤ Python Sets

↳ collection of unordered elements

↳ each element must be unique

Month = {"Jan", "Feb", "March",
"April", "May", "June"}

Wans CC: 190 all out in 49.3 overs (Karthik SU 42, Harshil 57, Cheluvraj 47 n.o; Pranav Aswath 3-40, Pranesh Desai 6-63) & 81/1 in 11 overs (Karthik SU 45 n.o). Chintamani Sports Association: 136 all out in 43.3 overs (Badrinayanan R 26, Vrishin Arinjal 28; Santosh Bharadwaj 3-14, Sheetal Ku 3-40) & 139/4 in 33 overs

graal role in securing the first innings lead. In another match, Yuvraj A (139) helped Vi



139 (04x4; 6x6), Yash N 41, Maliksab Shirur 27, Zeeshan Ali 43; Manjunath 3-63, Bharath D 3-69, Sanjay VN 2-33) drew with The Bangalore Cricketers: 168 all

How to participate
1) Solve the cross
2) Scan the QR c
3) Fill the form



50 winners for every Crossword

Winnings to be announced on the T20 Crossword

Once the playoffs started, all that mattered was the performance. On Monday it was the Dhoni-Jadeja duo that removed the in-form Shubman Gill. And then, in dramatic fashion, Jadeja's last-over heroics with the bat won the game for CSK.

"I want to dedicate this win to our one and only MS Dhoni," beaming Jadeja said. It was heartfelt. Jadeja knows that even he is occasionally stumped, the captain has some amount of control as well. Dhoni batted during his first 10 years in CSK and eventually became a regular Test-match bowler. Though Rituraj has been earmarked as the next captain, one wonders if Jadeja is given a captain next season in this time around. In facilitating a

PROVING HIS WORTH, TEN TIMES OVER: Chennai Super Kings' Ravindra Jadeja celebrates after taking his team over the line against GT in the IPL final

Comments

#

'''

Variable name

- or alphabet → starting
- no number at start
- no special char in variable name

$a = b = c = 50$

$a, b, c = 50, "ABC", 10$

Local variable

def add():

$a = 20$

$b = 30$

$c = a + b$

print(c)

Global variable

$x = 10$

def mainFunction():

global x

print(x)

// global key word is needed if you have to modify the value.

del x ← deletes a variable

Maximum Possible value of Integer in Python

$x = \infty$ ---
type(x) will always be int
There is no limitation no of bits & we can expand to limit out of memory.

Point multiple variable in Python

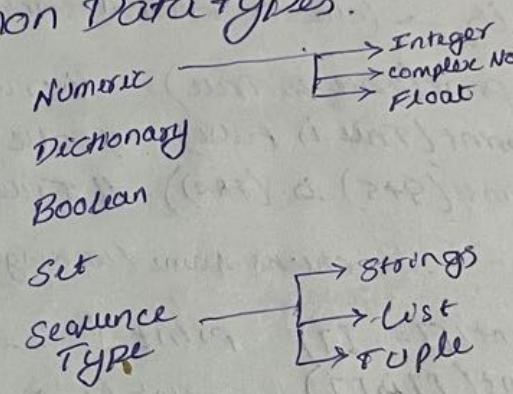
$a = 5$
 $b = 10$ print(a, b)

Basic Fundamentals

- ① Tokens & their types
- ② Comments

- ① → a punctuation mark, reserved words & each word in a stmt
- ② Keywords
- ③ Identifiers
- ④ Variables
- ⑤ Operators.

Python Data types



$a = 1 + 3j$

$a = 40.5$

List

$L_1 = [1, "Hi", 2]$

$L_2 = [3, "Hello", 4]$

print(L1 + L2)

$(L1 * 3)$

print(L1[2])

Hi

Tuple

$t = ("hi", "Python", 2)$

print(t[1:]) // Python, 2

print(t[0:1])

Dictionary

print(d[1])
 $d = \{1: "A", 2: "B", 3: "C"\}$

IPL-2023: KEY NUMBERS

5 IPL titles for MS Dhoni, emulating Rohit Sharma's feat as skipper of MI.

6 IPL titles in which Ambati Rayudu has featured as a player, for MI and CSK. He has emulated Rohit Sharma's feat of recording 6 wins for Deccan Chargers and MI.

of his value.

Rashid Khan (GT): Had an off day in the final with a greasy ball otherwise, whenever GT needed a wicket, he produced it. Bowling with a quick arm speed, the Afghan star has made wrist spin sexy in T20 cricket.

Mohammed Shami (GT): Powerplay wickets are like gold dust and Shami took 17 of his 28 wickets in that period. Also bowled 193 dots, the most in the IPL. A deserving winner of the Purple Cap.

Lops: Harry Brook (SRH): Scored the first century of the IPL season at the Englishman bought for 13.25 cr just could not continue his form, and ended up with just 190 runs in 11 games.

Iam Curran (PBKS): The man of the tournament in England's T20 World Cup win in Australia was picked up for Rs 18.5 cr by Punjab Kings, the most expensive buy ever. He seemed weighed down by the expectations, as the meagre returns of 276 runs and 10 wickets show.

Pritiwi Shaw (DC): Just 106 runs from 8 matches don't do justice to the player who was once labelled as a combination of Tendulkar, Lara and Sehwag. Looked rushed and was caught out of position often against quality pace. Lost the place in the playing XI too.

KL Rahul (LSG): Looked confused and laboured to 274 runs in 9 games (11.22) before getting The botched-up chase when he was batting and failed to guide the team home when they needed 36 balls with 9 wickets almost scandalous.

Sumit Narine (KKR): Mystery seems to course. Teams played comfortably and came at 7.97, the expensive he's 2012. TNN

New Delhi. It was followed by a cryptic tweet, but with the business end of the IPL coming up, the flames were doused.

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"I want to dedicate this win to our one and only MS Dhoni," a beaming Jadeja said. "It was heart-warming to see him. He is an occasional captain, the captain's due amount of respect as well. Dhoni during his first years in CSK and ability to become a Test-match captain. Though Ruturaj has been earmarked as captain, one has to see if Jadeja is a captain next time around in facilitating



PROVING HIS WORTH, TEN TIMES OVER: Chennai Super Kings' Ravindra Jadeja celebrates after taking his team over the line against GT in the IPL final.

Stephen Fleming,
CSK HEAD COACH

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games. He repeated the franchise by staging stunning escape acts. 474 runs in 14 games (SR 149.52) is proof of his value.

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Sunil Narine (KKR): No mystery seems to have course. Teams played comfortably and his 10 wickets came at 7.97, the most expensive he's been in 2012. TNN

Set

$s1 = \{ "ABC", 1, 2, "DEF" \}$
print(s1)
 $s1.add(10)$
 $s1.remove(2)$
Note: You can't access set through index. But you can access element through loop for (x in s1): print(x)

Keywords

import keyword
print(keyword.kwlist)

in

container = "Pranav"

print("o" in container)

is → checks identical stored in some memory

print(True is True) // True

print(False is False) // False

print((9+5) is (7+8)) // True

== → checks same (looking)

print(l1 == l1) print(" == ")

print([l] is [l]) print(" is ")

if True

False

l1 = [] print(l1 is []) # False

l2 = [l] print(l2 is l) # True

The non local keyword.

def outerFn():

var = 13 ← var is not live scope

~~nonlocal var~~

def innerFn(): ← nonlocal var

var = 14

print("var=", var)

innerFn()

print("var=", var)

outerFn()

O/P
14
14

We must define a non-local parameter with non-local if we ever need to change its value under a nested function.

Exception Handling Keywords

try
except
finally
raise
assert

a = 4
b = 0
try:
c = a/b
print(c)

this section will handle exception raised in try block

except ZeroDivisionError:
print("we can't divide by zero")

finally:

print("This is inside finally block")

by using assert keyword we will check if b is 0. Make sure keyword.

print("The value of a/b is: ")

assert b != 0, "Divide by 0 error"

print(a/b)

Output

we can't divide by zero
This is inside finally block
The value of a/b is

Assertion Error

→ assert b != 0, "Divide by 0 error"
print(a/b)

The pass Keyword

For writing empty functions or classes

def add(a, b):

pass

class Addition:

pass

without pass
IndentationError

The Times of India
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Numeric Literals

`X = 0b10100 # Binary literal`
`Y = 100 # Decimal literal`
`Z = 0o215 # Octal literal (zero & alpha)`
`a = 0x12d # Hexadecimal literal`
`b = 5+3j`

`print(b.imag, b.real)`

(Zero &
alpha)
Q and
with &

Python Operators

** exponent

// quotient floor value

e.g: $34/7 = 4.85$

`print(34//7)` O/P
 $\frac{4}{=}$
 floor value.

Conditional Statements

if elif else

if $a \% 2 == 0$:
`print("even")`

elif $a \% 2 != 0$:
`print("odd")`

else:
`print("something")`

LOOPS

for while

Break (terminates the loop) continue (skips current iteration) Pass

eg

`numbers = [2, 5, 1, 3, 10, 12, 6, 7]`

`square = 0`

`squares = []`

for value in numbers:

Note value no need to be declared

`square = value * * 2`

`squares.append(square)`

`print(squares)`

Eg 2

`str1 = "Python Loop"`

for s in str1:

if s == "o":

`print("if block")`

else

`print(s)`

or and not operator can be used in if.

for

`range()`

`list1 = [3, 5, 6, 8, 4]`

~~for i in range(10)~~

`for i in range(len(list1)):`

`list1.append(list1[i] + 2)`

`print(list1)`

`for i in range(0, 10)`

0 to 9 is printed.

Wans CC: 190 all out in 49.3 overs (Karthik SU 42, Harshil 57, Cheluvraj 47 n.o; Pranav Aswath 3-40, Pranesh Desai 6-63) & 81/1 in 11 overs (Karthik SU 45 n.o). Chintamani Sports Association: 136 all out in 43.3 overs (Badrinayanan R 26, Vrishin Arinjal 28; Santosh Bharadwaj 3-14, Sheetal Ku-



How to participate
 1) Solve the crossword with a
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50 winners for every Crossword to get exciting prizes



the first innings lead. In another match, Yuvraj A (139) helped Vijaya Cricket Club take three points

flames were doused.
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I want to dedicate this win to our one and only MS Dhoni," Suresh Raina said after the match. It was heartfelt. Raina knows that even occasionally the captain has the amount of control as well. Dhoni brought his first win in CSK and even became a test-match boy though Ruturaj Gaikwad was earmarked as captain, one who Jadeja is given next respect in time around. facilitating a

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The Times of India
CROSS WORD

'01 CROSSWORD

AKHS

WTCs combined.

Individual score aga

In Test history:

WTC 2023-2023

Strings.

str =

H	E	L	L	O
0	1	2	3	4
-5	-4	-3	-2	-1

str[0] } O/P H str[:] = 'HELLO'
[-5] str[0:] = HELLO

Reverse String.
str[: :-1] str[-5:] = HELLO.
= 'OLL EH' str[: 5] = HELLO
str[:-1] = HELLO.

str[1: 4] = ELL
str[-4:-1] = ELL
since -0 (zero)
can be given
only ELL
will be pointed

del str[0] #Not possible.
del str ✓

str = "Hello"
print(str*3) #Hello Hello Hello
print(str + str1) #Hello world
print(str[4]) # prints O
print('w' in str) # false.
print('wo' not in str) # False
print('C://python3.7')
C://python3.7

print("The string str: %s"
"%s")

The string str: HELLO
like in C lg %s, %d, %f
to perform string formatting.

Escape Sequence

- ① print("They said,
"what's going on?")
- ② print('They said, "what's
going on?")
- ③ print("They said, | "What's
going on? | ")

O/P
they said, "what's going
on?"

- ① ignores new line → print("Hi")
How |
- ② print("\") → \
- ③ print("\\") → ,
- ④ print("\\"a") → ASCII BELL
i.e. ¶

- ⑤ \b → Backspace
- ⑥ \f → leaving-linefeed
- ⑦ \n → new line
- ⑧ \t → tab space
- ⑨ \r → carriage return
print("Hello \r world")
O/P world.
some symbol like this

- ⑩ format
print({} and {} both are best friend.)
• format("Devansh",
"Abhishek"))

→ Abhishek & Devansh
print("{} and {}".
{} - - - - -)
→ print("{a}, {b}, {c})

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CITY CRICKET

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For every Crossword to get exciting e-mail

`format(a = "James", b = "Peter",
c = "Ricky"))`

`i = 10
j = 1.25
str = "Devansh"
print("Hi, integer value is %d\n
float value is %.f\n
string value is %s\n
% (i, j, str))`

Python String Functions

① `count(string, begin, end)`

No of occurrences of substring

② `find(substring, beginIndex, endIndex)`

③ `format`

④ `isalnum()` → checks if string is alpha numeric if yes returning true

⑤ `isalpha()` → checks if only chars

⑥ `isdigit()` → checks if only nos in string.

⑦ `len(string)`

⑧ `lower() - upper() - swapcase()`

⑨ `lstrip()` → strips left white spaces

⑩ `rstrip()`

⑪ `strip()` → performs both l & r

⑫ `split(str, num = string.count(str))`

List

- ① Repetition `print(list1 * 3)`
- ② Concatenation `print(list1 + list2)`
- ③ Length `print(len(list1))`
- ④ Iteration `for (i in list1)`
- ⑤ Membership `print(100 in list1)`

Adding elements to list

`list1 = []` → size of list
`n = input("Enter a value")`
`for (i in range(0, n)):`
 `list1.append(input("Enter"))`

`for (i in list1):`
 `print(i, end = " ")`

Removing

`list1.remove(s) # 2nd index removed.`

`len()`

`max()`

`min()`

`not in`

`for (i not in list1)`



TUPLES

- immutable
- + order can't be changed

t1 = (4, 2, 6, 8, 12)

t2 = ("Python", 8)

t3 = ("Python", {4: 5, 6: 2, 8: 3},
(5, 3, 5, 6))

Creating a single value tuple
t1 = ("Python") type(t1) # string.

t1 = ("Python",) # tuple.

t1 = ("Python",) # tuple.

Accessing tuple

print(t3[0][3]) # h

print(t3[1][4]) # 5
[6] 2
[8] 2

print(t3[2][0]) # 5

merge can be done

print(t1 + (16, 18, 20))

Sets

- unique elements only.
- removes duplicates
- immutable.
- it can contain integer, float, tuple etc
- but mutable elements like list, dictionary it won't hold.

set1 = {1, 2, 3, [5, "Python"]} error.

set2 = {3}

set3 = set(["Jan", "Feb", ... "Dec"])

set3.add("Jul")

for i in set3 # The only way to access element in set
print(i)

set3.remove("Jan")

set3.discard("Jul")

Union

print(set1 | set2) or (set1.union(set2))

Intersection

print(set1 & set2) or (set1.intersection(set2))

intersection - update

→ modifies the original set

set1.intersection_update(set2, set3)

difference b/w 2 sets

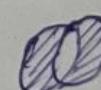
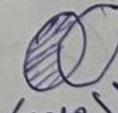
print(set1 - set2)

print(set1.difference(set2))

symmetric Difference

set3 = set1 ^ set2

set3 = set1.symmetric_difference()



Set Comparison

print(`set1 > set2`)
 <
 ==
 true/false
 based on
 number of
 elements

Frozen Set

→ U cannot perform add, remove
 on these sets append etc.

→ ∵ Frozen sets can be used as
 key in dictionary

→ fs1 = frozenset([1, 2, 3, 4, 5])

print(type(fs1))

O/P

<class 'frozenset'>

→ dictionary1 = { "Name": "Pranav",
 "Age": 10, "Country": "India"}

fs2 = frozenset(dictionary1)

→ This will have all the
 keys.

Type casting in Python

n = int(input("Enter"))

→ issubset = set1 >= set2

print(issubset)

→ Many ~~set~~ functions
 are there & can be used
 along with intersection, union etc

Dictionary

→ Key value

→ mutable data structure

dict1 = {1: "Meta", 2: "Apple",
 3: "Amazon", 4: "Netflix",
 5: "Google"}

→ dict2 = dict({1: "Meta", ...})

→ del dict1[1]

del dict1

→ sorted(dict1)

O/Ps list of
 # Keys arranged in ascending
 order

→ clear(dict1)

makes dict1 empty.

→ dict1.pop()

eliminates Apple

→ print(dict1.items())

O/Ps completely like
 dict1([(1, "Meta")])

→ update()

dict1.update({1: "Amazon"})

(1
 3)



- 2) Scan the
 3) Fill the

DPS
 Harry Brook (SRH): Scored the
 st century of the IPL season
 at the Englishman bought for
 13.25 cr just could not
 continue his form, and ended up
 with just 190 runs in 11 games.

Ben Curran (PBKS): The man
 the tournament in England's
 10 World Cup win in Australia
 was picked up for Rs 18.5 cr by
 Punjab Kings, the most
 expensive buy ever. He seemed
 weighed down by the
 expectations, as the meagre
 returns of 276 runs and 10
 wickets show.

Shivam Mithali (DC): Just 10
 from 8 matches don't do justice
 to the player who was once
 labelled as a combination
 of tendulkar, Lara and Sehwag.
 Looked rushed and was out of
 position often and lost his
 quality pace. Lost his XI too.

KL Rahul (LSG): Looked
 confused and laboured
 to 274 runs in 9 games
 (113.22) before getting
 The botched-up opening
 when he was bat
 and failed to get
 home when the ball
 36 balls with 9
 almost scandalous

Sunil Narine (MI): Mystery
 see
 course. Team
 comfortable
 came at 7.
 expensive
 2012. TNM

The Times
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duo that removed
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Ravindra Jadeja celebrates
after taking his team over the
line against GT in the IPL final

Functions def fn(args):

1) Default Arguments

def function ($n_1, n_2=20$):
 print (n_1, n_2)

→ function (10)

O/P
10 20 # gonna gives
 aspace

→ function (30, 50)

O/P
30 50

If no value passed for n_2
then it takes its default value.

2) Keyword Arguments

def function (n_1, n_2):

 function ($n_2=50, n_1=30$)

3) Required Args.

def function (n_1, n_2):

~~parameters~~

try
 function (30)

except

 point ("Fn needs 2 args")

4) Variable length arguments.

i. *args → Non Key

ii. **kwargs → key args.

def function (*args-list):

a = []

for i in args-list:

 a.append(i.upper())

return a

b = function ('Py', 'Sg', 'Lc')

print(b)

def function (**kwargs-list):

a = []

for k, v in kwargs-list.items():

 a.append([k, v])

return a

b = function (First = "Python",

Second = "Lambda",

Third = "Scala")

print(b)

Anonymous Function

lambda [arg1, arg2...argn]: expression

Eg: ~~random~~,

~~lambda~~

lambda a, b: a + b

lambda (x, y)

O/P 50.

Inner Function (Nested)

def world():

 string = "Earth"

 x = 264

def country():

 point(string)

 point(x)

country()

world()

32. Govt. of India

wants CC: 190 all out in 49.3 overs (Karthik SU 42,

Harshil 57, Chetan 47 no; Pranav Aswath 3-40,

Pranesh Desai 6-63) & 81/1 in 11 overs (Karthik SU

45 no; Chintamani Sports Association: 136

The Afghan star has made
spin sexy in T20 cricket.

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almost scandalous.

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mystery seems to have
ended. Teams played him
comfortably and his 100
came at 7.97, the most
expensive he's been in
2012. TNN

The Times of India
CROSSWORD

TOI CROSSWORD

LAKH

WTC 2023

with WTCs combined

best individual scores

centuries in Test history

titles in WTC 2023

titles in Test history

titles in WTC 2023

How to participate
1) Solve the crossword with a pen
2) Scan the QR code
3) Fill the form and upload the image

Python File Handling.

→ File Operations

- a) Open a file
- b) Read or write
- c) Close the file.

Open a file

file object = open(<file-name>,
<access-mode>, <buffering>)

Access Mode

r → opens file in readonly mode.

r+b → read only in binary format.

r+ → opens for read write both.

w → write only

w+t → write & read both

a → append mode, pointer at the end of previous written stmt.

a+t → append & read both.

fileptr = open("file.txt", "r+", "8")

Close

fileObject.close

→ we can perform any operation on an open file. hence its a good practice to close the file.

The with statement

with open(<file name>, <access mode>)
as <file-pointers>:

with is useful when a pair of code needs to be executed with a block of code in between.

→ with open("file.txt", "r+") as
content = f.read():

Writing the file

fileptr = open("file.txt", "w")

fileptr.write("Python is the modern day lg ...")

fileptr.close()

Reading

fileptr = open("file.txt", "r")

content = fileptr.read(10)

reads 1st 10 chars from the file.

print(content)

fileptr.close()

readline()

reads 1 line at a time

readlines()

returns all the lines till EOF (end of file)

Creating a new file

fileptr = open("new.txt", "x")

print(fileptr)

if fileptr:

print("file created successfully")

File Pointer Positions

→ fileptr.tell()

Print the byte number at which the file pointer currently exist.

→ fileptr.seek(10)

Brings it to 10

→ fileptr.rename('current name', 'new name')



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an NS 2-
(2): 48, Manvanth Kumar 56; Sourab Muttur 4-68,
out in 69.2 overs (Prajwal P 68, Desmond Antony
Amey Shanbhag 4-76) drew with Jawahar
48; Adith Shetty 3-35, Nathan D'Mello 5-72.

www.supercricketersassociation.com 221 all
CrosswordTOI TOICrossword TOI_Crossword
T&C apply

CHANGE Begins Here

The Afghan star has made what
spin sex in T20 cricket.

Mohammed Shami (GT):
Powerplay wickets are like gold
dust and Shami took 17 of his 28
wickets in that period. Also
bowled 193 dots, the most in the
IPL. A deserving winner of the
Purple Cap.

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wickets
ice

TOP

'He got rid of the tag of being the guy you will bat around'

CSK Head Coach Stephen Fleming Explains The Commission

List Comprehension.

Python is known for its elegant, simple to write codes

LC allows us to develop sophisticated functionality with just one line of code.

newlist = [expression for item in iterable if condition == True]

Eg:

numbers = [3, 5, 1, 7, 3, 9]

num = [n**2 for n in numbers]

print(num)

→ return [i+10 for i in range(num)]

→ letters = [alpha for alpha in 'javatpoint']

→ number_list = [num for num in range(30) if num % 2 != 0]

→ Nested LC

nlc = []

for - in range(3):
 nlc.append([i])

for - in range(5):
 nlc[-].append(-+-)

print(nlc)

→ In 1 line the same above code
nlc = [[-+- for - in range(5)]
 for - in range(3)]

Output

[[0, 1, 2, 3, 4], [1, 2, 3, 4, 5],
 [2, 3, 4, 5, 6]]

WAP to convert ROMAN no to Integer value

V → 5 I → 1

X → 10

C → 100 L → 50

D → 500

M → 1000

① Python Collection Module

① namedtuple()

② import collections

di = collections.OrderedDict()

di['A'] = 10

di['C'] = 12

di['B'] = 11

di['D'] = 13

for k, v in di.items():

print(k, v)

③ Counter()

from collections import Counter

c = Counter()

list = [1, 2, 3, 4, 5, 7, 9]

Counter(list)

Counter({1: 5, 2: 4})

dict

list = [1, 2, 4, 7, 5, 1, 6]

c = Counter(list)

print(c[1])

The Python Counter is a subclass of dictionary object which helps to count hashable objects.

skipper of MI.

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vs GT,
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team
ed 31 off
left, was

urine's
run its
him
wickets
ice

TOP

deque()

→ doubly ended queue
which allows us to add &
remove elements from both
the ends.

from collections import deque

list = ["x", "y", "z"]

deq = deque(list)

print(deq) *→ crops multiple
dictionaries together*

Chainmap Objects

from collections import

ChainMap

baseline = {‘Name’: ‘Peter’, ‘Age’: 14}

adjustments = {‘Age’: 14, ‘ROLLNO’: 0012}

point(list(ChainMap(adjustments,
baseline)))

O/P

[‘Name’, ‘Age’, ‘ROLLNO’]

① User Dict Objects

② User List Objects

③ User String Objects

} Behaves
as wrapper
class
around
Dict, List &
String
objects.

④ Python Math Module.

import math

math.e

math.sqrt(a)

math.inf → infinite O/P
math.pi

math.nan → O/P nan

math.floor(x)

math.ceil(x)

math.factorial(x)

→ only int values

math.tan(-45)

↓ O/P 45
absolute

math.exp(x)

math.degrees(x,y)

math.sin(angle)

angle = math.pi/4

cos(angle)

tan(angle)

③ Python OS module

```

import os
os.name()
os.mkdir("d:\\newdir")
os.getcwd() # get current working directory.
os.chdir("d:\\") # change directory
os.rmdir() # remove
os.rename(oldname of file new name of file)
os.access # used/gd to check if the invoking user has access.

```

⑥ Python sys module.

↓
it provides functions & variables which are used to manipulate different parts of the Python Runtime Environment.

```

import sys
sys.modules
sys.argv
sys.base_exec_prefix
sys.base_prefix
sys.byteorder
sys.maxsize
sys.path

```

→ Python PATH

sys.stdin
sys.getsetcount
sys.exit → exits Python console
sys.executable

→ where Python is installed.

sys.platform

Python IDE's

- PyCharm
- Spyder
- PyDev
- Atom
- Wing
- Jupyter Notebook
- Thonny
- Rodeo
- Microsoft Visual Studio
- Epic

⑤ Python Statistics Module.

```

import statistics
x = statistics.mean(list)
median()
mode()
stdev()
median_low()
median_high()

```

Ruturaj gains experience
he had to come back from
the difficult captaincy and in
issues to re-integrate into
CSK team. MS has been ex-
tremely supportive and proac-
tive in getting him up there. And
by he repaid his faith," coach
Stephen Fleming said, explain-
ing the Dhoni-Jadeja chemistry
did wonders for CSK.

'He got rid of the tag of being the guy you will bat around'

CSK Head Coach Stephen
Fleming Explains The

Arrays

```
from array import *
```

```
arrayName = array(typecode,  
[initializers])
```

→ import array as arr

```
a = arr.array('i', [2, 4, 6, 8])
```

→ ~~Accessing~~

```
n = int(input())
```

```
arr = input()
```

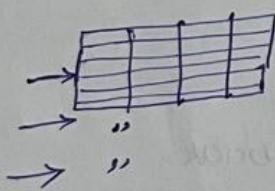
```
l = list(map(int,  
arr.split(' ')))
```

→ 2D Array. ← In Python
is called MATRIX

```
arr = [[1, 2, 3], [4, 5, 6],  
[7, 8, 9]]
```

→ n dimensional array
creation

```
array = [[0 for i in range(6)]  
for col in range(4)]  
for row in range(3)]
```



3x4x6

→ Accessing is similar

```
a[1][0] =
```

Python Command line arguments.

→ Executing .py on cli

→ Python provides getopt
module, in which cli args
& options can be parsed.

```
import sys  
print(type(sys.argv))  
print('The cli args are')  
for i in sys.argv:
```

```
    print(i)
```

① Python getopt module.

→ import getopt
import sys

```
argv = sys.argv[1:]
```

try:

```
    opts, args = getopt.getopt(argv, 'hm:d', ['help',  
        'my-file='])
```

```
    print(opts)
```

```
    print(args)
```

except getopt.GetoptError

```
    print('something went  
wrong!')
```

```
    sys.exit(2)
```

② Python argparse module

Module	Use	Python Version
sys	All arguments in sys.argv (basic)	All
argparse	Build a cli	>= 2.3
docopt	Create a cli	>= 2.5
fire	Automatically generate CLIs	All
optparse	Deprecated	< 2.7

Assertions

```
def sqrt_root(number)
    assert (number < 0),
        "Give a positive
        integer"
    return number**(1/2)
```

print(sqrt_root(8))

Try With Else Clause

```
def reciprocal(num):
    try:
        reci = 1/num
    except ZeroDivisionError:
        print("we cannot divide by
              zero")
    else:
        print(reci)
```

Finally

```
try
except
else
finally
```

Date & Time

- Python provides datetime module
- Python enables us to schedule our Python script to run at particular time.
- datetime module has 6 main classes
 - ① date → year, month & day attributes
 - ② time → hr min second microsecond tzinfo as attr
 - ③ datetime → year month date & "
 - ④ timedelta → difference b/w 2 dates
 - ⑤ tzinfo → timezone into objects
 - ⑥ timezone → class that implements abstract base class

→ import time;
print(time.time())

O/P 1585928913.6519969.

→ import time;
print(time.localtime(time.time()))

O/P

time.struct_time(tm_year=2020,
tm_mon=4, tm_mday=3
... tm_sec=40)

→ Point(time.asctime(time
 .localtime(time.time()))))

O/P
Tue Dec 18 15:31:39 2018

→ import datetime
print(datetime.datetime.now())

O/P
2020-04-04 13:18:35.252578

→ creating datetime obj
datetime.datetime(2020, 04, 04)

repaid his faith," coach
Fleming said, explaining
Dhoni-Jadeja chemistry
wonders for CSK.

CSK Head Coach Stephen Fleming Explains The

Percentage of runs scored through boundaries (26 sixes; 82 fours) out of 625 runs by

but the Englishman bought for Rs 13.25 cr just could not continue his form, and ended up games.

Modules in Python

- ① Simplification
- ② Flexibility
- ③ Reusability
- ④ Scope.

```
import example-module
```

```
result = example-module.square(4)
```

```
import math as mt
```

```
mt.e → prints euler's number  
2.71828
```

```
→ from math import e, tau  
point(e, tau)
```

```
→ from name import *
```

Locating Path of Modules

```
import sys  
print(sys.path)
```

The dir() Built-in Function

→ dir() is used to identify names declared within a module

```
print("List of fn in", dir(str),  
      end=",")
```

Exceptions

Exception vs Syntax Errors

Syntax Error

→ for s in string:

```
if (s != 0 :
```

```
point(s)
```

O/P Syntax Error: Invalid Syntax

Exception

→ for s in string:

```
if (s != 0):
```

```
point(s)
```

O/P Name O is not defined.

Try & Except Statement

```
a = ["Python", "exceptions", "try  
and except"]
```

try

```
for(i in range(4)):  
    print(i, a[i])
```

except

```
print("Index out of range")
```

Raise an Exception

```
num = [3, 4, 5, 7]
```

```
if len(num) > 3:
```

raise Exception ("Length of list must be less than equal to 3 but is {len(num)}")

the guy you will bat around'

CSK Head Coach Stephen Fleming Explains The Surprising Turnaround In



77.44

Percentage of runs scored through boundaries (26 sixes; 82 fours) out of 625 runs by Yashasvi Jaiswal in 14 innings.

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team
d 31 off
left, was

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ilm
wickets

ice

TOP

..

Sending Email Using SMTP (Simple Mail Transfer Protocol)

→ import smtplib

smtplibObj = smtplib.lib.

SMTP(host, port, local-hostname)

→ Eg:

import smtplib

sender-mail = "sender@fromdomain.n.com"

receivers-mail = ["receiver@todomain.com"]

message = """ From: From Person 1
To: To Person 1
Subject: Sending SMTP mail

This is a test email message.

""", 1, (sender-mail,
receivers-mail)

try:

smtplibObj = smtplib.lib.SMTP("localhost")

smtplibObj.sendmail(sender-mail,
receivers-mail, message)

print("Successfully sent mail")

except Exception:

print("Error: unable to send")

live in getting his
match-winner.
Aj Gaikwad
won't be surprised
even a second
time, just
for what he
It may also
be a transition

CSK Head Coach Stephen Fleming Explains The Surprising Turnaround In Ajinkya Rahane's Career...

Today he repaid his faith," coach Stephen Fleming said, explaining the Dhoni-Jadeja chemistry that did wonders for CSK.

The way team CSK functions, it's not going to break down any time soon and fans can expect many such mag-



through boundaries (26 sixes; 82 fours) out of 625 runs by Yashasvi Jaiswal in 14 innings, the most among batters with 400-plus IPL runs this season.

Boundaries

Rs 13.25 cr just could not continue his form, and ended up with just 190 runs in 11 games.

Sam Curran (PBKS): The man of the tournament in England's T20 World Cup win in Australia picked up for Rs 18.5 cr by the Kings, the most expensive buy ever. He seemed bed down by the citations, as the meagre 276 runs and 10 wickets show.

Vi Shaw (DC): Just 106 runs in 8 matches don't do justice to a player who was once rated as a combination of Ikar, Lara and Sehwag. And rushed and was caught position often against my pace. Lost his place in playing XI too.

Ashish (LSG): Looked used and laboured his way 4 runs in 9 games (SR 2) before getting injured. Pitched-up chase vs GT, he was batting on 50-plus failed to guide the team when they needed 31 off balls with 9 wickets left, was most scandalous.

Narine (KKR): Narine's ery seems to have run its course. Teams played him comfortably and his 11 wickets at 7.97, the most expensive he's been since T20I.

CSV files

```
import csv
with open('python.csv') as
    csv_file:
        csv_reader = csv.reader(
            (csv_file, delimiter=','))
        line_count = 0
        for row in csv_reader:
            if line_count == 0:
                print(f'Column names
                    are {", ".join(row)}')
            line_count += 1
```

name, dept, birthday month
Parker, Accounting, November
Smith, IT, October

```
import csv
with open('python.txt', mode='r') as
    csv_file:
        csv_reader = csv.DictReader(
            (csv_file))
        line_count = 0
        for row in csv_reader:
            if line_count == 0:
                print(f'The column names
                    are as follows {", ".join(row)}')
            line_count += 1
        print(f'It {row["name"]}')
        works on the {row["dept"]}
        department & was born in
        {row["birthday month"]}.)
        line_count += 1
```

point(f'Processed {line_count}
 lines')

O/P

The column names are as
follows name, dept, birthday
month

Parker works in Accounting
department, and was born in
November

Smith -----

Processed 3 lines.

Pandas

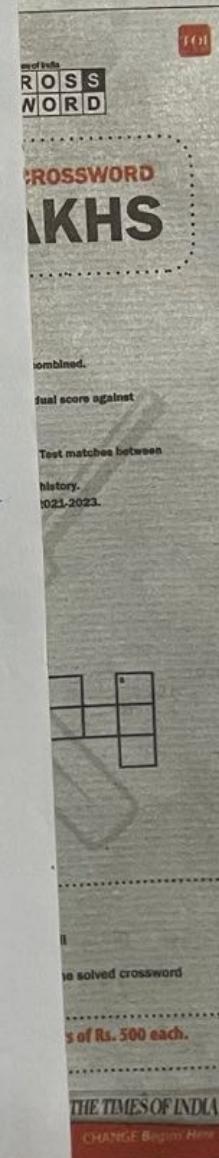
Built on top of NumPy library.

It provides fast analysis,
data cleaning & preparation
of the data for the user.

import pandas

```
df = pandas.read_csv('hrdata
    .csv')
print(df)
```

Go through Pandas
once ~~for loop~~



Rs. 500 each.

THE TIMES OF INDIA

CHANGE Begins Here

OOPS

- ① Class
- ② Objects
- ③ Polymorphism
- ④ Encapsulation
- ⑤ Inheritance
- ⑥ Data Abstraction
- ⑦ Classes & Objects.

```
class Employee:
    def __init__(self, name, id):
        self.name = name
        self.id = id
e1 = Employee("John", 1068)
print(e1.name)
e1.id
```

O/P
John
1068

SET Method

```
class Employee:
    def __init__(self, name, id):
        self.name = name
        self.id = id
    def __str__(self):
        return f"({self.name}, {self.age})"
e1 = Employee("John", 1068)
print(e1)
```

O/P
John(1068)

Note: self is not a keyword it user defined variable we can name it whatever we want but param will be the 'this' kind keyword.

→ del e1.id → class Emp:
 pass

→ CLASS MyClass:

```
x = 10
def __init__(self, age):
    self.age = age
```

IMP

Note: → Give only 2 spaces of indentation in class OOPS OMs or else u get some error
→ init method is same like constructor cant return any thing.

→ Constructor overloading is not possible in Python, only 1 constructor.

→ access specifiers in Python
Public, Private, Protected
→ Most of times constructors are not needed in Python.

Access Specifiers	same class	same package	Derived class	other class
Public	✓	✓	✓	✓
Protected	✓	✓	✓	✗
Private	✓	✗	✗	✗

Defining in Python

class student:

```
def __init__(self, name, age):
    self.age = age
    self.name = name
    self.__salary = salary
```

→ public
→ single underscore so protected
→ private

def funName(self): → protected
parts

def __funName(self): → private
parts

→ while accessing obj.__funName()

→ class can't be outlined private or protected in Python only the inside stuff can be made private & control led.

ndaries sixes, 85 rs) hit by lbman most by a ally is r in the (128 in 2016) in 2016.

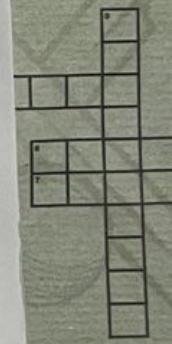
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The Times of India
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down any time soon and fans can expect for many such mag-

Ajinkya Rahane's Career...

Rashav Jaiswal in 14 Innings, the most among batters with 400-plus IPL runs this season. continue his form with just 190 runs.

Accessing class attributes

print(obj.__class__.variable)

Accessing instance

(obj.name)

variables inside
init defined by
self obj

Note:

→ If no __str__ method is defined print & uses __repr__ method.

def __repr__(self):

return "Test id:{}
b:{}" .format(self.id, self.b)

→ If both str & repr are defined
print(obj) ← uses str method
print([obj]) ← uses repr method.

if __name__ == '__main__':

execution starts from this
block if mentioned however
remember the below points.

① This way is used for file define classes
in other programs, to evaluate
when file is called as standalone script

② Note all code above if __main__
is executed with or without the
if block. It's evaluated by interpreter
when class file is loaded.
All print fns are however executed
without the call of __main__.

③ If main fn (i.e. if block main)
present in 2 .py files & if 2nd file
imports 1st file & executes 1st file main

method is executed & then end file

Advantage & what Python thinks is

→ Almost every Python module
can do something useful
if called from command line.

→ If only particular file has
main then what is the use
of other files, it's like
dictatorship :)

Static concept

→ Class variables itself are
static variables in python
Not 'static' keyword.

→ In Java we had to declare
instance variables & we had
another local variables (inside the
method)

Advantages of static vars
→ Variable behaviour won't change
for every new object.
→ allocated memory only once
when the object of the class is
created for 1st time.
→ Can be accessed only through
class name.
→ Memory efficiency, initialization

NOW → All the below 3 methods can be
accessed by class Name or obj ref
① @class method
② @staticmethod
③ Normal
Instance methods
what we seen
till now

class mycls:
 def nrmFn(self, a, b):

@classmethod
 def cFn(cls, a, b)

@staticmethod
 def sFn(a, b)

→ can't modify
any class or object
vars

won't take
any object
itself

Sam Curran (P)
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T20 World Cup
was picked up
Punjab Kings,
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Sam Curran (PBKS):
Boundaries (33 sixes, 85 fours) hit by
Subman Gill most tally is
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Sam Curran (PBKS):
of the tournament in
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was picked up for Rs.
Punjab Kings, the most
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expectations, as the
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wickets show.

Prithvi Shaw (DC):
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KL Rahul (LSG): L
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almost scandalous.

Sunil Narine (KXN):
mystery seems to
course. Teams performed
comfortably and
came at 7.97, the
expensive he's
2012. TNN

Inheritance.

class Person(object)

```
def __init__(self, name, age):
    self.name = name
    self.age = age

def display(self):
    print(self.name)
    print(self.idnumber)

def details(self):
    print("My name is {} Age is {}".format(self.name, self.age))
```

class Employee(Person)

```
def __init__(self, name, age,
             id, salary, post):
```

```
    self.id = id
    self.salary = salary
    self.post = post
```

#super keyword.
Person.__init__(self,
 name, age)

```
super().__init__(self,
                name, age)
```

overriding
def details(self):
 print("Parent variables & child var
can be printed")

```
e1 = Employee('Rahul', 27, 1068,
              35000.25, "DE")
```

```
e1.display()
e1.details()
```

→ Multiple Inheritance
is possible & in case of clash
Parent class is given preference

class Parent1():
 =

class Parent2():
 =

class Child(Parent1, Parent2):

Parent1 is given preference in
case of clash

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The Times of India
123 Presents

CROSSWORD

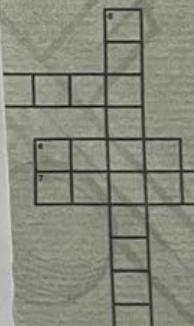
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Polymorphism

creating a separate method
to invoke common methods
across inherited classes.

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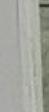
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WTC 2021-2022



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Though Ruturaj Gaikwad has been earmarked as a future CSK captain, one won't be surprised if Jadeja is given a second go as captain next season, just as a mark of respect for what he did this time around. It may also help in facilitating a transition

Stephen Fleming said, explaining the Dhoni-Jadeja chemistry that did wonders for CSK.

The way team CSK functions, it's not going to break down any time soon and fans can expect many such magical nights from the allrounder in the days to come.

Stephen Fleming Explains The Surprising Turnaround In Ajinkya Rahane's Career...

Sabu.Cherian@timesgroup.com



Percentage of runs scored through boundaries (26 sixes; 82 fours) out of 625 runs by Yashasvi Jaiswal in 14 innings, the most among batters with 400-plus IPL runs this season.

118
Boundaries (33 sixes, 85 fours) hit by Subman Gill in 12 matches, the most by a batsman in the tournament, 12 more than in 2016.

Harry Brook (SRH): Scored the first century of the IPL season but the Englishman bought for Rs 13.25 cr just could not continue his form, and ended up with just 190 runs in 11 games.

Sam Curran (PBKS): The man of the tournament in England's T20 World Cup win in Australia was picked up for Rs 18.5 cr by Punjab Kings, the most expensive buy ever. He seemed weighed down by the expectations, as the meagre returns of 276 runs and 10 wickets show.

Prithvi Shaw (DC): Just 106 runs from 8 matches don't do justice to the player who was once labelled as a combination of Tendulkar, Lara and Sehwag. Looked rushed and was caught out of position often against quality pace. Lost his place in the playing XI too.

KL Rahul (LSG): Looked confused and laboured his way to 274 runs in 9 games (SR 113.22) before getting injured. The botched-up chase vs GT when he was batting on 50+ and failed to guide the team home when they needed 31 runs off 36 balls with 9 wickets left, almost scandalous.

Sanil Narine (KKR): Narine's mystery seems to have run its course. Teams played him comfortably and his 11 wickets came at 7.97, the most expensive he's been since 2012. TNN

ENCAPSULATION

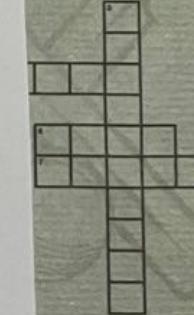
→ Putting restrictions
to methods & variable for
avoiding accidental change.
3 modifions which we discussed
earlier
— Promoted
-- private.

The Times of India
CROSSWORD

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the most centuries in Test matches between
most catches in Test history.
points table in WTC 2021-2023.
2023-2023.



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winning e-vouchers of Rs. 500 each.

THE TIMES OF INDIA
CHANGE Begins Here

Abstraction

- Java class defining using abstract keyword
- can have abstract & non abstract methods
- cannot be instantiated
- can have final methods
- can have constructors & static methods also.

Using Abstract classes you can define a common API for set of subclasses.

By default Python does not provide abstract classes.
 → Python comes with a module that provides the base for defining ABC (Abstract Base Class)
 → A method becomes abstract when decorated with keyword `@abstractmethod`.

```
from abc import ABCs
           abstractmethod
```

`class Polygon(ABC):`

`@abstractmethod`
`def noOfSides(self):`
 `pass`

`class Triangle(Polygon):`

~~class~~
`def noOfSides(self):`
 `print("I have 3 sides")`

`class Pentagon(Polygon):`

`def noOfSides(self):`
 `print("I have 5 sides")`

`R = Triangle()`

`R.noOfSides()`

Abstract Properties

```
import abc
from abc import ABC, abstractmethod
```

`class Parent(ABC):`

`@abc.abstractproperty`

`def geeks(self):`

`return "parent class"`

`class Child(Parent):`

`@property`

`def geeks(self):`

`return "child class"`

`try`

`r = Parent()`

`print(r.geeks)`

`except Exception as e:`

`print(e)`

`r = Child()`

`print(r.geeks)`

O/P

Can't instantiate abstract class Parent with abstract methods
 geeks
 child class.

expectations, as the meagre returns of 276 runs and 10 wickets show.

Prithvi Shaw (DC): Just 106 from 8 matches don't do justice to the player who was once labelled as a combination of Tendulkar, Lara and Sehwag. Looked rushed and was caught out of position often against quality pace. Lost his place in the playing XI too.

KL Rahul (LSG): Looked confused and laboured his way to 274 runs in 9 games (SR 113.22) before getting injured. The botched-up chase vs. CSK when he was batting on 50 and failed to guide the team home when they needed 36 balls with 9 wickets left was almost scandalous.

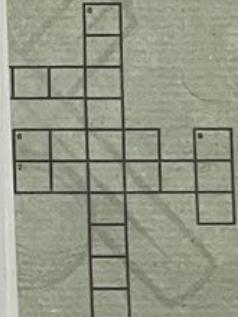
Sunil Narine (KKR): Narine's mystery seems to have a course. Teams played him comfortably and his 11 wickets came at 7.97, the most expensive he's been since 2012. TNN

The Times of India
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 2. For the highest individual score against
 3. He most centuries in Test matches between
 4. Most catches in Test history.
 5. Points table in WTC 2021-2023.
 2021-2023.



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Getting e-vouchers of Rs. 500 each

THE TIMES OF INDIA

CHANGE BE

the Syed Mushtaq Ali Trophy, Dube didn't play a single game in the Ranji Trophy due to a hand injury. The big-hitter who played the last of his 13 T20Is against New Zealand in Feb 2020, has turned back in contention for an

genc in the middle-order for CSK, coupled with his promising domestic form, has earned him a berth in the World Test Championship (WTC) final squad against Australia at the Oval. Rahane finished with 326 runs from 14 matches



AJINKYA RAHANE

Gill in 17 innings, the most by a batter in this IPL. His tally is the fourth-highest ever in the IPL, behind Jos Buttler (128 in 2022), Virat Kohli (122 in 2016)

in 2016).
Punjab Kings, the most expensive buy ever. He weighed down by the expectations, as the returns of 276 runs and wickets show.

Python OOPS

- ① Class
- ② Objects
- ③ Polymorphism
- ④ Encapsulation
- ⑤ Inheritance
- ⑥ Data Abstraction.

Class

Collection of objects

Organized set of data

class ClassName:

class Dog:
 pass

An object consists of
 State
 Behaviour
 Identity.

obj = Dog()

self

→ class methods must have an extra first parameter in the method definition. Even if we have no parameter method we must have this self as 1st arg.

→ this is similar to pointer in C++ & this in Java
→ points to the current object class.

The -init- method

Same as constructors in Java
run as soon as object is created.

Eg 1:

class Dog:

 attr1 = "mammal"

 def __init__(self, name):

 self.name = name

 Rodger = Dog("Rodger")

 Tommy = Dog("Tommy")

 print("Rodger is a {} ".format(Rodger.__class__.attr1))

 print("Tommy is also a {} ".format(Tommy.__class__.attr1))

 print("Rodger is a {} ".format(Rodger.name))

 print("Tommy is also a {} ".format(Tommy.name))

Above way to access
class attributes.

print("My name is {} ".format(Rodger.name))

print("My name is {} ".format(Tommy.name))

Accessing instance variable

Eg 2:

class Dog:

 attr1 = "mammal"

 def __init__(self, name):

 self.name = name

 def speak(self):

 print("My name is {} ".format(self.name))

 format(self.name))

Rodger = Dog("Rodger")

Tommy = Dog("Tommy")

Rodger.speak()

Tommy.speak()

Inheritance

class Person(object):

def __init__(self, name, idnumber):

self.name = name

self.idnumber = idnumber

def display(self)

print(self.name)

print(self.idnumber)

def details(self)

print(self.name)

~~print(self.idnumber)~~

print("My name is {}.".format(self.name))

print("Idnumber : {}.".format(self.idnumber))

print("Idnumber : {}" + format(self.idnumber))

class Employee(Person):

def __init__(self, name, idnumber, salary, post):

self.salary = salary

self.post = post

Person.__init__(self, name, idnumber)

def details(self):

print("My name is {}.".format(self.name))

print("Idnumber : {}.".format(self.idnumber))

print("Salary : {}.".format(self.salary))

print("Post : {}.".format(self.post))

print("Post : {}.".format(self.post))

a = Employee("Rahul", 886012,

200000, "Intern")

a.display()

a.details()

Polymorphism

→ Having many forms

class Bird:

def intro(self):

print("There are many types of birds")

def flight(self):

print("Most of the birds can fly but some cannot")

class sparrow(Bird):

def flight(self):

print("sparrows can fly.")

class ostrich(Bird):

def flight(self):

print("Ostriches cannot fly")

obj_Bird = Bird()

obj_sp = sparrow()

obj_ost = ostrich()

obj_Bird.intro()

.flight()

obj_sp .intro()

obj_ost .

—

The Times of India
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More than One Constructor in Single class

class student

def __init__(self):

print("The 1st constructor")

def __init__(self):

print("The 2nd constructor")

st = student()

O/P: The 2nd constructor

Note: Only the last written constructor gets executed.

The constructor overloading is not allowed in Python.

Python Built-in classes.

- ① getattribute(obj, name, default)
- ↳ to get attributes from obj
- ② setattr(obj, name, value)
- ③ delattr(obj, name)
- ④ hasattr(obj, name)
- O/P True or False

Built-in class attributes

- ① - __dict__ → gives a dict containing entire class
- ② - __doc__ → string which has the class docx
- ③ - __name__ → used to access the class
- ④ - __module__ → name of the module used to access
- ⑤ - __bases__ → module in which the class

Multiple Inheritance is Possible in Python

Class Base 1:

class sum:

~~class Base 2:~~

class Bar:

Class Base 3:

class Derive(Bef, Be, Ba)

Main method defining
in setting the starting point
of program execution in
Python

def main():

print("Pgm starts its
execution from here")

print("Don't forget to
mention the if condn")

if __name__ == "__main__":
 main()

The Times of India
CROSS WORD

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LAKE

WTCs combined.
Individual score ag

titles in Test match

In Test history.

In WTC 2021-2023.



Shivam Shaw (DC): Just 106 runs from 8 matches don't do justice to the player who was once belled as a combination of Indulkar, Lara and Sehwag. Looked rushed and was caught at position often against quality pace. Lost his place in playing XI too.

L. Rahul (LSG): Looked confused and laboured his 0 274 runs in 9 games (SR 13.22) before getting injured. He botched-up chase vs when he was batting on 5 and failed to guide the team when they needed 16 balls with 9 wickets left almost scandalous.

Samil Marine (KKR): No mystery seems to have course. Teams played comfortably and his 1 came at 7.97, the most expensive he's been in 2012. TNN

docopt

```
It is used to create cli
from docopt import docopt
if __name__ == '__main__':
    arguments = docopt(
        '-d -v',
        version='Ex1')
    print(arguments)
```

Fire

```
DID install fire
import fire
class Python(object):
    def hello(self):
        print("Hello")
    def openfile(self, filename):
        print("Openfile" + filename)
if __name__ == '__main__':
    fire.Fire(Python)
```

Python Magic methods

- -init-
 - -str-
- These magic methods are always wrapped with double underscore from both sides

→ magic methods can improve structure of our classes.

① -init- method

(After __)

→ primary constructor of a class like thing. Magic thing is even have 1^o constructor also acts as constructor. After we have constructed

an instance of the class, but before that instance is returned to the caller of the class, the -init- method is executed.

class meta():

```
def __init__(self, *args):
    print("INIT Magic method")
    self.name = args[0]
    self.std = args[1]
    self.marks = args[2]
```

student = meta("Lrika", 11, 98)

② print(student)

print(f"values are"

③ student.name, "\n",
student.std

O/P
①②③.

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Priti Shaw (DC) from 8 matches do to the player who was labelled as a combi Tendulkar, Lara and Looked rushed and out of position often quality pace. Lost the playing XI too.

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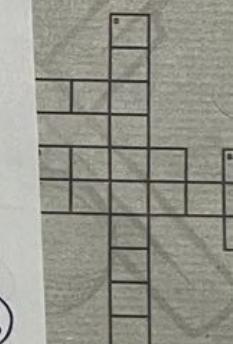
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THE TIME

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② -new-() method.

The magic method -new-() is called implicitly by the -init-() method.

It's like a super() method called from 1^o constructor.

Class MetaObject:

def -new-(cls):

① print("Creating an instance by -new- method")
return super(~~Meta~~, cls).
-new-(cls)

def -init-(self):

② print("Init method is called here")

~~MetaObject~~ MetaC

O/P

- ①
- ②
- ③ <- main - Method at 0x300d8b >

③ -add- Method.

→ Used to add the class instances attributes.

class G1FG1:

def __init__(self, val):
self.val = val

def __add__(self, val2):

return G1FG1(self.val + val2.val)

obj1 = G1FG1("Greeks")

obj2 = G1FG1("For Greeks")

obj3 = obj1 + obj2

print(obj3.val)

→ You can't perform this without -add-() method.

④ -repr- method.

→ Returns a printable representation of an object
→ like toString() method of JAVA.

class G1FG1:

def __init__(self, f_name,
m_name, l_name):

self.f_name = f_name

self.m_name = m_name

self.l_name = l_name

def -repr-(self):

return f"G1FG1({self.f_name}
{self.m_name}{self.l_name})"

gfg = G1FG1("Greeks", "F00",
"Greeks")

print(repr(gfg))

⑤ -str- method

same as above but this is used to return human readable ~~unreadable~~ O/P.

def -str-(self):

return f"Name is {self.name}"

```
print(obj.__str__())
print(obj.__repr__())
```

O/P

Name is Greeks For Greeks

```
GFG1(name="Greeks For Greeks")
```

→ __repr__() method returns
a string representation of the
instance that can be used
to recreate the object.

⑥ - contains - Method.

⑦ - iter - method.

```
class GFG1:
```

```
    def __init__(self, start, stop)
        self.start = start
        self.stop = stop
```

```
    def __iter__(self):
```

```
        for num in range(self.start,
                           self.stop + 1):
            yield num ** 2
```

```
instance = iter(GFG1(3, 8))
```

```
print(next(instance))
```

```
print(next(instance))
```

```
print(next(instance))
```

:

:

:

:

O/P

9

16

25

36

49

64.

Python Stack & Queue

→ Queue follows (FIFO)

& used for sorting.

→ stack (LIFO)

- push

- pop

→ Adding
deletion
traversing.

Eg: stack using list

```
x = ["Python", "C",
      "Android"]
```

```
x.push("Java")
```

```
x.push("C++")
```

```
x.pop()
```

```
x.pop()
```

Eg: Queue

```
import queue
```

```
L = queue.Queue(maxsize=10)
```

```
L.put(A)
```

```
L.put(B)
```

```
=>
```

```
(L.get()) print
```

O/P 9
9
8
7
4

```
print(L.get())
```

```
print(L.get())
```

Decorator

- passing function as parameter
- Higher Order Functions.

```
def add(x):  
    return x+1
```

```
def sub(x):  
    return x-1
```

```
def operator(func, x):  
    temp = func(x)  
    return temp
```

```
print(operator(sub, 10))  
print(operator(add, 20))
```

O/P 9
21

Eg: A function can return another function

```
def hello():  
    def hi():  
        print("Hello")
```

```
    return hi
```

```
new = hello()
```

```
new()
```

O/P Hello.

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Rajesh Kumar

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