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- Quiz 4 tonight
 - labs 1, 2, 3, 4 extended last one!

Quiz 4 review

- ① Write a Program that opens a file, reverses each line in the file, the writes reversed lines to another file.

Solution

f = open(.) # or open(. , 'r')

g = open(. , 'w')

for line in f:

 s = line[:-1] # s = line.strip()

 r = list(s)

 r.reverse()

 s = ''.join(r)

 print(s, file=g)

end

f.close()

g.close()

② write a function that a matrix in list-of-list representation, and return the dictionary representation

Ex. $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}_{2 \times 2}$

$\begin{matrix} & \overset{0}{} & \overset{1}{} \\ \overset{0}{} & & \\ \overset{1}{} & & \end{matrix}$
 $[[1, 2], [3, 4]] \rightarrow \{(1,1):1, (1,2):2, (2,1):3, (2,2):4\}$

def L2D(M):

 D = {}

 for i in range(len(M)):

 for j in range(len(M[i])):

 D[(i+1, j+1)] = M[i][j]

 #end for

 #end for

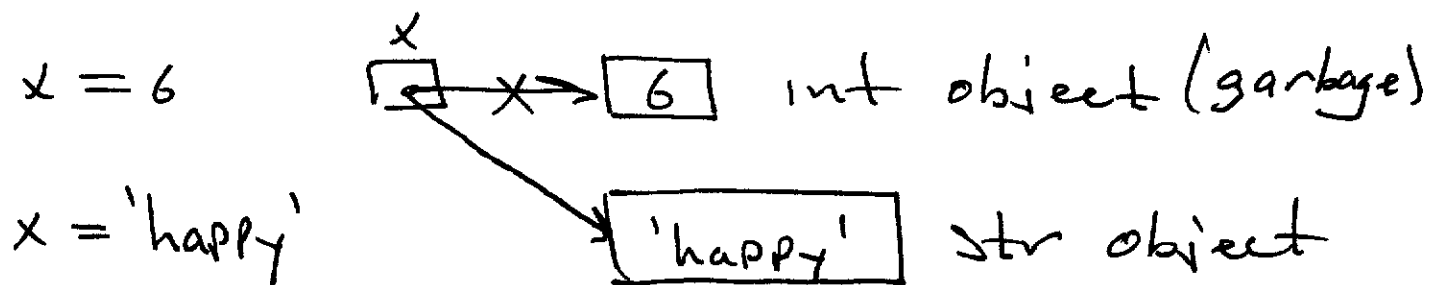
 return D

#end L2D()

chapter - 15 : classes

(read chap: 15, 16, 17)

Recall all Python variables are references to objects.



some object types

int

float

str

tuple

list

Turtle

io.TextIOWrapper (file type)

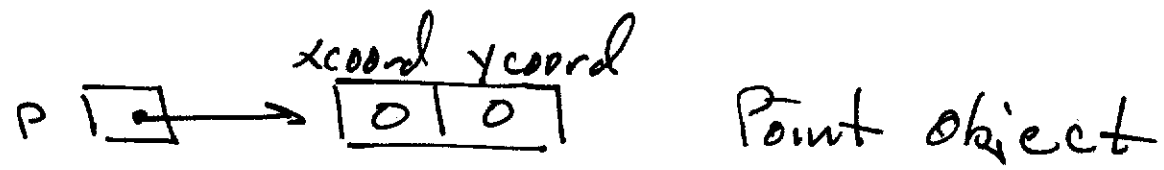
All modern languages (including Python) allow programmer to create new types.

use keyword! class

Ex. Point1.class

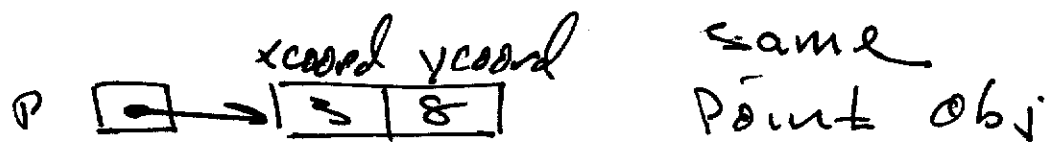
module that defines Point class

interactive:



p.xcoord = 3

p.ycoord = 8

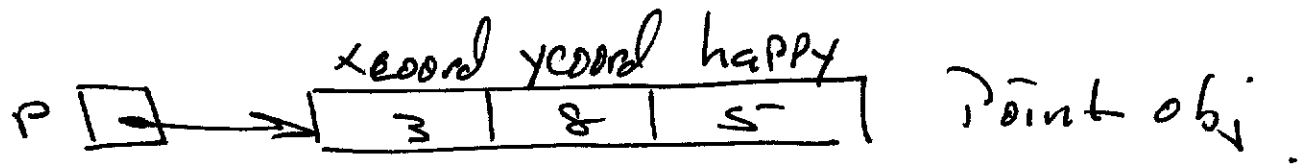


xcoord	]	attribute of Point obj. p
ycoord		

or
fields
or
member variables

can also add attributes

P.happy = 5



note: we don't normally add attributes to an object, once it's created.

Note:

- an object is an area of structured memory in a running program
- a class is a factory for creating and initializing objects

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Ex. Point2.py

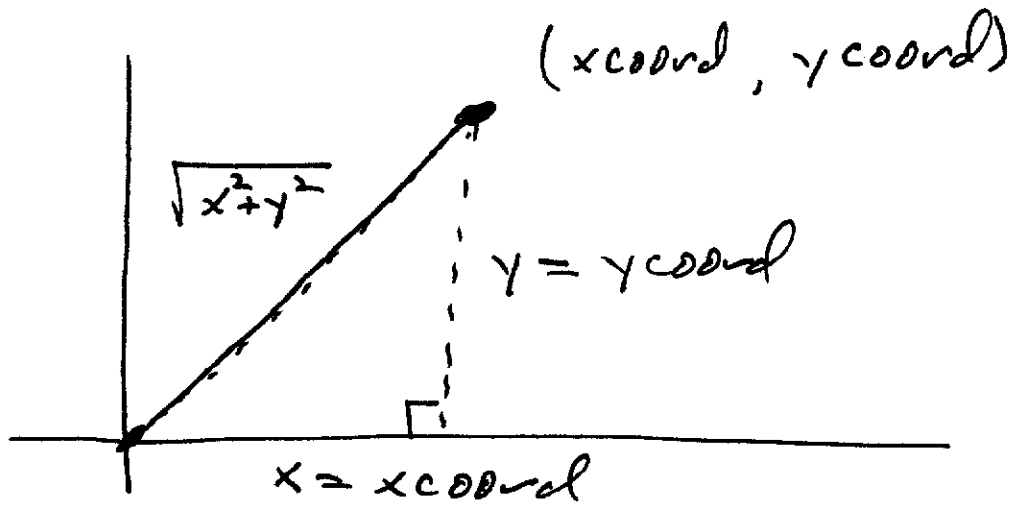
- `--init--()` is automatically called when a new instance is created.
- first parameter of `--init--()` is always called `self`.

Ex. Point3.py

note: constructor takes 0, 1 or 2 arguments.

Ex. Point4.py

note: `self` is the implicit first argument in a function call, i.e. the reference before the dot '`.`'.



Ex. Points.py

fcn. dist() calculates distance
between points.

Ex. Point6.py

--str--() function.