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Machine Learning on Material Informatics

Development Environment For Machine Learning

20190312-Homework 01

TASK

Exercise 3: determine a point in which quadrant without using "if …". Say (-3, 1,3)

□ **Quadrant:**

I: + + +

II: + – +

III: – – +

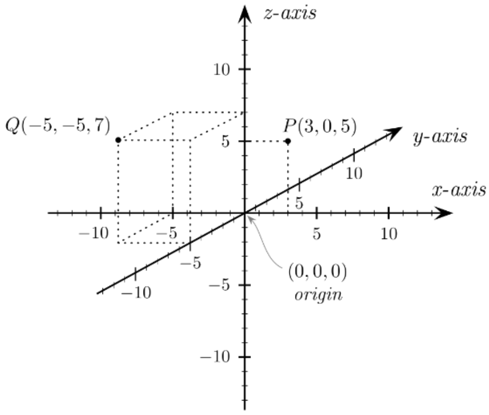
VI: – + +

V: + + –

VI: + – –

VII: – – –

VIII: – + –



SOLUTION

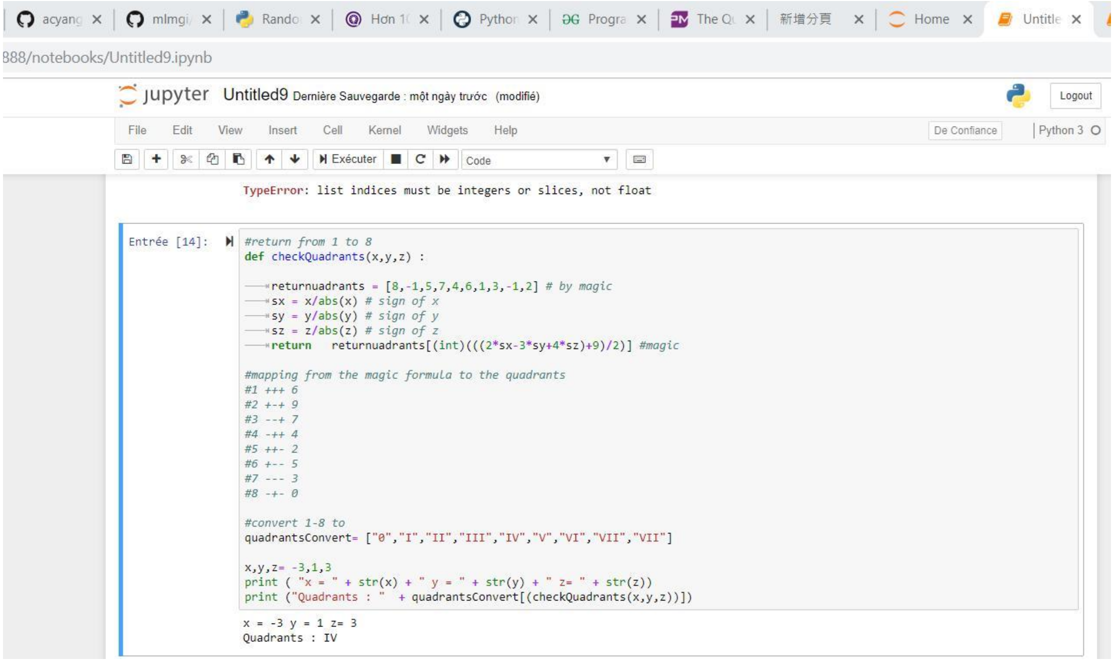
```
#return from 1 to 8
def checkQuadrants(x,y,z) :

    returnuadrants = [8,-1,5,7,4,6,1,3,-1,2] # by magic
    sx = x/abs(x) # sign of x
    sy = y/abs(y) # sign of y
    sz = z/abs(z) # sign of z
    return      returnuadrants[(int)(((2*sx-3*sy+4*sz)+9)/2)] #magic

#mapping from the magic formula to the quadrants
#1 +++ 6
#2 +-+ 9
#3 --+ 7
#4 -++ 4
#5 ++- 2
#6 +-- 5
#7 --- 3
#8 -+- 0
```

```
#convert 1-8 to
quadrantsConvert= ["0","I","II","III","IV","V","VI","VII","VII"]

x,y,z= -3,1,3
print ( "x = " + str(x) + " y = " + str(y) + " z= " + str(z))
print ("Quadrants : "     + quadrantsConvert[(checkQuadrants(x,y,z))])
```



```
TypeError: list indices must be integers or slices, not float
```

Entrée [14]:

```
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```

```
x = -3 y = 1 z= 3
Quadrants : IV
```