**Python Assignment - 19**

1. Make a class called Thing with no contents and print it. Then, create an object called example from this class and also print it. Are the printed values the same or different?

**Ans:**

class Thing:

pass

print(Thing)

<class '\_\_main\_\_.Thing'>

example = Thing()

print(example)

<\_\_main\_\_.Thing object at 0x7f3c3f498850>

#Printed values are not same, it prints, class and object details.

2. Create a new class called Thing2 and add the value 'abc' to the letters class attribute. Letters should be printed.

**Ans**: class Thing2:

letters = 'abc'

Thing2.letters

Output

'abc'

3. Make yet another class called, of course, Thing3. This time, assign the value 'xyz' to an instance (object) attribute called letters. Print letters. Do you need to make an object from the class to do this?

**Ans:**

class Thing3:

def \_\_init\_\_(self,letter):

self.letter = letter

def letters(self):

print(self.letter)

Thing3('xyz').letters()

Output

xyz

4. Create an Element class with the instance attributes name, symbol, and number. Create a class object with the values 'Hydrogen,' 'H,' and 1.

**Ans:**

class Element:

def \_\_init\_\_(self,name,symbol,number):

self.name = name

self.symbol = symbol

self.number = number

def printThem(self):

print(self.name,self.symbol,self.number)

obj = Element('Hydrogen','H',1)

obj.name

Output

'Hydrogen'

5. Make a dictionary with these keys and values: 'name': 'Hydrogen', 'symbol': 'H', 'number': 1. Then, create an object called hydrogen from class Element using this dictionary.

**Ans:**

dict = {'name':'Hydrogen', 'symbol':'H','number': 1}

hydrogen = Element(\*\*dict)

hydrogen.symbol

Output

'H'

6. For the Element class, define a method called dump() that prints the values of the object’s attributes (name, symbol, and number). Create the hydrogen object from this new definition and use dump() to print its attributes.

**Ans:**

class Element:

def \_\_init\_\_(self,name,symbol,number):

self.name = name

self.symbol = symbol

self.number = number

def dump(self):

print(self.name,self.symbol,self.number)

hydrogen = Element('Hydrogen','H',1)

hydrogen.dump()

Output

Hydrogen H 1

7. Call print(hydrogen). In the definition of Element, change the name of method dump to \_\_str\_\_, create a new hydrogen object, and call print(hydrogen) again.

**Ans:**

class Element:

def \_\_init\_\_(self,name,symbol,number):

self.name = name

self.symbol = symbol

self.number = number

def \_\_str\_\_(self):

return ('name=%s, symbol=%s, number=%s'% (self.name, self.symbol, self.number) )

hydrogen = Element('Hydrogen','H',1)

print(hydrogen)

Output

name=Hydrogen, symbol=H, number=1

8. Modify Element to make the attributes name, symbol, and number private. Define a getter property for each to return its value.

**Ans:**

class Element():

def \_\_init\_\_(self ,name,symbol,number):

self.\_\_name = name

self.\_\_symbol = symbol

self.\_\_number = number

@property

def name(self):

return (self.\_\_name)

@property

def symbol(self):

return (self.\_\_symbol)

@property

def number(self):

return (self.\_\_number)

hydrogen = Element('Hydrogen','H',1)

hydrogen.name

Output

'Hydrogen'

9. Define three classes: Bear, Rabbit, and Octothorpe. For each, define only one method: eats(). This should return 'berries' (Bear), 'clover' (Rabbit), or 'campers' (Octothorpe). Create one object from each and print what it eats.

**Ans:**

class Bear:

def eats():

print('berries')

class Rabbit:

def eats():

print('clover')

class Octothorpe:

def eats():

print('campers')

Bear.eats()

Output

berries

Rabbit.eats()

Output

clover

Octothorpe.eats()

Output

campers

10. Define these classes: Laser, Claw, and SmartPhone. Each has only one method: does(). This returns 'disintegrate' (Laser), 'crush' (Claw), or 'ring' (SmartPhone). Then, define the class Robot that has one instance (object) of each of these. Define a does() method for the Robot that prints what its component objects do.

**Ans:**

class Laser:

def does(self):

return('disitegrate')

class Claw:

def does(self):

return('crush')

class SmartPhone:

def does(self):

return('ring')

class Robot:

def \_\_init\_\_(self):

self.laser = Laser()

self.claw = Claw()

self.smartphone = SmartPhone()

def does(self):

return ('Laser is %s, Claw is %s, SmartPhone is %s' % (self.laser.does(),self.claw.does(),self.smartphone.does()))

robo = Robot()

robo.does()

Output

'Laser is disitegrate, Claw is crush, SmartPhone is ring'