

# Book Title

# Chapter 1

การเขียนโปรแกรมคอมพิวเตอร์

# Example 1.1

เวลาที่เรเขียนโปรแกรมคอมพิวเตอร์ไม่ว่าจะด้วยภาษาอะไร มีธรรมเนียมอยู่อย่างหนึ่งที่นิยมทำๆ ตามๆ กันมาคือการสั่งให้คอมพิวเตอร์แสดงคำว่า hello, world หรือ Hello, world! บนหน้าจอคอมพิวเตอร์

เท่าที่สืบค้นกันมาได้ เล่ากันว่าบุคคลแรกที่ใช้ hello, world เป็นตัวอย่างในการเขียนโปรแกรมอย่างเป็นทางการคือคุณไบรอัน เคอร์นิแกน (Brian Kernighan) โดยเป็นส่วนหนึ่งของเอกสารประกอบภาษา BCPL ( Basic Combined Programming Language) จากนั้นก็มาอยู่ในตำราภาษา C ฉบับคลาสสิกและใช้กันแพร่หลายที่สุดซึ่งแต่งขึ้น โดยคุณเดนนิส ริชชี (Dennis ritchie) ร่วมกับไบรอัน เคอร์นิแกน จากนั้นก็มาเป็นตัวอย่างในเอกสารประกอบภาษา C++ และแพร่หลายมาเรื่อยๆ จนกลายเป็นโปรแกรมพื้นฐานที่สุดที่นิยมใช้กันสำหรับทดสอบการใช้ภาษาโปรแกรมมิ่งต่างๆ

ดังนั้น แม้ว่าเราจะมาเขียนภาษา Python กันแล้วนี้ แต่คำสั่งแรกที่เราควรถือเป็นทำไหว้ครูคือ

```
print ("Hello World!")
```

#Example 1.1.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("Hello World!")
```

#Example 1.1.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("Hello World!")
```

#Example 1.1.3

#Python 3.6.5

#Created By Jooompot Sriyapan

print (3+4)

print (6-2)

print (4\*5)

print (4/2)

print (3/2)

print (7/3)

print (4%2)

print (8%3)

print (8//3)

print (2\*\*3)

print (2e3)

print (10-2\*3)

print ((10-2)\*3)

print (3\*2+1)

#Example 1.1.4

#Python 3.6.5

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print ("3x4 =",3\*4)

print ("Hello"+"!")

print ("Hello!"\*3)

#Example 1.1.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("Hello","World","!")  
print ("Hello","World","!",sep="")  
print ("Hello","World","!",sep="..")  
print ("Hello","World",1,2,3,4,5,sep="-")
```

#Example 1.1.6

#Python 3.6.5

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```
print (1,2,3)  
print (4,5,6)  
  
print (7,8,9,end="")  
print (10,11,12)
```

```
print (1,2,3,end="-")  
print (4,5,6)  
print ()
```

```
print (1,2,3,end="\n")  
print (4,5,6,end="\n\n")  
print (7,8,9,end="\n\n\n")  
print (10)
```

#Example 1.1.7

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("\"Hello\"")
```

```
print ("\\Hello\\")
```

#Example 1.1.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("Hello\n")
```

```
print ("World!")
```

```
print ("Hello\n\n")
```

```
print ("World!")
```

```
print ("Hello\tWorld!")
```

#Example 1.1.9

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("Hello\n")
```

```
print ("World!")
```

```
print ("Hello\n\n")
```

```
print ("World!")
```

```
print ("Hello\tWorld!")
```

```
print ("Hello \
```

```
World!")
```

```
print ("3+\
```

```
5")
```

```
print (3\
```

```
+5)
```

#Example 1.1.10

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("Hello {0}")
```

```
print ("Hello {0} World! {1}".format(3,10))
```

```
print ("Hello {1} World! {0}".format(3,10))
```



#Example 1.1.11

#Python 3.6.5

#Created By Jooompot Sriyapan

```
print ("Hello {0}")
```

```
print ("Hello {0} World! {1}".format(3,10))
```

```
print ("Hello {1} World! {0}".format(3,10))
```

```
print (r"Hello World /n")
```

```
print (r"Hello /t World // /n")
```

#Example 1.1.12

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_112():
```

```
    print ("Hello!")
```

```
example_112()
```

```
example_112()
```

```
print ("World!")
```

```
example_112()
```

```
example_112()
```

#Example 1.1.13

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_113():
```

```
    'Example 1.13 Document, Write any thing here!!'
```

```
    print ("Hello")
```

```
example_113()
```

```
print ("*****\n")
```

```
print (example_113)
```

```
print (example_113.__name__)
```

```
print (example_113.__doc__)
```

#Example 1.1.14

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_114():
```

```
    '''Example 1.14 Document,
```

```
    Write any thing here!!
```

```
    in multi-line'''
```

```
    print ("Hello")
```

```
print (example_114.__name__)
```

```
print (example_114.__doc__)
```

## Example 1.2

#Example 1.2.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_201():
```

```
    a = 2
```

```
    b = 999988887777
```

```
    c = 3.14159
```

```
    d = "ABC"
```

```
    e = True
```

```
    f = False
```

```
    print ("1) a=",a)
```

```
    print ("2) b=",b)
```

```
    print ("2) c=",c)
```

```
    print ("4) d=",d,"e=",e, "f=",f)
```

```
    a = b = c
```

```
    print ("5)",a,b,c)
```

```
example_201()
```

#Example 1.2.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_202():
```

```
    a = 2
```

```
    b = "abc"
```

```
    print ("1)",a,b)
```

```
    b,a = a,b
```

```
    print ("2)",a,b)
```

```
example_202()
```

#Example 1.2.3

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_203():
```

```
    a = b = 2
```

```
    c = d = 4
```

```
    print ("1) a,b,c,d =",a,b,c,d)
```

```
example_203()
```

#Example 1.2.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_204():
```

```
    a = 3+5
```

```
    b = True
```

```
    c = 999
```

```
    d = "ddd"
```

```
    e = "eee"
```

```
    f = "fff"
```

```
    print ("1) a b c =",a,b,c)
```

```
    a,b,c = b,c,a
```

```
    print ("2) a b c =",a,b,c,)
```

```
    a,b,c = d,e,f
```

```
    print ("3) a b c = ",a,b,c)
```

```
example_204()
```

#Example 1.2.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_205():
```

```
    Hello = 0
```

```
    print ("1)",Hello)
```

```
    Hello = "Hello!!!"
```

```
    print ("2)",Hello)
```

```
    Hello = Hello
```

```
    print ("3)",Hello)
```

```
    Hello = Hello+Hello
```

```
    print ("4)",Hello)
```

```
    Hello = "Hello!!!"
```

```
    Hello = Hello*3
```

```
    print ("5)", Hello)
```

```
example_205()
```

#Example 1.2.6

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_206():
```

```
    a,b,c = 1,3,5
```

```
    print ("1) ",a,b,c)
```

```
    print ("2) ",(a,b,c)*2)
```

```
    print ("3) ",(a,b,c)*3)
```

```
    print ("4)",a*1,b*2,c*3)
```

```
example_206()
```

#Example 1.2.7

#Python 3.6.5

#Created By Jooompot Sriyapan

def example\_207():

    a = 9

    b = 3.4

    c = 3e4

    d = "Hello"

    e = True

    f = None

    g = []

    h = [3,4,5,"Hello"]

    i = ()

    j = (3,4,5,"Hello")

    print ("1) a=",a,type(a))

    print ("2) b=",b,type(b))

    print ("3) c=",c,type(c))

    print ("4) d=",d,type(d))

    print ("5) e=",e,type(e))

    print ("6) f=",f,type(f))

    print ("7) g=",g,type(g))

    print ("8) h=",h,type(h))

print ("9) i=",i,type(i))

print ("10) j=",j,type(j))

example\_207()

#Example 1.2.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_208():
```

```
    a,b = 9,8
```

```
    print ("1) a+b =",a+b)
```

```
    print ("2) a-b =",a-b)
```

```
    print ("3) axb =",a*b)
```

```
    print ("4) a/b =",a/b)
```

```
    print ("5) a//b =",a//b)
```

```
    print ("6) a mod b =",a%b)
```

```
    print ("7) a power b =",a**b)
```

```
    print ("8)  $3^4+2*3^{2*(1+1)} =$ , $3^4+2*3^{2*(1+1)}$ )
```

```
example_208()
```

#Example 1.2.9

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_209():
```

```
    print ("1) True and False is",True & False)
```

```
    print ("2) True or False is",True | False)
```

```
    print ("3) Not True is",not(True))
```

```
    print ("4) 3 == 3 is",3==3)
```

```
    print ("5) 3 == 4 is",3==4)
```

```
    print ("6) not (3==4) is",not(3==4))
```

```
    print ("7) 5>4 is",5>4)
```

```
    print ("8) 4>4 is",4>4)
```

```
    print ("9) 4>=4 is",4>=4)
```

```
    print ("10) 5==4 is",5==4)
```

```
    print ("11) 5!=5 is",5!=4)
```

```
    print ("12) 4==4 is",4==4)
```

```
example_209()
```



#Example 1.2.10

#Python 3.6.5

#Created By Jooompot Sriyapan

def example\_210():

```
print ("1) 3x10 power 5 =",3e5)
print ("2) type of 3e5 =",type(3e5))
print ("3) 3x10 power 5 =",3*10**5)
print ("4) type of 3*10**5 =",type(3*10**5))
print ("5) 3.12345 * 10 power 5 =",3.12345e5)
print ("6) type of 3.12345e5 =",type(3.12345e5))
print ("7) 3.12345 * 10 power 5 =",3.12345*10**5)
print ("8) type of 3.12345 * 10**5 =",type(3.12345*10**5))
```

example\_210()

#Example 1.2.11

#Python 3.6.5

#Created By Jooompot Sriyapan

def example\_211():

```
print ("1) interger of 3.5 =",int(3.5))
print ("2) float of 3 =",float(3))
print ("3) 3+3 =",3+3)
print ("4) float of 3+3 =",float(3+3))
print ("5) string of 3 + string of 3 =",str(3)+str(3))
print ("6) \"3\" , \"3\" =", "3", "3")
print ("7) \"3\" + \"3\" =", "3"+"3")
```

example\_211()

#Example 1.2.12

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_212():
```

```
    a = 10;    print ("1) ",a)
```

```
    a = a+10;  print ("2) ",a)
```

```
    a+=10;    print ("3) ",a)
```

```
    a-=5;  print ("4) ",a); a*=2; print ("5) ",a); a/=5; print ("6) ",a)
```

```
example_212()
```

#Example 1.2.13

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_213():
```

```
    a = "" "Hello
```

```
World!"" "
```

```
    b = "Hello!\nWorld."
```

```
    c = "Hello \
```

```
World"
```

```
    d \
```

```
    =5
```

```
    e= \
```

```
    6
```

```
    print ("1) ",a)
```

```
    print ("2) ",b)
```

```
    print ("3) ",c)
```

```
    print ("4) ",d)
```

```
    print ("5) ",e)
```

```
example_213()
```

## Example 1.3

#Example 1.3.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_301():
```

```
    x = 10
```

```
    y = 11
```

```
    if x==10:
```

```
        print ("Yes, x =",x)
```

```
    if y==10:
```

```
        print ("Yes, y =",10)
```

```
example_301()
```

#Example 1.3.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_302():
```

```
    x = 10
```

```
    y = 11
```

```
    if x is 10:
```

```
        print ("Yes, x =",x)
```

```
    if y is 10:
```

```
        print ("Yes, y =",y)
```

```
example_302()
```

#Example 1.3.3

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_303():
```

```
    x = input("Input x (guess 1-10) ")
```

```
    if x=="10":
```

```
        print ("Yes, you win X=10")
```

```
    else:
```

```
        print ("Noooo, try again (try 10)")
```

```
example_303()
```

#Example 1.3.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_304():
```

```
    x = input("Input x (guess 1-10) ")
```

```
    if x=="10":
```

```
        print ("Yes, you win x=10")
```

```
    elif x=="11":
```

```
        print ("Very close, try again (try 10)")
```

```
    else:
```

```
        print ("Noooo, try again (try 11)")
```

```
example_304()
```

#Example 1.3.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_305():
```

```
    x = input ("Input x ")
    print ("1) x=",x)
    print ("2) x=",x,type(x))
    x = int(x)
    print ("3) int(x) =",x,type(x))
    x = float(x)
    print ("4) float(x) =",x,type(x))
```

```
example_305()
```

#Example 1.3.6

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_306():
```

```
    x=0

    while x!=10:
        x = input ("Input x ")
        x = int(x)

        if x==10:
            print ("Yes, you win x=10")
        elif x>10:
            print ("Too much, try again")
        elif x<10:
            print ("Too little, try again")
```

```
    print ("End Game!!!")
```

```
example_306()
```

#Example 1.3.7

#Python 3.6.5

#Created By Jooompot Sriyapan

```
import random
```

```
def example_307():
```

```
    x = random.randint(1,10)
```

```
    print (x)
```

```
example_307()
```

#Example 1.3.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
import random
```

```
def example_308():
```

```
    x = 0
```

```
    y = random.randint(1,10)
```

```
    while x!=y:
```

```
        x = int(input ("Input x (1-10) "))
```

```
    if x==y:
```

```
        print ("Yes, you win x=",y)
```

```
    elif x>y:
```

```
        print ("Too much, try again")
```

```
    elif x<y:
```

```
        print ("Too little, try again")
```

```
    print ("End Game!!!")
```

```
example_308()
```

## Example 1.4



#Example 1.4.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_401():
```

```
    for i in range(10):
```

```
        print (i)
```

```
example_401()
```

#Example 1.4.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_402():
```

```
    for i in range(1,10):
```

```
        print (i)
```

```
example_402()
```

#Example 1.4.3

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_403():
```

```
    for i in range(1,11,2):
```

```
        print (i)
```

```
example_403()
```

#Example 1.4.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_404():
```

```
    for i in range(10,1,-1):
```

```
        print (i)
```

```
example_404()
```

#Example 1.4.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_405():
```

```
    for i in range(-10,10,2):
```

```
        print (i)
```

```
example_405()
```

#Example 1.4.6

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_405():
```

```
    for i in range(-10,10,2):
```

```
        print (i)
```

```
example_405()
```

```
def example_406():
```

```
    for i in range(10,-10,-2):
```

```
        print (i)
```

```
example_406()
```

#Example 1.4.7

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_407():
```

```
    for i in range(10):
```

```
        if i==5:
```

```
            i=i+3
```

```
        print (i)
```

```
example_407()
```

#Example 1.4.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_408():
```

```
    for i in range(10):
```

```
        print (i+1)
```

```
example_408()
```

#Example 1.4.9

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_409():
```

```
    x=1
```

```
    while x<5:
```

```
        print ("x =",x)
```

```
        x=x+1
```

```
example_409()
```

#Example 1.4.10

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_410():
```

```
    x=1
```

```
    while x<10:
```

```
        print ("x=",x)
```

```
        x+=2
```

```
example_410()
```

#Example 1.4.11

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_411():
```

```
    z=10
```

```
    while z>1:
```

```
        print ("z=",z)
```

```
        z-=2
```

```
example_411()
```

#Example 1.4.12

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_412():
```

```
    y=2
```

```
    while y<10000:
```

```
        print ("y=",y)
```

```
        y*=2
```

```
example_412()
```

#Example 1.4.13

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_413():  
    y=2  
    while y<1000000:  
        print ("y=",y)  
        y**=2  
  
example_413()
```

#Example 1.4.14

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_414():  
    while (True):  
        x = input("Input 1-10 (10 to Break) ")  
        if x== "10":  
            print ("End Loop")  
            break  
        else:  
            print ("x = ",x)  
            #Can use Ctrl-C or Ctrl-D to break loop  
  
example_414()
```

## Example 1.5



#Example 1.5.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_501():
```

```
    a = [1,2,3,4,5]
```

```
    b = ["abc",2,3,False]
```

```
    print ("1) a=",a)
```

```
    print ("2) b=",b)
```

```
    print ("3) type of a = ",type(a))
```

```
    print ("4) type of b = ",type(b))
```

```
example_501()
```

#Example 1.5.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_502():
```

```
    a = [1,2,3,4,5]
```

```
    b = ["abc",2,3,False]
```

```
    print("1) a[1] =",a[1])
```

```
    print("2) b[0] =",b[0])
```

```
example_502()
```

#Example 1.5.3

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_503():
```

```
    a = [1,2,3,4,5]
```

```
    print("1) a[-1]=",a[-1])
```

```
    print("2) a[-2]=",a[-2])
```

```
example_503()
```

#Example 1.5.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_504():
```

```
    a = [1,2,3,4,5]
```

```
    print ("1) a = ",a)
```

```
    a[0]=7
```

```
    a[2]='a','b',"c,d,e",8,9+2]
```

```
    print ("2) a = ",a)
```

```
example_504()
```

#Example 1.5.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_505():
```

```
    a = [1,2,[11,12,13],4,(21,22,23)]
```

```
    print ("1) a = ",a)
```

```
    print ("2) a[2][1] = ",a[2][1])
```

```
    print ("3) type of a is",type(a))
```

```
    print ("4) type of a[1] is",type(a[1]))
```

```
    print ("5) type of a[2] is",type(a[2]))
```

```
    print ("6) type of a[2][1] is",type(a[2][1]))
```

```
    print ("7) type of a[4] is",type(a[4]))
```

```
example_505()
```

#Example 1.5.6

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_506():
```

```
    a=[1,2,3,4,5]
```

```
    print ("1) a=",a)
```

```
    a.append(9)
```

```
    print ("2) append 9 to a =",a)
```

```
    a.extend([7,8,9])
```

```
    print ("3) extend [7,8,9] to a =",a)
```

```
    a.insert(2,"xyz")
```

```
    print ("4) insert xyz at position 2 =",a)
```

```
    print ("5) find position of 9 = ",a.index(9))
```

```
    print ("6) find position of 1 = ",a.index(1))
```

```
    print ("7) find position of xyz = ",a.index("xyz"))
```

```
    a.append ([11,12,13])
```

```
    print ("8) append [11,12,13] to a =",a)
```

```
example_506()
```

#Example 1.5.7

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_507():
```

```
    a = [1,2,3,4,5,6,3,4,3,6]
```

```
    print ("1) a=",a)
```

```
    print ("2) count 3? =",a.count(3))
```

```
    print ("3) count 6? =",a.count(6))
```

```
example_507()
```

#Example 1.5.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_508():
```

```
    a = [1,2,3,4,5,6]
```

```
    print ("1) a= ",a)
```

```
    a.remove (3)
```

```
    print ("2) remove 3 from a",a)
```

```
    a = [1,2,3,4,5,6,3,4,3]
```

```
    print ("3) assign new a = ",a)
```

```
    a.remove(3)
```

```
    print ("4) remove 3 from a",a)
```

```
    a.remove(3)
```

```
    print ("5) remove 3 from a",a)
```

```
example_508()
```

#Example 1.5.9

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_509():
```

```
    x = ['a','b','c','a']
```

```
    print ("1) x=",x)
```

```
    x.append(['d','e'])
```

```
    print ("2) append list, x=",x)
```

```
    x.remove('a')
```

```
    print ("3) remove 'a', x=",x)
```

```
    x.remove(['d','e'])
```

```
    print ("4) remove ['d','e'], x=",x)
```

```
    x.remove('a')
```

```
    print ("5) remove 'a', x=",x)
```

```
example_509()
```

#Example 1.5.10

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_510():
```

```
    x = ['a','b','c',[3,4,5],'a','b','c']
```

```
    print ("1) x=",x)
```

```
    del x[3]; print ("2) del x[3]=",x)
```

```
    del x[2]; print ("3) del x[2]=",x)
```

```
example_510()
```

#Example 1.5.11

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_511():
```

```
    x = ['a','b','c',[3,4,5],'a','b','c']
```

```
    print ("1) x=",x)
```

```
    print ("2) pop(2) = ",x.pop(2))
```

```
    print ("3) x=",x)
```

```
    print ("4) pop(1) = ",x.pop(1))
```

```
    print ("5) x=",x)
```

```
    print ("6) pop() = ",x.pop())
```

```
    print ("7) x=",x)
```

```
    print ("8) pop() = ",x.pop())
```

```
    print ("9) x=",x)
```

```
example_511()
```

#Example 1.5.12

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_512():
```

```
    a = [2,3,6,1,4,8,1,5,3]
```

```
    b = a
```

```
    c =[8,7,3,2,3,5,4,2,2,1]
```

```
    print ("1) a=",a)
```

```
    print ("2) b=",b,"\n")
```

```
    a.sort()
```

```
    print("3) sorted a=",a)
```

```
    print("4) b=",b,"\n")
```

```
    b.reverse()
```

```
    print("5) reversed b=",b)
```

```
    print("6) a=",a,end="\n\n")
```

```
    print ("7) c=",c)
```

```
    c.reverse()
```

```
    print ("8) reversed c=",c)
```

```
example_512()
```

#Example 1.5.13

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_513():
```

```
    i = [11,12,13,14,15,16,17,18,19,20]
```

```
    print ("1) i=",i)
```

```
    print ("2) i[2:5]=",i[2:5])
```

```
    print ("3) i[2:9:2]=",i[2:9:2])
```

```
    #[Start: End before: Skip]#
```

```
    print ("4) i[:5]=",i[:5])
```

```
    print ("5) i[:2]=",i[:2])
```

```
    print ("6) i[:-1]=",i[:-1])
```

```
    print ("7) i[:-2]=",i[:-2])
```

```
    print ("8) i[-8:-1]=",i[-8:-1])
```

```
    print ("9) i[-8:-1:2]=",i[-8:-1:2])
```

```
    print ("10) i[-8:-1:-2]=",i[-8:-1:-2])
```

```
    print ("11) i[-1:-8]=",i[-1:-8])
```

```
example_513()
```

#Example 1.5.14

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_514():
```

```
    x = [1,2,3,4,5]
```

```
    y = x
```

```
    z = x[:]
```

```
    print ("1) x=",x)
```

```
    print ("2) y = x, y=",y)
```

```
    print ("3) z = x[:], z=",z)
```

```
    print()
```

```
    x.append(6)
```

```
    print ("4) append 6 to x, x=",x)
```

```
    print ("5) y=",y)
```

```
    print ("6) z=",z)
```

```
    print()
```

```
    x = ['a','x','a','c','z','a']
```

```
    print ("7) Assign x=",x)
```

```
    print ("8) y=",y)
```

```
    print ("9) z=",z)
```

```
    print()
```

```

y = [5,6,8,1,2,8,8,4,1,2]
print ("10) Assign y=",y)
print ("11) x=",x)
print ("12) z=",z)

```

example\_514()

#Example 1.5.15

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_515():
```

```
    x = ['a','x','a','c','z','a']
```

```
    y = x
```

```
    print ("1) x=",x)
```

```
    print ("2) y=",y)
```

```
    x.sort()
```

```
    print ("3) x.sort() x=",x)
```

```
    print ("4) y=",y)
```

```
    print ()
```

```
    x = ['a','x','a','c','z','a']
```

```
    y = x
```

```
    print ("5) x=",x)
```

```
    print ("6) y=",y)
```

```
    y.sort()
```

```
    print ("7) y.sort() y=",y)
```

```
    print ("8) x=",x)
```

example\_515()



#Example 1.5.16

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_516():
```

```
    x = ['a','x','a','c','z','a']
```

```
    y = x
```

```
    print ("1) x=",x)
```

```
    print ("2) y=",y)
```

```
    x = sorted(x)
```

```
    print ("3) x=sorted(x), x=",x)
```

```
    print ("4) y=",y)
```

```
example_516()
```

#Example 1.5.17

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_517():
```

```
    a = [11,12,13,14,21,22]
```

```
    print ("1)",a[2:2])
```

```
    a = [11,12,['xx','yy'],14,21,22]
```

```
    print ("2)",a[2:4])
```

```
example_517()
```

#Example 1.5.18

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_518():
```

```
    print ("1) 4 is 4:",4 is 4)
```

```
    print ("2) 4 is (4,3):",4 is (4,3))
```

```
    print ("3) 4 in (4,3):",4 in (4,3))
```

```
    print ("4) (3,4) in (2,3,4):",(3,4) in (2,3,4))
```

```
    print ("5) (3,4) in (2,(3,4),4):",(3,4) in (2,(3,4),4))
```

```
    print ("6) (3,4) is (2,3,4):",(3,4) is (2,3,4))
```

```
    print ("7) (3,4) is (3,4):",(3,4) is (3,4))
```

```
    print ("8) (3,4) in (3,4):",(3,4) in (3,4))
```

```
    print ("9) (3,4) == (3,4):",(3,4)==(3,4))
```

```
example_518()
```

#Example 1.5.19

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_519():
```

```
    x = [2,3,4]
```

```
    y = x
```

```
    print ("1) y is x",y is x)
```

```
    print ("2) y == x",y == x)
```

```
    y = x[:]
```

```
    print ("3) y is x",y is x)
```

```
    print ("4) y == x",y ==x)
```

```
example_519()
```

#Example 1.5.20

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_520():
```

```
    a = (7,8,9)
```

```
    print ("1) ",a)
```

```
    print ("2) ",type(a))
```

```
    print ("3) ",a[1])
```

```
example_520()
```

#Example 1.5.21

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_521():
```

```
    a = [2,3,4]
```

```
    b = (9,10,11)
```

```
    c = (4,5,6,[1,2,3],8,(9,10),15)
```

```
    d = [a,b,c]
```

```
    e = (a,b,c)
```

```
    f = a,b,c
```

```
    g = 2,3,8,10,"a","b"
```

```
    print ("1) a=",a,"type=",type(a))
```

```
    print ("2) b=",b,"type=",type(b))
```

```
    print ("3) a[1]=",a[1],type(a[1]))
```

```
    print ("4) c[1]=",c[1],type(c[1]))
```

```
    print ("5) c[3]=",c[3],type(c[3]))
```

```
    print ("6) c[5]=",c[5],type(c[5]))
```

```
    print ("7) c[3][1]=",c[3][1],type(c[3][1]))
```

```
    print ("8) d=[a,b,c] =",d)
```

```
    print ("9) e=(a,b,c) =",e)
```

```
    print ("10) f=a,b,c =",f)
```

```
    print ("11) g=",g,"type=",type(g))
```

example\_521()

#Example 1.5.22

#Python 3.6.5

#Created By Jooompot Sriyapan

def example\_522():

    a = [1,2,3]

    b = [10,20,30]

    c = a+b

    print ("1",c)

    print ("2",a\*2)

example\_522()

#Example 1.5.23

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_523():
```

```
    a = 1,2,3
```

```
    b = 2,3,4
```

```
    c = a+b
```

```
    print ("1",c)
```

```
    print ("2",b*3)
```

```
example_523()
```

## Example 1.6

#Example 1.6.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_601():
```

```
    for i in (1,1,2,3,5,8,13):
```

```
        print (i)
```

```
example_601()
```

#Example 1.6.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_602():
```

```
    for i in ("abc",True,2,(3,4,5),"def"): print (i)
```

```
example_602()
```

#Example 1.6.3

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_603():  
    for i in [2,4,6,8,10]:  
        print(i)
```

example\_603()

#Example 1.6.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_604():  
    a =[1,2,3,4,5,6,7,8,9,10]  
    for i in a:  
        if i==3:  
            a[5]=13  
            print (i)
```

example\_604()



#Example 1.6.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_605():  
    for i in (1,3,5,7,8,9,10):  
        print (i)  
        if i==5:  
            break  
        else:  
            pass  
    print ("end at",i)
```

example\_605()

#Example 1.6.6

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_606():  
    x = [1,3,5,7,9]  
    for i in x:  
        print (i)  
        if i==5:  
            x.extend([10,11,12,13])  
    print (x)
```

example\_606()

#Example 1.6.7

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_607():
```

```
    for i in "Hello World!":
```

```
        print (i)
```

```
example_607()
```

#Example 1.6.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_608():
```

```
    for i in str(3.14159):
```

```
        print (i)
```

```
example_608()
```

#Example 1.6.9

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_609():
```

```
    for i in ("Superman", "Batman", "Aquaman"):
```

```
        print ("Hello",i)
```

```
example_609()
```

#Example 1.6.10

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_610():
```

```
    i=8
```

```
    for i in 3,"Superman",False,[1,2,3],(3,4,[],(),i,None,i:
```

```
        print (i)
```

```
example_610()
```

#Example 1.6.11

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_611():
```

```
    for i in range(10):
```

```
        if i==5:
```

```
            pass
```

```
        else:
```

```
            print (i)
```

```
example_611()
```

#Example 1.6.12

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_612():
```

```
    for i in range(5):
```

```
        if i:
```

```
            pass
```

```
            print (i)
```

```
    print()
```

```
    for j in range(5):
```

```
        if j:
```

```
            continue
```

```
            print (j)
```

```
example_612()
```

#Example 1.6.13

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_613():
```

```
    x = [1,2,3]
```

```
    try:
```

```
        print (x[2])
```

```
    except:
```

```
        print ("Ha Ha Ha")
```

```
    try:
```

```
        print (x[6])
```

```
    except:
```

```
        print ("Error x is out of range")
```

```
example_613()
```

## Example 1.7

#Example 1.7.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_701():
```

```
    print ("Hello")
```

```
example_701()
```

#Example 1.7.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_701():
```

```
    print ("Hello")
```

```
example_701()
```

```
def example_702(x):
```

```
    print ("x=",x)
```

```
example_702(10)
```

```
example_702("Hello")
```

```
example_702(3+4)
```

```
example_702((3,4,5))
```

#Example 1.7.3

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_703(x,y):
```

```
    print ("x=",x)
```

```
    print ("y=",y)
```

```
    print()
```

```
example_703(10,20)
```

```
example_703("Hello",10)
```

#Example 1.7.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_704(x,y):
```

```
    print ("x=",x)
```

```
    print ("y=",y)
```

```
    print ()
```

```
x=10; y=20; a=30; b=40;
```

```
example_704(x,y)
```

```
example_704(a,b)
```



#Example 1.7.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_705(x,y):
```

```
    x+=1
```

```
    y+=2
```

```
    print ("x=",x)
```

```
    print ("y=",y)
```

```
    print()
```

```
x=10; y=20
```

```
example_705(x,y)
```

```
print ("x=",x)
```

```
print ("y=",y)
```

#Example 1.7.6

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_706(x):
```

```
    x[0] +=10
```

```
    print ("Now x=",x,x[0])
```

```
x = [10]
```

```
print (x,x[0])
```

```
print()
```

```
example_706(x)
```

```
print (x,x[0])
```

```
print()
```

```
example_706(x)
```

```
print (x,x[0])
```

#Example 1.7.7

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_707(x,y):
```

```
    print ("x=",x)
```

```
    print ("y=",y)
```

```
x = [10,20,30]
```

```
y = 1,1,2,3,5,8
```

```
example_707(x,y)
```

#Example 1.7.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_708():
```

```
    global x
```

```
    x = x+10
```

```
x = 10
```

```
print (x)
```

```
example_708()
```

```
print (x)
```

```
example_708()
```

```
print (x)
```

#Example 1.7.9

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_709(x,y=10):
```

```
    print (x,y)
```

```
example_709(10,20)
```

```
example_709(10)
```

```
example_709("Hello")
```

#Example 1.7.10

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_710(x=10,y=20):
```

```
    print (x,y)
```

```
example_710()
```

```
example_710(1)
```

```
example_710(y=100)
```

```
example_710(100,200)
```

```
example_710(y=100,x=10)
```

#Example 1.7.11

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_711(a=1,b=2,c=3):
```

```
    print (a,b,c)
```

```
example_711()
```

```
example_711(10,c=20)
```

#Example 1.7.12

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_712(*x):
```

```
    for i in x:
```

```
        print (i)
```

```
    print()
```

```
    print ("Number of Element in x=",len(x))
```

```
    print ("x=",x)
```

```
    try:
```

```
        print ("x[2]=",x[2])
```

```
    except:
```

```
        print ("x[0]=",x[0])
```

```
example_712(1,2,3,"Hello",[0,0,0])
```

```
print("-----")
```

```
example_712([5,2,'a'])
```

#Example 1.7.13

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_713(a=1,b=2,*x):
```

```
    for i in x:
```

```
        print (i)
```

```
    print (a,b,x)
```

```
    print ("*****")
```

```
example_713()
```

```
example_713(10)
```

```
example_713(11,12)
```

```
example_713(10,20,30)
```

```
example_713(10,20,30,40,50)
```

#Example 1.7.14

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_714(**x):
```

```
    for i,j in x.items():
```

```
        print (i,j)
```

```
    print ("*****")
```

```
example_714()
```

```
example_714(a=123)
```

```
example_714(x=456)
```

```
example_714(a=123,b=456,c="Hello",d=[7,8,9],e=(11,12,13),f={},x={})
```

#Example 1.7.15

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_715(x):
```

```
    x+=10
```

```
    return x
```

```
y = 0
```

```
y = example_715(10)
```

```
print (y)
```

#Example 1.7.16

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_716(x):
```

```
    x = x+"abc"
```

```
    return x
```

```
print(example_716(""))
```

```
print (example_716("123"))
```

#Example 1.7.17

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_717(x,y,z):
```

```
    return [x,y,z]
```

```
x = example_717(10,20,30)
```

```
print (x)
```

#Example 1.7.18

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_718(x,y,z):
```

```
    return(x,y,z)
```

```
x = example_718(1,2,3)
```

```
print (x)
```

#Example 1.7.19

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_719(x,y,z):
```

```
    return [x,y,z]
```

```
print (example_719(10,20,[1,3,5]))
```

#Example 1.7.20

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_720(x,y):
```

```
    if x>y:
```

```
        return x
```

```
    elif x<y:
```

```
        return y
```

```
    else:
```

```
        return "x=y"
```

```
print (example_720(10,20))
```

```
print (example_720(9,1))
```

```
print (example_720(100,100))
```



#Example 1.7.21

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_721(a=0,b=0,c=0):  
    return a,b,c
```

```
print (example_721())  
print (example_721(b=10))  
print (example_721(100,101,102)[1])  
print (example_721(100,101,102)[2])
```

#Example 1.7.22

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_722():  
    pass
```

```
example_722()
```

#Example 1.7.23

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_723():
```

```
    '''Document
```

```
    !!! '''
```

```
    pass
```

```
example_723()
```

```
print (example_723.__doc__)
```

#Example 1.7.24

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_724():
```

```
    #Document
```

```
    pass
```

```
print(example_724.__doc__)
```

## Example 1.8

#Example 1.8.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_801():
```

```
    x={ 'a': 'Hello',  
        'b': 'World',  
        'c': '!!!'  
    }
```

```
    print (x)
```

```
example_801()
```

#Example 1.8.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_802():
```

```
    x={ 'Jo': '123 Bangkok',  
        'Mo': '456 Nonthaburi',  
        'Yo': '789 Chiangmai'  
    }
```

```
    for name,address in x.items():
```

```
        print (name,address)
```

```
    del x['Jo']
```

```
    print ('\n--- Delete Key Jo ---\n')
```

```
    for name,address in x.items():
```

```
        print (name,address)
```

```
    x['Go'] = '200 Chiangrai'
```

```
    x['Do'] = '321 Lumpoon'
```

```
    print ('\n--- Add Key Go and Do ---\n')
```

```
    for name,address in x.items():
```

```
print (name,address)
```

```
example_802()
```

```
#Example 1.8.3
```

```
#Python 3.6.5
```

```
#Created By Jooompot Sriyapan
```

```
def example_803():
```

```
    x={}
```

```
    x['A'] = 'Ada'
```

```
    x['B'] = 'Basic'
```

```
    x['C'] = 'Cobol'
```

```
    for first, second in x.items():
```

```
        print (first,second)
```

```
    if 'A' in x:
```

```
        print (x['A'])
```

```
    print (x.items())
```

```
    print ("number of item in x=",len(x.items()))
```

```
example_803()
```

#Example 1.8.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_804():
```

```
    x = set([3,5,7,8,3])
```

```
    y = x.copy()
```

```
    print ("1",x,y)
```

```
    x.add(22)
```

```
    print ("2",x,y)
```

```
    y.add(3)
```

```
    print ("3",x,y)
```

```
    x.remove(3)
```

```
    print ("4",x,y)
```

```
example_804()
```

#Example 1.8.5

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_805():
```

```
    x = set([5, 7, 8, 22])
```

```
    y = set([8, 3, 5, 7])
```

```
    print (x,y)
```

```
    print (set(x).intersection(y))
```

```
    print (x & y)
```

```
    print (set(x).union(y))
```

```
    print (y | x)
```

```
example_805()
```

#Example 1.8.6

#Python 3.6.5

#Created By Jooompot Sriyapan

```
def example_806():
```

```
    x= set([3,5,7,9])
```

```
    y= set([1,3,5,7,9,11])
```

```
    print ("y is superset of x",y.issuperset(x))
```

```
    print ("x is subset of y",x.issubset(y))
```

```
    if x < y: print ("x<y is",x<y)
```

```
example_806()
```

## Example 1.9



#Example 1.9.1

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Cat:
```

```
    def say(self):
```

```
        print ("Meow")
```

```
tom = Cat()
```

```
tom.say()
```

#Example 1.9.2

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Cat:
```

```
    def __init__(self):
```

```
        print ("Aow")
```

```
    def say(self):
```

```
        print ("Meow")
```

```
tom = Cat()
```

```
tom.say()
```

```
tom.say()
```

```
print()
```

```
Cat()
```

```
print()
```

```
Cat().say()
```

#Example 1.9.3

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Cat:
```

```
    def __init__(self):
```

```
        print ("Aow")
```

```
    def say(self):
```

```
        print ("Meow")
```

```
    def __str__(self):
```

```
        return ("I am a Cat")
```

```
tom = Cat()
```

```
tom.say()
```

```
print (tom)
```

#Example 1.9.4

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Cat:
```

```
    def __init__(self):
```

```
        print ("Aow")
```

```
    def say(self):
```

```
        print ("Meow")
```

```
    def __str__(self):
```

```
        return ("I am a Cat")
```

```
    def __del__(self):
```

```
        print ("I am killed")
```

```
tom = Cat()
```

```
tom.say()
```

```
del tom
```

#Example 1.9.5

#Python 3.6.5

#Created By Jooompot Sriyapan

class Cat:

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

print ("Aow")

def say(self):

print ("Meow")

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

return ("I am a Cat")

def \_\_del\_\_(self):

print ("I am killed")

tom = Cat()

garfield = tom

print ("--Object Created--")

tom.say()

garfield.say()

print ("---Kill tom---")

del tom

#tom.say()

garfield.say()

print ("---Kill garfield---")

del garfield

#Example 1.9.6

#Python 3.6.5

#Created By Jooompot Sriyapan

class Cat:

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

print ("Aow")

def say(self):

print ("Meow")

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

return ("I am a Cat")

def \_\_del\_\_(self):

print ("I am killed")

tom = Cat()

garfield = Cat()

tom.say()

garfield.say()

print ("---Kill tom---")

del tom

#tom.say()

garfield.say()

print ("---Kill garfield---")

del garfield

#Example 1.9.7

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Cat:
```

```
    def __init__(self,n,c):
        self.name = n
        self.color = c
    def say(self):
        print ("My name is",self.name)
```

```
tom = Cat("tom","B&W")
```

```
tom.say()
```

```
print (tom.color)
```

```
tom.name = "Tom"
```

```
tom.color = "Black & White"
```

```
tom.say()
```

```
print (tom.name,"is",tom.color)
```

#Example 1.9.8

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Animal:
```

```
    def __init__(self,common_name='Cat'):
        self.common_name = common_name
    def say(self):
        print ("I am",self.common_name)
```

```
tom = Animal()
```

```
tom.say()
```

```
tweety = Animal("Bird")
```

```
tweety.say()
```

#Example 1.9.9

tweety.sing()

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Animal:
```

```
    def __init__(self,common_name='cat'):  
        self.common_name = common_name  
    def say(self,say='...'):  
        print ("I am",self.common_name,say)
```

```
class Bird(Animal):
```

```
    def __init__(self):  
        self.common_name = 'bird'  
    def sing(self):  
        print ("tweet tweet tweety")
```

```
tom = Animal()
```

```
tom.say()
```

```
tom.say("Meow")
```

```
print ("*****")
```

```
tweety = Bird()
```

```
tweety.say()
```

```
tweety.say("Tweet")
```

#Example 1.9.10

#Python 3.6.5

#Created By Jooompot Sriyapan

class Animal:

def \_\_init\_\_(self,common\_name='animal'):

self.common\_name = common\_name

def say(self,words='...'):

print ("I am",self.common\_name,words)

class Bird(Animal):

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

self.common\_name = 'bird'

def sing(self):

print ("tweet tweet tweety")

class Cat(Animal):

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

self.common\_name = 'cat'

def say(self):

print ("Meow")

tom = Animal()

tom.say()

tom.say("ha ha ha")

print ("\*\*\*\*\*\n")

tweety = Bird()

tweety.say()

tweety.sing()

print ("\*\*\*\*\*\n")

garfield = Cat()

garfield.say()

print (garfield.common\_name)

#Example 1.9.11

#Python 3.6.5

#Created By Jooompot Sriyapan

class Animal:

def \_\_init\_\_(self,common\_name='animal'):

self.common\_name = common\_name

def say (self,words='...'):

print ("I am",self.common\_name,words)

class Action:

def walk(self):

print ("walk")

def run(self):

print ("run")

class Cat(Animal,Action):

def run(self):

print ("run run run")

def dance(self):

self.walk()

self.run()

self.walk()

tom = Cat()

print (tom.common\_name)

tom.dance()

print ("\*\*\*\*\*\n")

tom.say("ha ha ha")

tom.walk()

tom.run()



#Example 1.9.12

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Animal:
```

```
    name = 'no name'
```

```
    action = 'no action'
```

```
    common_name = 'no common name'
```

```
    def say(self):
```

```
        print ("I am",self.name,",",self.action)
```

```
    def animal_say(self):
```

```
        print ("Animal say",Animal.name,",",Animal.action)
```

```
print ("1")
```

```
tom = Animal()
```

```
print (tom.name,tom.action)
```

```
print (Animal.name,Animal.action)
```

```
tom.say()
```

```
tom.animal_say()
```

```
print ("*****\n")
```

```
print ("2")
```

```
tom.name = "Tom"
```

```
tom.action = "running"
```

```
print (tom.name,tom.action)
```

```
print (Animal.name,Animal.action)
```

```
tom.say()
```

```
tom.animal_say()
```

```
print ("*****\n")
```

```
print ("3")
```

```
Animal.name = "..."
```

```
Animal.action = "..."
```

```
jerry = Animal()
```

```
tom.say()
```

```
jerry.say()
```

```
print (Animal.name,Animal.action)
```

```
print ("*****\n")
```

```
print ("4")
```

```
tom.animal_say()
```

```
jerry.animal_say()
```

#Example 1.9.13

#Python 3.6.5

#Created By Jooompot Sriyapan

```
class Animal():
```

```
    'Class Animal'
```

```
    def say(self):
```

```
        'Function Say'
```

```
        print ("hi")
```

```
tom = Animal()
```

```
tom.say()
```

```
print ("*****\n")
```

```
print (Animal.__doc__)
```

```
print (Animal.say.__doc__)
```

```
print (Animal.__name__)
```

```
print (Animal.say.__name__)
```

## Example 1.4

## Example 1.4

## Example 1.4

# Chapter 2

## Example 2.1

#Example 2.1.1

#Python 3.6.5

#Created By Jooompot Sriyapan

#Dice random dice.

import random

def Dice():

return random.randint(1,6)

if \_\_name\_\_=='\_\_main\_\_':

random.seed()

print (Dice())

#Example 2.1.2

#Python 3.6.5

#Created By Jooompot Sriyapan

#Turn random dice 10 rounds

import random

def Dice():

return random.randint(1,6)

if \_\_name\_\_=='\_\_main\_\_':

random.seed()

for i in range (10):

print (Dice())



#Example 2.1.3

#Python 3.6.5

#Created By Jooompot Sriyapan

#Turn random dice and keep result in List

```
import random
```

```
def Dice():
```

```
    return random.randint(1,6)
```

```
def Turn(intTurn=1):
```

```
    result=[]
```

```
    for i in range (intTurn):
```

```
        result.append(Dice())
```

```
    return result
```

```
if __name__=='__main__':
```

```
    random.seed()
```

```
    print (Turn(10))
```

```
    print (Turn())
```

```
    print (Turn())
```

#Example 2.1.4

#Python 3.6.5

#Created By Jooompot Sriyapan

#Turn multiple random dices.

```
import random
```

```
def Dice():
```

```
    return random.randint(1,6)
```

```
def Dices(NumOfDice=1):
```

```
    result=[]
```

```
    for i in range(NumOfDice):
```

```
        result.append(Dice())
```

```
    return result
```

```
def Turn(NumOfTurn=1,NumOfDice=1):
```

```
    result=[]
```

```
    for i in range(NumOfTurn):
```

```
        result.append(Dices(NumOfDice))
```

```
    return result
```

```
if __name__=='__main__':
```

```

random.seed()
print ("ทอยเต๋า 5 ครั้ง ครั้งละ 1 ลูก",Turn(5))
print ("ทอยเต๋า 5 ครั้ง ครั้งละ 2 ลูก",Turn(5,2))
print ("ทอยเต๋า 2 ครั้ง ครั้งละ 3 ลูก",Turn(2,3))
print ("ทอยเต๋า 1 ครั้ง ครั้งละ 1 ลูก",Turn())

```

#Example 2.1.5

#Python 3.6.5

#Created By Jooompot Sriyapan

#Turn multiple dices keep result or each dice and summary score.

```

import random

```

```

def Dice():
    return random.randint(1,6)

```

```

def Dices(NumOfDice=1):
    result=[]
    for i in range(NumOfDice):
        result.append(Dice())
    return result

```

```

def Turn(NumOfTurn=1,NumOfDice=1):
    result=[]
    for i in range(NumOfTurn):
        result.append(Dices(NumOfDice))
    return result

```

```

def SumDices(NumOfDice=1):

```

```

sum_result=0
result=Dices(NumOfDice)
for i in result:
    sum_result = sum_result+i

return result,sum_result

if __name__=='__main__':
    random.seed()

    print("ทอยเต๋า 2 ลูก",SumDices(2))
    print ("*****")

    x = SumDices(5)
    print ("ทอยเต๋า 5 ลูก ได้",x[0],"รวม",x[1])
    print ("*****")

    x = SumDices(5)
    print ("ทอยเต๋า 5 ลูก ได้",x[0],"รวม",x[1])
    print ("*****")

    print("ทอยเต๋า ไม่กำหนดจำนวนลูก",SumDices())

```

```

#Example 2.1.6
#Python 3.6.5
#Created By Jooompot Sriyapan

```

```

#Create dice class, OOP style.

```

```

import random

```

```

class Dice:
    'คลาสลูกเต๋า สำหรับหาแต้มรวมของลูกเต๋าลายหน้า'
    NumOfDice = 1
    DiceFace = 6
    TotalScore = 0

    Score=0
    Result=[]

    def __init__(self,NumOfDice=1,DiceFace=6):
        self.NumOfDice = NumOfDice
        self.DiceFace = DiceFace
        random.seed()

    def __TurnDice(self):
        return random.randint(1,self.DiceFace)

```

```

def TurnDices(self):
    self.Result=[]
    self.Score=0
    result=0

    for i in range(self.NumOfDice):
        result= self.__TurnDice()
        self.Result.append(result)
        self.Score += result

    self.TotalScore += self.Score
    return self.Score

```

```

def Reset(self):
    self.TotalScore = 0
    self.Score = 0
    self.Result = []

```

```

if __name__=='__main__':
    d = Dice()
    d.NumOfDice = 5

```

```

for i in range(3):
    print ("ทอยเต๋ารั้งที่",i+1)
    print ("จำนวน",d.NumOfDice,"ลูก ผลรวม",d.TurnDices(),"แต้ม")
    print ("แต้มที่ออกบนเต๋แต่ละลูกคือ",d.Result)
    print ("ผลรวมแต้มสะสมคือ", d.TotalScore)
    print ("*****\n")

```

```

d.Reset()
print ("รีเซ็ตแต้มสะสม")
print ("ทอยเต๋ารั้งที่",d.NumOfDice,"ลูก ผลรวม",d.TurnDices(),"แต้ม")
print ("แต้มที่ออกบนเต๋แต่ละลูกคือ",d.Result)
print ("ผลรวมแต้มสะสมคือ", d.TotalScore)
print ("*****\n")

```

```

d10 = Dice(NumOfDice=7, DiceFace=10)
print ("ทอยเต๋า",d10.DiceFace,"หน้า")
print ("ทอยเต๋ารั้งที่",d10.NumOfDice,"ลูก ผลรวม",d10.TurnDices(),"แต้ม")
print ("แต้มที่ออกบนเต๋แต่ละลูกคือ",d10.Result)
print ("ผลรวมแต้มสะสมคือ", d10.TotalScore)
print ("*****\n")

```

```

d20 = Dice(3, 20)

```

```

print ("ทอยเต๋า",d20.DiceFace,"หน้า")

print ("ทอยเต๋าจำนวน",d20.NumOfDice,"ลูก ผลรวม",d20.TurnDices(),"แต้ม")

print ("แต้มที่ออกบนเต๋าท่ละลูกคือ",d20.Result)

print ("ผลรวมแต้มสะสมคือ", d20.TotalScore)

print ("*****\n")

print ("Class Document :",d20.__doc__)

del d, d10, d20

```

#Example 2.1.7

#Python 3.6.5

#Created By Jooompot Sriyapan

#Dice in Iterative version.

from random import randint,seed

def Dicel(Faces=6,Number\_of\_Dice=1,Each\_Face=[]):

    'Iterative Dice'

    for i in range(Number\_of\_Dice):

        Each\_Face.append(randint(1,Faces))

    return sum(Each\_Face)

if \_\_name\_\_=='\_\_main\_\_':

    seed()

    for i in range(5):

        Dice=[]

        print("ทอยลูกเต๋า 4 ลูก ได้", Dicel(6,4,Dice),"แต้ม, หน้าเต๋า",Dice)

#Example 2.1.8

#Python 3.6.5

#Created By Jooompot Sriyapan

#Dice in Recursive version.

from random import randint,seed

def DiceR(Faces=6,Number\_of\_Dice=1,Each\_Face=[]):

'Recursive Dice'

Each\_Face.append(randint(1,Faces))

if Number\_of\_Dice != 1:

DiceR(Faces,Number\_of\_Dice-1,Each\_Face)

return sum(Each\_Face)

if \_\_name\_\_=='\_\_main\_\_':

seed()

for i in range(5):

Dice=[]

print("ทอยลูกเต๋า 4 ลูก ได้", DiceR(6,4,Dice),"แต้ม, หน้าเต๋า",Dice)

## Example 1.2