Function_python

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1 Function

Generally, Python programming is divided the function into three types: 1. Built-in function 2. User-defined function 3. Lambda function

1.1 Built-in function

In python or many programming languages has defined the built-in function as the function that already defined in the program such as : 1. abs() Returns the absolute value of a number 2. chr() Returns a character from the specified Unicode code. 3. dir() Returns a list of the specified object's properties and methods 4. help() Executes the built-in help system 5. hex() Converts a number into a hexadecimal value 6. id() Returns the id of an object 7. input() Allowing user input 8. len() Returns the length of an object 9. list() Returns a list 10. map() Returns the specified iterator with the specified function applied to each item 11. max() Returns the largest item in an iterable and so on

1.2 User-defined function

In general term of python function, it can be separated that user-defined can be divided ito (i) non-return function and (ii) return -function

1.2.1 Non-return function (void function)

[ ]:
```
#non-return function
def test():
    print("I like coding")
    print("The world is beautiful with coding")
    print("Python is eating data science")


test()
```

[ ]:
```
def test1():
    a=40
    b=50
    print(a+b)
```

```
test1()
```

[ ]:
```
#all function must be non-return
#function triangle_area_cal()
#function circle_area_cal()
#function rectangle_area_cal()
#func1
# i++ (increment : i=i+1), i-- (decrement: i=i-1)

def tri_area_cal():
    b=float(input("Enter weight:"))
    h=float(input("Enter height:"))
    area=0.5*b*h
    print("The area of triangle is : ",area)
    print(f"The area of triangle is : {area}")

def cir_area_cal():
    r=float(input(" Enter R: "))
    area= 3.14*r*r
    print(f"The area of circle is : {area}")

def rec_area_cal():
    b=float(input("Enter weight:"))
    h=float(input("Enter height:"))
    area=b*h
    print("The area of triangle is : ",area)


tri_area_cal()
```

Write the following program in Python: #welcome to area calculation and temperature coversion 1. Rectangle area 2. Circle area 3. Triangle area 4. Celcius to fahrenheit 5. Fahrenheit to celcius select your choice: 1

[ ]:
```
def tri_area_cal():
    b=float(input("Enter weight:"))
    h=float(input("Enter height:"))
    area=0.5*b*h
    print("The area of triangle is : ",area)
    print(f"The area of triangle is : {area}")

def cir_area_cal():
    r=float(input(" Enter R: "))
    area= 3.14*r*r
    print(f"The area of circle is : {area}")#f string format (3.6 )

def rec_area_cal():
```

```
    b=float(input("Enter weight:"))
    h=float(input("Enter height:"))
    area=b*h
    print("The area of triangle is : ",area)

def cel_to_far():
    b=float(input("Enter tem_cel:"))
    far=(b * 9/5) + 32
    print(f"Temperature as fahranheit is : {far}")#f string
    #print("Temperature as fahranheit is : {}",.format('far')#string format
#def

print("welcome to area calculation and temperature coversion :")
print("1. Rectangle area ")
print("2. Circle area ")
print("3. Triangle area ")
print("4. Celcius to fahrenheit")
print("5. Fahrenheit to celciu")
n=int(input("select your choice: "))
if n==1:
    rec_area_cal()
elif n==2:
    cir_area_cal()
elif n==3:
    tri_area_cal()
```

1.2.2 Return function

[ ]:
```
#return function have keyword return
#paramednter vs argument
def sum_3_num(a, b, c):
    return a+b+c

#print(sum_3_num(45,6,7))

def triangle_area(a,b):
    area=0.5 *a*b
    return area
a =triangle_area(6,9)
#print(a)

def far_to_cel(far):
    return (far-32)*(5/9)

a=float(input("Enter Farenheit temperature: "))
temp_cel=far_to_cel(a)
```

```
print(f"{a} degree farenheit = {temp_cel:.2f} degree celius")
print(a," degree farenheit =  ",round(temp_cel,3), " degree celius")


#3 return function : circle area, Multiple of 3 number, Fahrenheit to celcius
```

[ ]:
```
def far_to_cel(far):
    return (far-32)*(5/9)
def cel_to_far(cel):
    return (cel*9/5)+32

print("Welcome to temperature coversion program")
print("1. Celious to farenheit")
print("2. farenheit to celious")
n=int(input("Choise: "))
if(n==1):
    a=float(input("Enter celious degree: "))
    b=cel_to_far(a)
    print(f"The farenheit degree at {a} celious degree is: {b}")
elif (n==2):
    x=float(input("Enter farenheit degree:"))
    y=far_to_cel(x)
    print(f"The farenheit degree at {x} celious degree is: {y}")
```

[ ]:
```
def invest_fv(pv,rate,years):
    for i in range(1,years+1):
        pv=pv*(1+rate/100)
        print(f"year {i} : ${pv:.2f}")

pv=int(input("Enter your money $: "))
rate=float(input("Enter a yearly rate: "))
years=int(input("Enter number of yearts: "))

invest_fv(pv,rate,years)
```

[ ]:
```
#Recusive function
#4!=4*3*2*1
#f(n)=f(n-1)*f(n-2)*f(n-3)*...*f(1)
def factory(n):
    if n<0:
        return "Error: only possitive accepted"
    elif n==0:
        return 1
    else:
        return n *factory(n-1)␣
 ↪#4*f(3)=4*3*f(2)=4*3*2*f(1)=4*3*2*1*f(0)=4*3*2*1*1
```

```
print(factory(4))
```

[ ]:
```
def countdown_num(n):
    if n==0:
        return 0
    elif n<0: #-10+1
        print(n)
        return countdown_num(n+1)
    else:
        print(n)
        return countdown_num(n-1)

num=int(input("Enter number: "))
print(countdown_num(num))
```

[ ]:
```
# exp_num(5,2): 50= 5* 5**2
def exp_num(n,m):
    if m==0:
        return n
    else:
        return n*exp_num(n,m-1)
print(exp_num(5,2))
#5*exp(5,1)=5*5*exp(5,0)=5*5*5=125
```

1.3 Lambda function

[ ]:
```
# lambda argument: expression
def area_rec(w,h):
    return w*h

x = lambda w , h : w*h
far_to_cel = lambda far: ((far-32)*(5/9))
cel_to_far = lambda cel: ((cel * 9/5) + 32)
print(area_rec(20,45))
print(x(20,45))
print(far_to_cel(59))
print(cel_to_far(34))
```

[ ]:
```
#def far_to_cel(far):
#    return (far-32)*(5/9)
x=lambda far:(far-32)*(5/9)
#def cel_to_far(cel):
#    return (cel*9/5)+32
y=lambda cel:(cel*9/5)+32

print("Welcome to temperature coversion program")
```

```
print("1. Celious to farenheit")
print("2. farenheit to celious")
n=int(input("Choise: "))
if(n==1):
    a=float(input("Enter celious degree: "))
    b=x(a)
    print(f"The farenheit degree at {a} celious degree is: {b:.3f} ")
#elif (n==2):v
```

[ ]: