10.Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters .

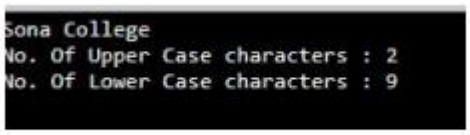
**AIM:**

To accepts a string and calculate the number of upper case letters and lower case letters .

**PROGRAM:**

```
def string_test(s):
d={"UPPER_CASE":0, "LOWER_CASE":0}
for c in s:
if c.isupper():
d["UPPER_CASE"]+=1
elif c.islower():
d["LOWER_CASE"]+=1
else:
pass
print("No. Of Upper Case characters :",d["UPPER_CASE"])
print("No. Of Lower Case characters :",d["LOWER_CASE"])
string_test(input())
```

**OUTPUT:**




**LINK:**

**http://103.53.53.18/mod/vpl/forms/submissionview.php?id=325&userid=1667**

**RESULT:**

Thus the python function that accepts a string and calculate the number of upper case letters and lower case letters is executed.

11.Write a Python program to find the greatest common divisor (gcd) of two integers using recursion.

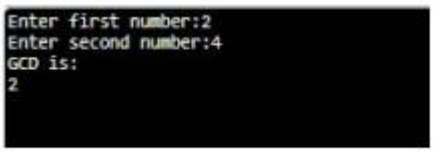
**AIM:**

To find the greatest common divisor (gcd) of two integers using recursion.

**PROGRAM:**

```
def gcd(x,y):
gcd=1
if x % y==0:
return y
for k in range(int(y/2),0,-1):
if x % k ==0 and y % k ==0:
gcd=k
break
return gcd
x=int(input("Enter first number:"))
y=int(input("Enter second number:")GCD=gcd(x,y)
print("GCD is:")
print(GCD)
```

**OUTPUT:**




**LINK:**

http://103.53.53.18/mod/vpl/forms/submissionview.php?id=326&userid=1667

**RESULT:**

Thus the python program to find the greatest common divisor (gcd) of two integers using recursion.

13.An apparel shop wants to manage the items which it sells.25 min

Write a python program to implement the class diagram given below.

**AIM:**

To manage the items which it sells.25 min

Write a python program to implement the class

**PROGRAM:**

```
class Apparel:
counter=100
def __init__(self,price,item_type):
Apparel.counter+=1
self.__item_id=item_type[0]+str(Apparel.counter)
self.__price=price
self.__item_type=item_type
def calculate_price(self):
self.__price+=self.__price*0.05
def get_item_id(self):
return self.__item_id
def get_price(self):
return self.__price
def get_item_type(self):
return self.__item_type
def set_price(self,price):
self.__price=price
return self.__price
```

```
class Cotton(Apparel):def __init__(self,price,discount):
super().__init__(price,'Cotton')
self.__discount=discount
def calculate_price(self):
super().calculate_price()
price=self.get_price()
price-=price*(self.__discount/100)
price+=price*0.05
self.set_price(price)
return price
def get_discount(self):
return self.__discount
class Silk(Apparel):
def __init__(self,price):
super().__init__(price,'Silk')
self.__points=None
def calculate_price(self):
super().calculate_price()
if(self.get_price()>10000):
self.__points=10
else:
self.__points=3
return self.set_price(self.get_price()+(self.get_price()*0.1)
def get_points(self):
return self.__pointssilk=int(input())
cotton=int(input())
discount=int(input())
a=Silk(silk)
print(a.calculate_price())
b=Cotton(cotton,discount)
print(b.calculate_price())
```

**OUTPUT:**


**LINK:**

**http://103.53.53.18/mod/vpl/forms/submissionview.php?id=328&userid=1667**

**RESULT:**

Thus the python program to implement the class diagram is executed.

14.Write a Python class to find validity of a string of parentheses, '(', ')', '{', '}', '[' and ']. These brackets must be close in the correct order,For example "()" and "()[]{}" are valid but "[)", "({[)]" and "{{{" are invalid.

**AIMI**

To find validity of a string of parentheses.

**PROGRAM:**

```
def valid_paren(input_str):
stack=[]
for paren in input_str:
if paren == '(' or paren =='[' or paren =='{':
stack.append(paren)
else:
if not stack:
print("invalid")
```

```
return
else:
top=stack[-1]
if paren ==')' and top =='(' or ¥
paren ==']' and top =='[' or ¥
paren =='}' and top =='{':
stack.pop()
if not stack:
print("valid")
else:
print("invalid")input1=input()
valid_paren(input1)
```

**OUTPUT:**


**LINK:**

**http://103.53.53.18/mod/vpl/forms/submissionview.php?id=327&userid=1667**

**RESULT:**

Thus the python class to find validity of a string of parentheses is executed.