PYTHON LAB EXERCISES

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

AIM:

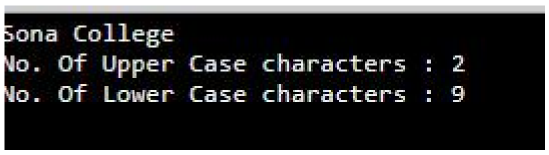
To accepts a string and calculate the number of upper case letters and lower case letters .

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:



```
Sona College
No. Of Upper Case characters : 2
No. Of Lower Case characters : 9
```

LINK:

http://103.53.53.18/mod/vpl/forms/submissionview.php?id=325&userid=1658

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:

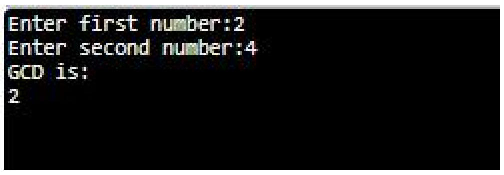
```
def gcd(x,y):
    gcd=1
    if x % y==0:
        return y
    for k in range(int(y/2),0,-1):
        if x % k ==0 and y % k ==0:
            gcd=k
            break
    return gcd
x=int(input("Enter first number:"))
y=int(input("Enter second number:")
```

GCD=gcd(x,y)

print("GCD is:")

print(GCD)

OUTPUT:



```
Enter first number:2
Enter second number:4
GCD is:
2
```

LINK:

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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:

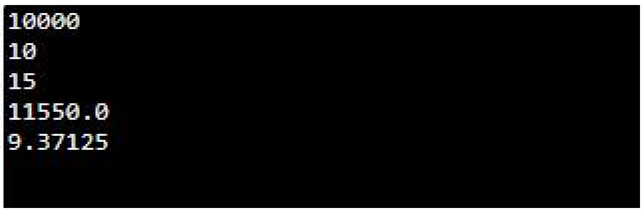
To manage the items which it sells.25 min
Write a python program to implement the class

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.__points
```

```
silk=int(input())
cotton=int(input())
discount=int(input())
a=Silk(silk)
print(a.calculate_price())
b=Cotton(cotton,discount)
print(b.calculate_price())
```

OUTPUT:



```
10000
10
15
11550.0
9.37125
```

LINK:

http://103.53.53.18/mod/vpl/forms/submissionview.php?id=328&userid=1658

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

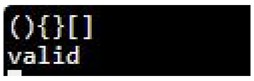
To find validity of a string of parentheses.

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:



```
(){}[]
valid
```

LINK:

http://103.53.53.18/mod/vpl/forms/submissionview.php?id=327&userid=1658

RESULT:

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