**Exercise No: 13**

**Date: 20.11.2020**

**Aim:** An apparel shop wants to manage the items which it sells.25 min  
Write a python program to implement the class diagram given below.

**Class Description:  
Apparel class:**

* Initialize static variable counter to 100
* In the constructor, auto-generate item\_id starting from 101 prefixed by "C" for cotton apparels and "S" for silk apparels. Example – C101, S102, S103, C104 etc.
* **calculate\_price():** Add 5% service tax on the price of the apparel and update attribute, price with the new value

**Cotton class:**

* While invoking parent constructor from child constructor, pass "Cotton" as item\_type
* **calculate\_price():** Update attribute, price of Apparel class based on rules given below
* Add service tax on price by invoking appropriate method of Apparel class
* Apply discount on price
* Add 5% VAT on final price

Initialize **Silk class:**

* While invoking parent constructor from child constructor, pass "Silk" as item\_type
* **calculate\_price():** Update attribute, price of Apparel class based on rules given below
* Add service tax on price by invoking appropriate method of Apparel class
* Identify points earned based on rules given below:

Silk apparels with price more than Rs. 10000, earn 10 points and anything less than or equal to that earn 3 points

* attribute, points with the identified points
* Add 10% VAT on price

**Note:**Perform case sensitive string comparison   
  
**For testing:**

* Create objects of Cotton class and Silk class
* Invoke **calculate\_price()** on Cotton objects and Silk objects
* Display their details

**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())

**Link:** <http://103.53.53.18/mod/vpl/forms/edit.php?id=328&userid=1634>

**Output:**

10

20

30

11.55

15.434999999999999

**Result:** Program to has been successfully verified.