CSE111 Final Question

Question: 1
A perfect number is an integer that is the sum of its positive proper divisors (all divisors except itself). For example, 6 is a perfect number. The divisors of 6 except itself are 1,2 and 3. The sum of the proper divisors of 6 is 6. Thus 6 is a perfect number. You have to take integers as input and continue taking input until the word “STOP” is given as input. After taking the inputs you have to classify the integers as Perfect and Imperfect and store it in a dictionary (Please see the output for better understanding).
[Note: You CANNOT use any built in functions EXCEPT input (), range (), print()]

Sample Input :
6
10
8
25
28
100
496
530
STOP

Sample Output:(No need to follow the output format. Just print the resultant dictionary.)
{
Perfect: [6,28,496],
Imperfect: [10,8,25,100,530]
}

Question: 2
Implement the design of the Groceries and Buyer classes so that the following code generates the output below:

```
#Write your code here
buyer1 = Buyer('Ross', 'CL23')
print('1.==============================')
print(buyer1)
item1 = Groceries('Mango', 'Fruits')
print('2.==============================')
print(item1)
print('3.==============================')
print(Groceries.items)
print('4.==============================')
Groceries.add_items('Packaged',['Flour 90', 'Noodles 30', 'Soybean-Oil
150'])
print(f'Updated Item List:\n{Groceries.items}')
print('5.==============================')
item2 = Groceries('Flour', 'Packaged', 3)
print(item2)
print('6.==============================')
buyer1.create_bill(item1, item2)
```

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```
print('7.==============================')
item3 = Groceries('Orange', 'Fruits', 3)
print(item3)
print('8.==============================')
item4 = Groceries('Rice', 'Packaged', 2)
print(item4)
print('9.==============================')
buyer2 = Buyer('Chandler')
print(buyer2)
print('10.==============================')
buyer2.create_bill(item1, item3, item4)
```

OUTPUT:

```
1.==============================
Customer SL no.: 1
Buyer Name: Ross
Registered Customer ID: CL23
Registered Customer will get 100 tk discount
2.==============================
Groceries Order Details:
1 kg Mango.
3.==============================
{'Packaged': {'Rice': 110, 'Atta': 40, 'Oats': 350}, 'Fruits': {'Mango':
200, 'Orange': 180}}
4.==============================
Updated Item List:
{'Packaged': {'Rice': 110, 'Atta': 40, 'Oats': 350, 'Flour': 90, 'Noodles':
30, 'Soybean-Oil': 150}, 'Fruits': {'Mango': 200, 'Orange': 180}}
5.==============================
Groceries Order Details:
3 kg Flour.
6.==============================
Total Bill:
370.0 Tk.
7.==============================
Groceries Order Details:
3 kg Orange.
8.==============================
Groceries Order Details:
2 kg Rice.
9.==============================
Customer SL no.: 2
Buyer Name: Chandler
Registered Customer ID: None
10.==============================
Total Bill:
960.0 Tk.
```

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Question: 3
Implement the design of the SpidermanOne and SpidermanThree class derived from GenericSpiderman class so that the following code generates the output below:

```
class GenericSpiderman:
    def __init__(self, name = None):
        self.name = name
        print('Welcome to Spiderverse!')
        if self.name == None:
            print('Who is your favourite Spiderman?')
        else:
            print(f'{self.name} is your favourite Spiderman!')
    def hasSpiderTingle(self):
        print('All spiderman has spider sense.')
    def shootWeb(self, hasWebshooter = False):
        s = 'All Spiderman can shoot web. '
        if hasWebshooter == False:
            s += 'Spiderman does not need a webshooter.'
        else:
            s += 'Spiderman needs a webshooter.'
        return s
#Write your code here
#-------------------------------------------------------------------------------------
print('1.============================')
s = GenericSpiderman()
print('2.============================')
s.hasSpiderTingle()
print('3.============================')
s1 = SpidermanOne('Toby Maguire', 'Not Avenger')
print('4.============================')
print(s1)
print('5.============================')
print(s1.shootWeb(False))
print('6.============================')
s1.hasSpiderTingle()
print('7.============================')
s2 = SpidermanThree('Tom Holland')
print('8.============================')
print(s2)
print('9.============================')
print(s2.hasSpiderTingle())
print('10.============================')
print(s2.shootWeb(True))
print('11.============================')
print(s2)
print('12.============================')
SpidermanOne.enemyList = ['Green Goblin','Doctor Octopus','Sandman']
print(SpidermanOne.enemyList)
print('13.============================')
```

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```
s1.fightEnemy(['Doctor Octopus', 'Rhino', 'Venom'])
print('14.==========================')
SpidermanThree.enemyList = ['Mysterio','The Vulture']
print(SpidermanThree.enemyList)
print('15.==========================')
s2.fightEnemy(['Doctor Octopus', 'Mysterio'])
```

OUTPUT:

```
1.==========================
Welcome to Spiderverse!
Who is your favourite Spiderman?
2.==========================
All spiderman has spider sense.
3.==========================
Welcome to Spiderverse!
Toby Maguire is your favourite Spiderman!
4.==========================
Toby Maguire's spiderman is not a member of Avengers.
5.==========================
All Spiderman can shoot web. Spiderman does not need a webshooter. Toby
Maguire's spiderman doesn't have a web-shooter.
6.==========================
All spiderman has spider sense.
7.==========================
Welcome to Spiderverse!
Tom Holland is your favourite Spiderman!
8.==========================
Tom Holland's spiderman is a member of Avengers.
9.==========================
All spiderman has spider sense.
Spider sense is now called "Peter Tingle"
10.==========================
All Spiderman can shoot web. Spiderman needs a webshooter. Tom Holland's
spiderman has a web-shooter.
11.==========================
Tom Holland's spiderman is a member of Avengers.
12.==========================
['Green Goblin', 'Doctor Octopus', 'Sandman']
13.==========================
Toby Maguire's spiderman can fight Doctor Octopus.
Toby Maguire's spiderman cannot fight Rhino.
Toby Maguire's spiderman cannot fight Venom.
14.==========================
['Mysterio', 'The Vulture']
15.==========================
Tom Holland's spiderman cannot fight Doctor Octopus.
Tom Holland's spiderman can fight Mysterio.
```