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OOP Task-5

1

```
import numpy as np

class Shape:
  def area(self):
    pass

#Circle
class Circle(Shape):
  def __init__ (self, radius):
    super().__init__()
    self.radius = radius

  def area(self) :
    return round(np.pi * (self.radius ** 2), 2)
    pass

#Square
class Square(Shape):
  def __init__ (self, side):
    super().__init__()
    self.side = side

  def area(self) :
    return (self.side)**2
    pass

#Rectangle
class Rectangle(Shape):
  def __init__ (self, length, breadth):
    super().__init__()
    self.length = length
    self.breadth = breadth

  def area(self) :
    return self.length * self.breadth
    pass
```

```
c = Circle(7)
print("Area of circle :", format(c.area(), "0.2f"))

s = Square (15)
print("Area of square :", s.area())

r = Rectangle (8, 10)
print("Area of rectangle :", r.area())
```

```
 Area of circle : 153.94
 Area of square : 225
 Area of rectangle : 80
```

2

```
from abc import ABC, abstractmethod

class travel:
    def __init__(self ,passengers ,dist ,mode):

        self.__count = passengers
        self.distance = dist
        self.mode = mode

    def get_count(self):
        return self.__count

    @abstractmethod
    def total_cost(self):
        pass


class Bus(travel):
    def __init__(self, passengers, dist, mode="Bus"):
        super().__init__(passengers, dist, mode)
        self.cost = 100

    def total_cost(self):
        return self.cost*self.get_count()


class Train(travel):
    def __init__(self ,passengers ,dist ,mode="Train"):
        super().__init__(passengers, dist, mode)
        self.cost = 60

    def total_cost(self):
        return self.cost*self.get_count()
```

3

```
class Car:
  def __init__(self,modelNo):
    self.modelNo = modelNo

  @property
  def show(self):
    return self.modelNo

def swap(c1,c2):
  c1.modelNo,c2.modelNo = c2.modelNo,c1.modelNo

c1 = Car(7857)
c2 = Car(5082)
print("Before swapping\n" f"Car1 : {c1.show}, Car2 : {c2.show}")
swap(c1,c2)
print("After swapping\n" f"Car1 : {c1.show}, Car2 : {c2.show}")
```

```
Before swapping
Car1 : 7857, Car2 : 5082
After swapping
Car1 : 5082, Car2 : 7857
```

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