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Lab Task: 4

Subject: Software **Construction and Development**

Department: BSSE

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Lab Task

Task 1:

A vehicle showroom stores basic vehicle details. Create a Vehicle class with attributes like brand and model, and a Car class that inherits from Vehicle and displays them.

Code:

```python
class Vehicle:
    def __init__(self):
        self.brand = ""
        self.model = ""

    def setdata(self):
        self.brand = input("Enter vehicle brand: ")
        self.model = input("Enter vehicle model: ")

class Car(Vehicle):
    def display(self):
        print("Brand:", self.brand)
        print("Model:", self.model)

c = Car()
c.setdata()
c.display()
```

Output:

```
PROBLEMS    OUTPUT    TERMINAL    DEBUG CONSOLE    PORTS

PS D:\Python Codes\Software Construction and Development\Task 3> python labtask7.py
Enter vehicle brand: BYD
Enter vehicle model: Shark
Brand: BYD
Model: Shark
PS D:\Python Codes\Software Construction and Development\Task 3>
```

Task 2:

A college database stores personal details of people. Create a Person class with name and age, and a student class that inherits from Person and displays student details.

Code

```python
class Person:
    def __init__(self):
        self.name = ""
        self.age = 0

    def setdata(self):
        self.name = input("Enter name: ")
        self.age = int(input("Enter age: "))

class Student(Person):
    def display(self):
        print("Name:", self.name)
        print("Age:", self.age)

s = Student()
s.setdata()
s.display()
```

Output:

```
PROBLEMS   OUTPUT   TERMINAL   DEBUG CONSOLE   PORTS

● PS D:\Python Codes\Software Construction and Development\Task 3> python labtask7.py
  Enter name: Abdullah Jan
  Enter age: 20
  Name: Abdullah Jan
  Age: 20
○ PS D:\Python Codes\Software Construction and Development\Task 3>
```

Task 3:

In a family hierarchy system, details pass from older to younger generations. Create a Grandparent class, a Parent class that inherits from it, and a Child class that displays family details.

Code:

```python
361
362    class Grandparent:
363        def __init__(self):
364            self.family_name = ""
365
366        def setdata(self):
367            self.family_name = input("Enter family name: ")
368
369    class Parent(Grandparent):
370        def __init__(self):
371            self.parent_name = ""
372
373        def setparent(self):
374            self.parent_name = input("Enter parent name: ")
375
376    class Child(Parent):
377        def display(self):
378            print("Family Name:", self.family_name)
379            print("Parent Name:", self.parent_name)
380
381    c = Child()
382    c.setdata()
383    c.setparent()
384    c.display()
```

Output:

```
PS C:\Users\Student\Desktop\python> python a.py
Grandparent Name: Abdul Ahad
Parent Name: Abdullah
Child Name: Ozair
```

Task 4:

A technology product system classifies devices step by step. Create a Device class, a computer class that inherits from Device, and a laptop class that inherits from Computer and displays the brand.

Code

```
384    # c.display()
385
386    class Device:
387        def __init__(self):
388            self.brand = ""
389
390        def setdata(self):
391            self.brand = input("Enter device brand: ")
392
393    class Computer(Device):
394        pass
395
396    class Laptop(Computer):
397        def display(self):
398            print("Laptop Brand:", self.brand)
399
400    l = Laptop()
401    l.setdata()
402    l.display()
```

Output:

```
PROBLEMS    OUTPUT    TERMINAL    DEBUG CONSOLE    PORTS

● PS D:\Python Codes\Software Construction and Development\Task 3> python labtask7.py
  Enter device brand: HP
  Laptop Brand: HP
○ PS D:\Python Codes\Software Construction and Development\Task 3>
```

Task 5:

In a company structure, employees have different roles. Create a Person class, an employee class that inherits from Person, and a manager class that inherits from Employee and displays the person's name.

Code:

```
404    class Person:
405        def __init__(self):
406            self.name = ""
407
408        def setdata(self):
409            self.name = input("Enter name: ")
410
411    class Employee(Person):
412        def employeedata(self):
413            self.setdata()
414
415    class Manager(Employee):
416        def display(self):
417            print("Manager Name:", self.name)
418
419    m = Manager()
420    m.employeedata()
421    m.display()
```

Output:

```
PS C:\Users\Student\Desktop\python> python a.py
Enter name: Abdul Ahad
Manager Name: Abdul Ahad
```

Task 6:

A student activity system tracks both academic and sports participation. Create an Academics class and a Sports class. Create a student class that inherits from both and displays academic subjects and sport name.

Code:

```
422
423    class Academics:
424        def __init__(self):
425            self.subject = ""
426
427        def setacademic(self):
428            self.subject = input("Enter subject: ")
429
430    class Sports:
431        def __init__(self):
432            self.sport = ""
433
434        def setsport(self):
435            self.sport = input("Enter sport name: ")
436
437    class Student(Academics, Sports):
438        def display(self):
439            print("Subject:", self.subject)
440            print("Sport:", self.sport)
441
442     c = Student()
        (variable) s: Student
443
444    s.setsport()
445    s.display()
```

Output:

```
PROBLEMS    OUTPUT    TERMINAL    DEBUG CONSOLE    PORTS

● PS D:\Python Codes\Software Construction and Development\Task 3> python labtask7.py
  Enter subject: Maths
  Enter sport name: Cricket
  Subject: Maths
  Sport: Cricket
○ PS D:\Python Codes\Software Construction and Development\Task 3> █
```

Task 7:

A smart device has features from different systems. Create a Camera class and a Music Player class. Create a Smartphone class that inherits from both and displays camera and music features.

Code:

```
446
447    class Camera:
448        def __init__(self):
449            self.camera = ""
450
451        def setcamera(self):
452            self.camera = input("Enter camera feature: ")
453
454    class MusicPlayer:
455        def __init__(self):
456            self.music = ""
457
458        def setmusic(self):
459            self.music = input("Enter music feature: ")
460
461    class Smartphone(Camera, MusicPlayer):
462        def display(self):
463            print("Camera Feature:", self.camera)
464            print("Music Feature:", self.music)
465
466    s = Smartphone()
467    s.setcamera()
468    s.setmusic()
469    s.display()
```

Output:

```
PROBLEMS    OUTPUT    TERMINAL    DEBUG CONSOLE    PORTS

PS D:\Python Codes\Software Construction and Development\Task 3> python labtask7.py
Enter camera feature: Grid
Enter music feature: Music Playlist
Camera Feature: Grid
Music Feature: Music Playlist
PS D:\Python Codes\Software Construction and Development\Task 3>
```