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ANSWER 1

```
class Vehicle:
    def _init_(self, make, model):
        self.make = make
        self.model = model

    def display_info(self):
        print(f"Make: {self.make}, Model: {self.model}")
class Car(Vehicle):
    def _init_(self, make, model, number_of_doors):
        super()._init_(make, model)
        self.number_of_doors = number_of_doors
    def display_info(self):
        super().display_info()
        print(f"Number of doors: {self.number_of_doors}")
# Example usage:
vehicle = Vehicle("Toyota", "Corolla")
vehicle.display_info()
car = Car("Honda", "Civic", 4)
car.display_info()
```

OUTPUT

```
Make: Toyota, Model: Corolla
Make: Honda, Model: Civic
Number of doors: 4
```

ANSWER 2

```python
class Shape:
    def area(self):
        raise NotImplementedError("Subclasses must implement this method")

class Square(Shape):
    def __init__(self, side_length):
        self.side_length = side_length
    def area(self):
        return self.side_length ** 2
class Circle(Shape):
    def __init__(self, radius):
        self.radius = radius
    def area(self):
        import math
        return math.pi * (self.radius ** 2)
# Example usage:
square = Square(4)
print(f"Square area: {square.area()}")
circle = Circle(3)
print(f"Circle area: {circle.area()}")
```

OUTPUT

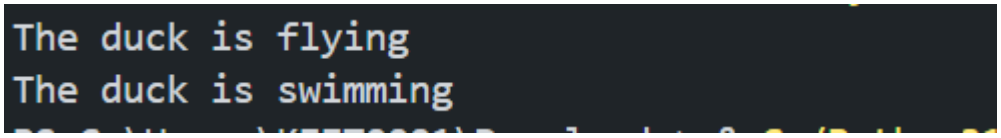
```
Square area: 16
Circle area: 28.274333882308138
```

ANSWER 3

```
class Flyable:
    def fly(self):
        raise NotImplementedError("Subclasses must implement this method")

class Swimmable:
    def swim(self):
        raise NotImplementedError("Subclasses must implement this method")
class Duck(Flyable, Swimmable):
    def fly(self):
        print("The duck is flying")
    def swim(self):
        print("The duck is swimming")
# Example usage:
duck = Duck()
duck.fly()
duck.swim()
```

OUTPUT



ANSWER 4

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

class Student(Person):
    def __init__(self, name, age, student_id):
        super().__init__(name, age)
        self.student_id = student_id
# Example usage:
person = Person("Alice", 30)
print(f"Name: {person.name}, Age: {person.age}")
student = Student("Bob", 20, "S12345")
print(f"Name: {student.name}, Age: {student.age}, Student ID: {student.student_id}")
```

OUTPUT

```
Name: Alice, Age: 30
Name: Bob, Age: 20, Student ID: S12345
```