

Inheritance Exercise – Python

Question 1: Single Inheritance

Create a class `Animal` with a method `sound()` that prints "Animal makes a sound".
Create a subclass `Dog` that inherits from `Animal` and overrides the `sound()` method to print "Dog barks".
Create an object of `Dog` and call the `sound()` method.

Question 2: Using `super()`

Create a class `Person` with:

- an `__init__` method that accepts name and age.

Create a subclass `Student` that:

- adds an attribute `student_id`,
- uses `super()` to call the parent constructor.

Create an object of `Student` and print all its attributes.

Question 3: Multilevel Inheritance

Create:

- a class `Vehicle` with a method `start()`,
- a subclass `Car` that inherits from `Vehicle`,
- a subclass `ElectricCar` that inherits from `Car` and has a method `charge()`.

Create an object of `ElectricCar` and call both `start()` and `charge()` methods.

Question 4: Method Overriding

Create a class `Employee` with a method `calculate_salary()` that returns a fixed salary of 30000.

Create a subclass `Manager` that overrides `calculate_salary()` to return 50000.

Create objects of both classes and print their salaries.

Question 5: Hierarchical Inheritance

Create a base class `Shape` with a method `area()` that prints "Area not defined".
Create two subclasses:

- `Rectangle` with attributes `length` and `width`,
- `Circle` with attribute `radius`.

Each subclass should override the `area()` method to calculate and print its area.