ED5340:Data Science: Theory and practice

LAB 6 : INHERITANCE & FILES - PART B

Done

Opened: Wednesday, 28 February 2024, 1:30 PM
Due: Saturday, 2 March 2024, 11:59 PM

6. Create a base class **Vehicle** with the following attributes:

   make (string)

   model (string)

   year (int)

   Create a method **initialize_vehicle** to set the above attributes. Also, create a method display_vehicle to print these attributes.

   Create a class **Car** inherited from Vehicle with the following additional attribute:

   fuel_type (string)

   Create a method **get_car_details** to initialize the above attribute along with Vehicle attributes.

   Also, create a method **display_vehicle** to print these attributes along with Vehicle attributes.

   Create a class **Bike** inherited from Vehicle with the following additional attribute:

   gear_count (int)

   Create a method **get_bike_details** to initialize the above attribute along with Vehicle attributes.

   Also, create a method **display_vehicle** to print these attributes along with Vehicle attributes.

   Create two different objects for Car and Bike and demonstrate each of the methods.

   Example -1:

   ```
   my_car = Car()
   my_car.get_car_details("Toyota", "Camry", 2020, "Petrol")
   my_car.display_vehicle()
   ```

   Output:

   ```
   Make: Toyota, Model: Camry, Year: 2020
   Fuel Type: Petrol
   ```

   Example -2 :

   ```
   my_bike = Bike()
   my_bike.get_bike_details("Yamaha", "YZF R1", 2021, 6)
   ```

```
my_bike.display_vehicle()
```

Output:

```
Make: Yamaha, Model: YZF R1, Year: 2021

Gear Count: 6
```

7. Suppose you are building a Python program to manage a school's student data. You need to create a Student class that contains information such as the student's name, age, grade, and class schedule. Additionally, there are some attributes that are shared by all students, such as the school name, the total number of students, and the number of classes offered.

How can you use class variables in Python to define these shared attributes of the Student class? What are the advantages of using class variables in this scenario? Can you provide an example program that demonstrates the use of class variables in the Student class?

8. Class Inheritance in Python: Finding GCD (greatest common divisor) and LCM (least common multiple) of Numbers and Handling Composite Numbers.

a) Create a Numbers class with a, b, find_gcd(), and find_lcm() methods.

b) Create an EvenNumbers class that inherits from Numbers and overrides find_lcm() to handle even numbers.

c) Create an OddNumbers class that inherits from Numbers and overrides find_lcm() to handle odd numbers.

d) Create a CompositeNumbers class that inherits from EvenNumbers and OddNumbers and overrides find_gcd() to handle composite numbers.

e) Create a CompositeNumbers object with a = 12 and b = 9, and call its find_lcm() and find_gcd() methods.

9. WAP to manage the collections of books in a library in the following manner:

Create a Python script that can both read from and write to a CSV file, containing details about each book. Each book's information will include its title, author, publication year, and ISBN number. Your script should be capable of adding new books to the CSV file and listing all the books currently stored in the file.

The program should begin by checking if the CSV file exists. If it does not, your script should create it and initialize it with the appropriate headers. Then, there should be 2 options: to add a new book or to display all books. When adding a new book, the user should be prompted to enter the title, author, publication year, and ISBN number. This new book should then be added to the CSV file without overwriting the existing entries. When choosing to display all books, the script should read from the CSV file and print each book's details.

10. WAP to create a pandas dataframe with a list of words and sort them in ascending order. The sorted words should be copied to a new file.

Edit submission | Remove submission

Submission status

Submission status	Submitted for grading

Grading status	Graded
Time remaining	Assignment was submitted 2 hours 44 mins early
Last modified	Saturday, 2 March 2024, 9:14 PM
File submissions	AM23M022_LAB6_PART2_28_02_2024.py 2 March 2024, 9:13 PM df to csv.txt 2 March 2024, 9:14 PM
Submission comments	Comments (0)

Feedback

Grade	10.00 / 10.00
Graded on	Wednesday, 22 May 2024, 9:04 PM
Graded by	eM ed19b017 M JASWANTH KUMAR

◄ LAB 6: INHERITANCE & FILES - PART A

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