Comprehensive Python course for AI

Exercises 16 && 17 && 18

2023 05 December

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Exercises 16

Score: 250

Question 01 (OOP)

Develop a Python class named Vehicle to demonstrate your understanding of static methods, class methods, instance methods, class attributes, and instance attributes. The Vehicle class should represent a vehicle with various properties and capabilities.

Class Attributes: Define a class attribute total_vehicles to keep track of the total number of Vehicle instances created.

Instance Attributes: Implement instance attributes like make, model, and year to store information about each vehicle instance.

Static Method: Create a static method valid_year() that cheek the format of year before creating object.

Class Method: Implement a class method update_total_vehicles() to update the total_vehicles class attribute whenever a new vehicle is created.

Instance Method: Add an instance method display_vehicle() to print the details of the vehicle instance.

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Exercises 17

Score: 250

Question 01 (OOP)

❖ **Enhance the MyString class that inherits from Python's built-in str class.based on below details.**

❖ **New Features to Implement:**

Find All Occurrences (find_all): **Returns a list of all indices where a given substring is found.**

Count Vowels (count_vowels): **Returns the number of vowels in the string.**

Is Palindrome (is_palindrome): **Checks if the string is a palindrome.**

❖ **Modifications to Existing str Methods:**

Modify upper Method: **Change the upper method so that it only converts consonants to uppercase, leaving vowels in lowercase.**

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Exercises 18

Score: 250

Question 01 (OOP)

❖ **Develop a Python-based university management system to demonstrate your understanding of inheritance, polymorphism, and abstraction. Create classes for Student, Teacher, and University with specific attributes and methods.**

Thanks

Good Luck!

Don't give up on your dreams ☺