Comprehensive Python course for AI

Exercises 15

Deadline: 2023 7 December

Score: 350

2023 29 November

Question 01 (OOP)

- **Provide a comprehensive explanation of the differences between class and instance attributes, as well as class and instance methods in Python. Use practical examples to demonstrate when and why each type should be used.**

Question 02 (OOP)

- **Complete the ToDo List project in question 14 according to the details below.**

- **Task Class Updates:**
  - ✓ **Attributes: Include state (boolean for completion status, default False) and date_of_finishing (expected completion date, default None) along with the existing id and name.**
  - ✓ **Methods: Implement __str__ for detailed string representation, done() to mark a task as completed, and undone() to mark it as incomplete.**

Question 02 (OOP)

- **TodoList Class Expansion with Advanced Search:**
  - ✓ **Task Management Methods: Add methods for add, remove, edit, and display_all tasks.**
  - ✓ **Advanced Search: Allow searching by name, including partial matches within task names.**
  - ✓ **Enable search by id for precise identification of tasks.**
  - ✓ **Provide options to filter tasks by done (to show only completed tasks) and undone (to show only pending tasks).**

- **Develop a script allowing user interactions with functionalities to add, remove, edit, search (by name, id, done, undone), and display tasks.**
- **The script should operate in a loop for ongoing user engagement, with an option to exit the program.**

Question 03 (OOP)

- **implement the BookClub class in Python. The class should meet the following requirements:**

- **Class Initialization:** The BookClub class should initialize with a club_name and set up an empty dictionary for members. It should also have a class attribute total_members to keep track of all members across any instance of BookClub.
- **Adding Members**: Implement a method add_member that takes a member's name and their favorite book as arguments and adds them to the club's members dictionary. It should also update the total_members class attribute.
- **Removing Members:** Create a method remove_member to remove a member from the club's members dictionary and update the total_members class attribute accordingly.
- **Displaying Members:** Add a method display_members to print all the members of the club and their favorite books.
- **Class Method for Total Members:** Implement a class method get_total_members to return the total number of members.

Thanks

Good Luck!

Don't give up on your dreams ☺