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BSCS - C204

Midterm Lab Task 3 - Python List Collections

Problem:

Problem 1. Using List Collection type. Create a program that will allow the user to perform the following **functions:** (add, update, search, delete, display, and sort) items in a list:

Note: You are free to decide what data you will be storing in the list and name the list based on the type of data you wish to store.

[MENU OPTIONS]

1 – Add Items
2 – Search for an Item
3 – Remove an Item
4 – View all items (Sorted either A-Z | Z -A)
0 – Exit program

Pick one [0 to quit]: ___

Requirements:

1. The user can add items in the list until the user presses x to stop
2. The user should be able to perform **search** if an item exists – Display if found or not found and count the number of instance in the list.
3. The user should also be given the option to remove an item in the list – Display the Message "Item found and deleted" once deletion is performed – else display "item not found-deletion unsuccessful"
4. The user may also opt to view items in the list and display items sorted in Ascending order
5. The user may opt to exit the program by typing 0

Note: you are free to design the interface of the program, base on the Menu options shown.

Sample Code:

```python
def display_menu():

    print("\n----| Menu |-----")
    print("1 - Add Books")
    print("2 - Search for a Book")
    print("3 - Remove a Book")
    print("4 - View all Books (Sorted either A-Z | Z-A)")
    print("0 - Exit program")
    print()


def add_books(book_list):
    print("Enter book titles to add (type 'x' to stop):")
    while True:
        book = input("Enter book title: ")
        if book.lower() == 'x':
            break
        book_list.append(book)
    print("Book(s) added successfully!")


def search_book(book_list):
    book = input("Enter book title to search: ")
    count = book_list.count(book)
    if count > 0:
        print(f"Book '{book}' found {count} time(s) in the list.")
    else:
        print(f"Book '{book}' not found in the list.")
```

```python
def remove_book(book_list):
    book = input("Enter book title to remove: ")
    if book in book_list:
        book_list.remove(book)
        print(f"Book '{book}' found and deleted.")
    else:
        print("Book not found - deletion unsuccessful.")


def view_books(book_list):
    if not book_list:
        print("The book list is empty.")
        return
    order = input("Sort order (A for Ascending, Z for Descending): ").upper()
    if order == "A":
        sorted_list = sorted(book_list)
    elif order == "Z":
        sorted_list = sorted(book_list, reverse=True)
    else:
        print("Invalid option, displaying unsorted list.")
        sorted_list = book_list
    print("Books in the list:")
    for i, book in enumerate(sorted_list, start=1):
        print(f"{i}. {book}")
```

```python
def main():
    books = []
    while True:
        display_menu()
        choice = input("Pick one [0 to quit]: ")
        print()

        if choice == "1":
            add_books(books)
        elif choice == "2":
            search_book(books)
        elif choice == "3":
            remove_book(books)
        elif choice == "4":
            view_books(books)
        elif choice == "0":
            print("\nWe will now exiting the program. Goodbye!")
            break
        else:
            print("\nInvalid choice, please choose again. Thank you!")


if __name__ == "__main__":
    main()
```

Sample Output:

```
----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 1

Enter book titles to add (type 'x' to stop):
Enter book title: Love is in the air
Enter book title: The Gambit
Enter book title: Destroyer
Enter book title: Blinding Light
Enter book title: Harry Potter
Enter book title: The Shining Shadow
Enter book title: x
Book(s) added successfully!

----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 2

Enter book title to search: The Gambit
Book 'The Gambit' found 1 time(s) in the list.

----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 2

Enter book title to search: Rose
Book 'Rose' not found in the list.

----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 3

Enter book title to remove: Harry Potter
Book 'Harry Potter' found and deleted.
```

```
----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 3

Enter book title to remove: Lolly
Book not found - deletion unsuccessful.

----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 4

Sort order (A for Ascending, Z for Descending): A
Books in the list:
1. Blinding Light
2. Destroyer
3. Love is in the air
4. The Gambit
5. The Shining Shadow
```

```
----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 4

Sort order (A for Ascending, Z for Descending): Z
Books in the list:
1. The Shining Shadow
2. The Gambit
3. Love is in the air
4. Destroyer
5. Blinding Light
```

```
----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 6


Invalid choice, please choose again. Thank you!

----| Menu |-----
1 - Add Books
2 - Search for a Book
3 - Remove a Book
4 - View all Books (Sorted either A-Z | Z-A)
0 - Exit program

Pick one [0 to quit]: 0


We will now exiting the program. Goodbye!

=== Code Execution Successful ===
```