S.No: 13	Exp. Name: *implement application of Items present in a library using Tuple data structure*	Date:2024-12-03

Aim:

You are tasked with building a Library Management System that allows users to interact with a library inventory.

Problem Statement:

You need to create a Python program that mimics a simple Library Management System. The library will be represented as a tuple (immutable sequence), and you will provide functionality for the following operations:

- display_library(): Show all items in the library.
- add_item(): Add a new item to the library.
- remove_item(): Remove an item from the library.
- Quit: Exit the application.

The program should provide a menu with options for the user to select. The operations should print appropriate messages for each action.

Requirements:

- The program must use a tuple to store the library items.
- Implement functions to:
  - Display the library.
  - Add a new item to the library.
  - Remove an existing item from the library.
  - The program should loop and allow users to choose actions until they select "Quit".

Input Format:

- The user will interact with the program via a menu.
- For the "Add Item" option, the user will input the item to be added.
- For the "Remove Item" option, the user will input the item to be removed.

Output Format:

The program should print:

- The current library when the "Display Library" option is selected.
- A confirmation message when an item is added or removed.
- An appropriate message if the item to be removed is not found in the library.
- A message when exiting the program.

Note : Refer to sample test cases for better understanding

Source Code:

libraryUsingTuple.py

```
def display_library(library):
   print("Library Inventory:")
   e=len(library)
   for i in range(0,e):
      print(library[i])
    #write your function code here

def add_item(library, item):
   library.append(item)
```

```
   print("added to the library")

def remove_item(library, item):
   library.remove(item)
   print("removed from the library")

# Initialize an empty library tuple
library = ()

while True:
    print("Library Application")
    print("1.Display Library")
    print("2.Add Item")
    print("3.Remove Item")
    print("4.Quit")

    choice = input("Enter your choice:")
    library=list(library)
    choice=int(choice)
    if(choice==1):
       display_library(library)
    elif(choice==2):
       a=input("item to add:")
       add_item(library,a)
    elif(choice==3):
       b=input("item to remove:")
       if(b not in library):
          print("not found")
       else:
          remove_item(library,b)
    elif(choice==4):
       print("Exiting the library application")
       breakpoint
    else:
       print("Invalid choice")
    #write the remaining code here
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Library Application 2
1.Display Library 2
2.Add Item 2
3.Remove Item 2
4.Quit 2
Enter your choice: 2
item to add: book1
added to the library 2
Library Application 2
1.Display Library 2
2.Add Item 2
3.Remove Item 2
4.Quit 2

```
Enter your choice: 2
item to add: book2
added to the library 2
Library Application 2
1.Display Library 2
2.Add Item 2
3.Remove Item 2
4.Quit 2
Enter your choice: 2
item to add: book9
added to the library 1
Library Application 1
1.Display Library 1
2.Add Item 1
3.Remove Item 1
4.Quit 1
Enter your choice: 1
Library Inventory: 3
book1 3
book2 3
book9 3
Library Application 3
1.Display Library 3
2.Add Item 3
3.Remove Item 3
4.Quit 3
Enter your choice: 3
item to remove: book16
not found 3
Library Application 3
1.Display Library 3
2.Add Item 3
3.Remove Item 3
4.Quit 3
Enter your choice: 3
item to remove: book1
removed from the library 1
Library Application 1
1.Display Library 1
2.Add Item 1
3.Remove Item 1
4.Quit 1
Enter your choice: 1
Library Inventory: 4
book2 4
book9 4
Library Application 4
1.Display Library 4
2.Add Item 4
3.Remove Item 4
4.Quit 4
Enter your choice: 4
Exiting the library application
```

Test Case - 2
User Output
Library Application 2
1.Display Library 2
2.Add Item 2
3.Remove Item 2
4.Quit 2
Enter your choice: 2
item to add: book16
added to the library 5
Library Application 5
1.Display Library 5
2.Add Item 5
3.Remove Item 5
4.Quit 5
Enter your choice: 5
Invalid choice 2
Library Application 2
1.Display Library 2
2.Add Item 2
3.Remove Item 2
4.Quit 2
Enter your choice: 2
item to add: book8
added to the library 3
Library Application 3
1.Display Library 3
2.Add Item 3
3.Remove Item 3
4.Quit 3
Enter your choice: 3
item to remove: book16
removed from the library 3
Library Application 3
1.Display Library 3
2.Add Item 3
3.Remove Item 3
4.Quit 3
Enter your choice: 3
item to remove: jack
not found 1
Library Application 1
1.Display Library 1
2.Add Item 1
3.Remove Item 1
4.Quit 1
Enter your choice: 1
Library Inventory: 4
book8 4
Library Application 4
1.Display Library 4
2.Add Item 4
3.Remove Item 4
4.Quit 4

```
Enter your choice: 4
Exiting the library application
```