Hands-on Exercise Objective

After completing the hands-on exercises, you will be able to:

- Implement Interfaces in your program.
- Apply polymorphism concept using interface.

Scenario: A library needs to develop an online application for two types of users/roles, Adults and children. Both of these users should be able to register an account. Any user who is less than 12 years of age will be registered as a child and they can borrow a "Kids" category book for 10 days, whereas an adult can borrow "Fiction" category books which need to be returned within 7 days.
Note: In future, more users/roles might be added to the library where similar rules will be enforced. Develop Interfaces and classes for the categories mentioned above.

Problem Statement 1:
1. Create an interface **LibraryUser** with the following methods declared,

Method Name
registerAccount
requestBook

2. Create 2 classes "**KidUsers**" and "**AdultUser**" which implements the **LibraryUser** interface.

3. Both the classes should have two instance variables as specified below.

Instance variables	Data type
age	int
bookType	String

4. The methods in the **KidUser** class should perform the following logic.
    1. **registerAccount** : if age < 12, a message displaying "You have successfully registered under a Kids Account" should be displayed in the console.
        If(age>12), a message displaying, **"Sorry, Age must be less than 12 to register as a kid"** should be displayed in the console.
    2. **requestBook** : if bookType is "**Kids**", a message displaying "Book Issued successfully, please return the book within 10 days" should be displayed in the console.
        else, a message displaying, "**Oops, you are allowed to take only kids books**" should be displayed in the console.
5. The methods in the **AdultUser** class should perform the following logic.

    1. **registerAccount** : if age > 12, a message displaying "**You have successfully registered under an Adult Account**" should be displayed in the console.

If age<12, a message displaying, "**Sorry, Age must be greater than 12 to register as an adult**" should be displayed in the console.

2. **requestBook** : if bookType is "**Fiction**", a message displaying "**Book Issued successfully, please return the book within 7 days**" should be displayed in the console.

   else, a message displaying, "**Oops, you are allowed to take only adult Fiction books**" should be displayed in the console.

6. Create a class "*LibraryInterfaceDemo.java*" with a main method which performs the below functions,

Test case #1:

- Create an instance of *KidUser* class.
- Set the age as specified in the below table and invoke the registerAccount method of the KidUser object

Age
10
18

- Set the book Type as specified in the below table and invoke the requestBook method of the KidUser object,

BookType
"Kids"
"Fiction"

Test case #2:

- Create an instance of **AdultUser** class.
- Set the age as specified in the below table and invoke the registerAccount method of the AdultUser object

Age
5
23

- Set the book Type as specified in the below table and invoke the requestBook method of the AdultUser object

BookType
"Kids"
"Fiction"