Problem Statement

You are building a simple library management system using inheritance and method overloading. The system must handle multiple types of users and their interactions with the library, such as borrowing and returning books.

Requirements:

1. Base Class (User):

• Represents a generic library user with attributes:

• name (String): Name of the user.

• userId (String): Unique ID for the user.

• Methods:

• borrowBook(String bookName): A user borrows a single book.

• borrowBook(String bookName, int days): A user borrows a single book for a specific number of days (overloaded method).

• returnBook(String bookName): A user returns a book.

2. Derived Class (Student):

• Extends User to represent a student user.

• A student can borrow up to 3 books at a time.

• Overrides borrowBook() to enforce the borrowing limit.

3. Derived Class (Faculty):

• Extends User to represent a faculty user.

• A faculty member can borrow unlimited books.

• Has an additional method:

• borrowBooks(String[] bookNames): A faculty member borrows multiple books at once.

4. Write a main class to:

• Create a Student and Faculty object.

• Demonstrate all functionalities (overloaded and overridden methods).

Constraints

1. Students cannot borrow more than 3 books at a time. If they attempt to borrow more, display: "Borrowing limit exceeded."

2. Faculty members can borrow as many books as they want, but the borrowed books must be displayed in a list.

3. Both Student and Faculty must implement returnBook().

Sample Input

Student:

Name: Alice, ID: S123

Borrow: ["Math", "Physics", "Chemistry", "Biology"]

Faculty:

Name: Dr. John, ID: F456

Borrow: ["Data Science", "AI", "Cloud Computing"]

Return: "AI"

Sample Output

Alice borrowed:

- Math

- Physics

- Chemistry

Borrowing limit exceeded.

Dr. John borrowed:

- Data Science

- AI

- Cloud Computing

Dr. John returned: AI

Remaining books:

- Data Science

- Cloud Computing