

Gebze Technical University
Computer Engineering

CSE 222
2017 Spring

HOMEWORK 01 REPORT

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Course Assistant:

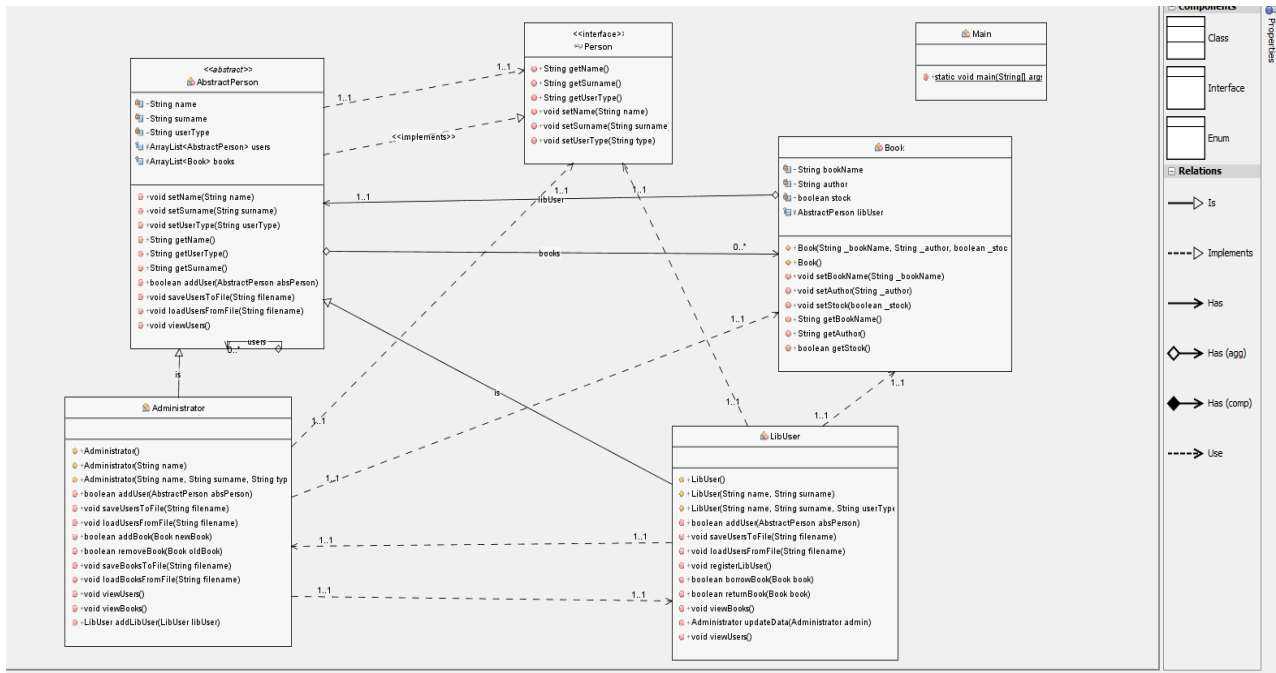
1. System Requirements

Library Management system projesinde temel kütüphane işlemleri yapmaktayız. Sistemde yönetici , kullanıcılar ve kitaplar vardır. Yönetici sisteme kullanıcı ekleyebilme , kitap ekleme ve silme işlemlerine ve kullanıcı ve kitapları dosyaya kaydetme işlemleri yapabilir. Kullanıcı sistemden kitap alma ve geri getirme işlemleri yapabilmektedir. Sistem de kitaplar ve kullanıcılar genel kullanıcı (AbstractPerson) da tutulmaktadır.

2. Use Case Diagrams

Add use case diagrams if required.

3. Class Diagrams



4. Other Diagrams

Add other diagrams.

5. Problem Solutions Approach

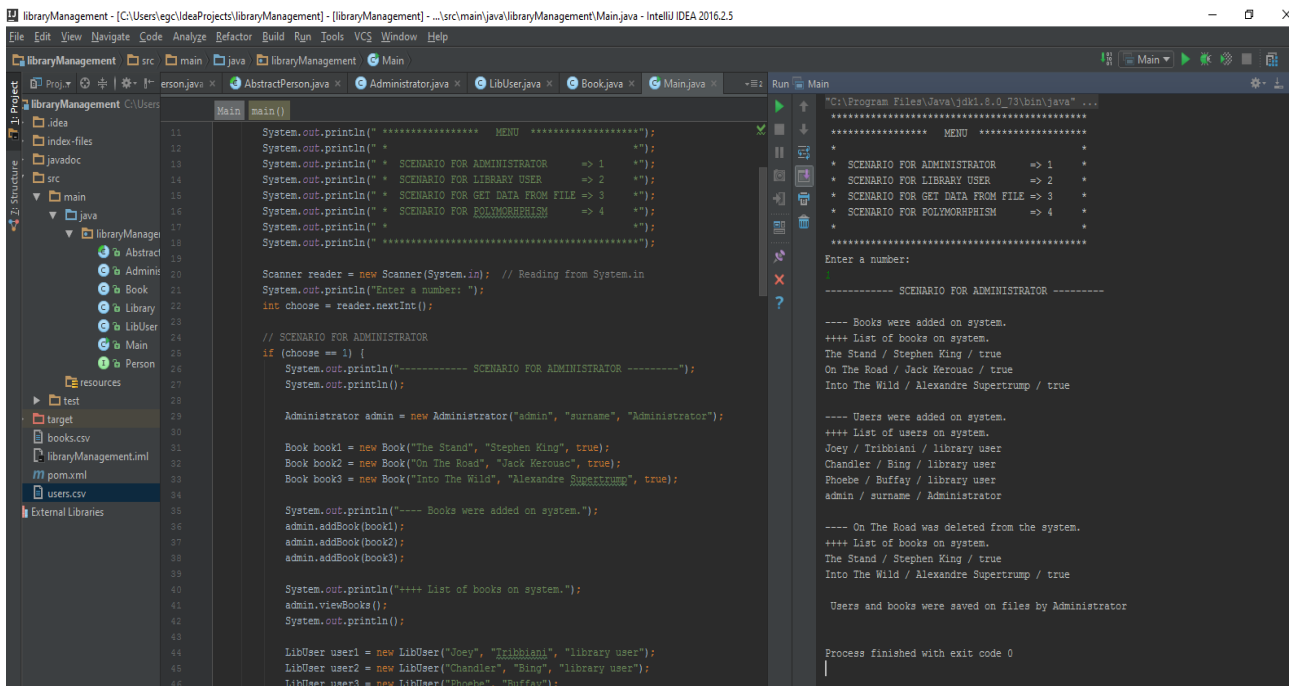
- Library Management sistem için Person adını da bir interface oluşturuldu.
- Person classından implement olan Abstract bir class olan AbstractPerson Class i oluşturuldu.
- AbstractPerson sınıfında kullanıcılar ve kitaplar tutulmaktadır.
- Administrator ve Library User sınıfları AbstractPerson sınıfından türetilmiş sınıflardır.
- Administrator sınıfı, kullanıcı ekleme ve görüntüleme ayrıca kitap ekleme, silme, görüntüleme methodlarına sahiptir.
- Administrator sınıfı kitap ve kullanıcıları dosyalara kaydeder.
- Library User sınıfı, kitap ödünç alma ve kitap teslim methodlarına sahiptir.
- Book sınıfı kitap bilgilerini tutmaktadır.

6. Test Cases

- Administrator(LibraryStaff) sisteme yeni kullanıcı ekleme
- Administrator(Library Staff) sisteme kitap ekleme
- Administrator(LibraryStaff) sistemden kitap silme
- Administrator(LibraryStaff) sistemdeki kullanıcı ve kitapları görüntüleme
- Administrator(LibraryStaff) sistemdeki kullanıcıları dosyaya kaydetme
- Administrator(LibraryStaff) sistemdeki kitapları dosyaya kaydetme
- Library User sistemden ödünç kitap alma
- Library User sisteme geri kitap getirme
- Library User sistemdeki kitapları görüntüleme

7. Running and Results

➤ Administrator Scenario



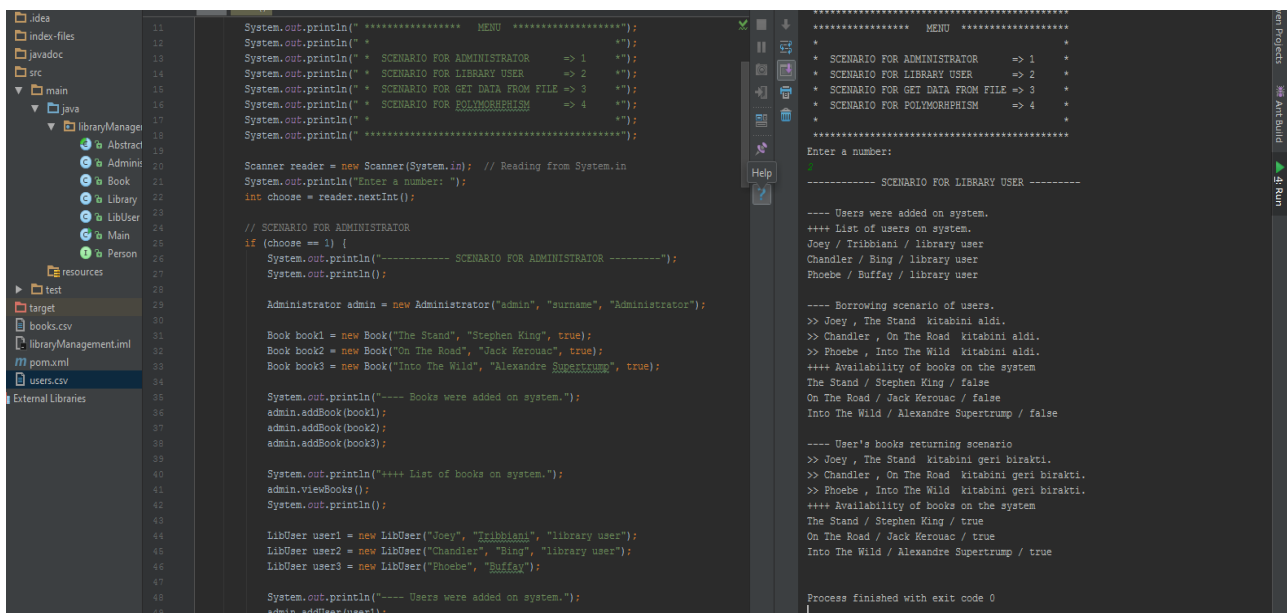
```
libraryManagement - [C:\Users\egc\IdeaProjects\libraryManagement] - [libraryManagement] - ...src\main\java\libraryManagement\Main.java - IntelliJ IDEA 2016.2.5
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

libraryManagement src main java libraryManagement Main
Project Structure
libraryManagement C:\Users\egc\IdeaProjects\libraryManagement
src
main
java
libraryManagement
Abstract
Admin
Book
Library
LibUser
Main
Person
resources
test
target
books.csv
libraryManagement.iml
pom.xml
users.csv
External Libraries

Main main()
11 System.out.println(" ***** MENU *****");
12 System.out.println(" *");
13 System.out.println(" * SCENARIO FOR ADMINISTRATOR => 1 *");
14 System.out.println(" * SCENARIO FOR LIBRARY USER => 2 *");
15 System.out.println(" * SCENARIO FOR GET DATA FROM FILE => 3 *");
16 System.out.println(" * SCENARIO FOR POLYMORPHISM => 4 *");
17 System.out.println(" *");
18 System.out.println(" *****");
19
20 Scanner reader = new Scanner(System.in); // Reading from System.in
21 System.out.println("Enter a number: ");
22 int choose = reader.nextInt();
23
24 // SCENARIO FOR ADMINISTRATOR
25 if (choose == 1) {
26 System.out.println("----- SCENARIO FOR ADMINISTRATOR -----");
27 System.out.println();
28
29 Administrator admin = new Administrator("admin", "surname", "Administrator");
30
31 Book book1 = new Book("The Stand", "Stephen King", true);
32 Book book2 = new Book("On The Road", "Jack Kerouac", true);
33 Book book3 = new Book("Into The Wild", "Alexandre Supertrump", true);
34
35 System.out.println("---- Books were added on system.");
36 admin.addBook(book1);
37 admin.addBook(book2);
38 admin.addBook(book3);
39
40 System.out.println("++++ List of books on system.");
41 admin.viewBooks();
42 System.out.println();
43
44 LibUser user1 = new LibUser("Joey", "Tribbiani", "library user");
45 LibUser user2 = new LibUser("Chandler", "Bing", "library user");
46 LibUser user3 = new LibUser("Phoebe", "Buffay");
```

```
"C:\Program Files\Java\jdk1.8.0_73\bin\java" ...
***** MENU *****
*
* SCENARIO FOR ADMINISTRATOR => 1 *
* SCENARIO FOR LIBRARY USER => 2 *
* SCENARIO FOR GET DATA FROM FILE => 3 *
* SCENARIO FOR POLYMORPHISM => 4 *
*
*****
Enter a number:
----- SCENARIO FOR ADMINISTRATOR -----
---- Books were added on system.
++++ List of books on system.
The Stand / Stephen King / true
On The Road / Jack Kerouac / true
Into The Wild / Alexandre Supertrump / true
---- Users were added on system.
++++ List of users on system.
Joey / Tribbiani / library user
Chandler / Bing / library user
Phoebe / Buffay / library user
admin / surname / Administrator
---- On The Road was deleted from the system.
++++ List of books on system.
The Stand / Stephen King / true
Into The Wild / Alexandre Supertrump / true
Users and books were saved on files by Administrator
Process finished with exit code 0
```

➤ Library User Scenario



The screenshot shows an IDE with a project named 'LibraryManagement' and a file named 'Main.java'. The code is a Java application that simulates a library user scenario. It includes a menu with four options: 1. SCENARIO FOR ADMINISTRATOR, 2. SCENARIO FOR LIBRARY USER, 3. SCENARIO FOR GET DATA FROM FILE, and 4. SCENARIO FOR POLYMORPHISM. The user selects option 2. The application then displays a list of users on the system: Joey / Tribbiani / library user, Chandler / Bing / library user, and Phoebe / Buffay / library user. It also shows a borrowing scenario for each user, listing books like 'The Stand', 'On The Road', and 'Into The Wild'. Finally, it displays the availability of books on the system for each user.

```
System.out.println(" ***** MENU *****");
System.out.println(" *");
System.out.println(" * SCENARIO FOR ADMINISTRATOR => 1 *");
System.out.println(" * SCENARIO FOR LIBRARY USER => 2 *");
System.out.println(" * SCENARIO FOR GET DATA FROM FILE => 3 *");
System.out.println(" * SCENARIO FOR POLYMORPHISM => 4 *");
System.out.println(" *");
System.out.println(" *****");

Scanner reader = new Scanner(System.in); // Reading from System.in
System.out.println("Enter a number: ");
int choose = reader.nextInt();

// SCENARIO FOR ADMINISTRATOR
if (choose == 1) {
    System.out.println("----- SCENARIO FOR ADMINISTRATOR -----");
    System.out.println();

    Administrator admin = new Administrator("admin", "surname", "Administrator");

    Book book1 = new Book("The Stand", "Stephen King", true);
    Book book2 = new Book("On The Road", "Jack Kerouac", true);
    Book book3 = new Book("Into The Wild", "Alexandre Supertrump", true);

    System.out.println("---- Books were added on system.");
    admin.addBook(book1);
    admin.addBook(book2);
    admin.addBook(book3);

    System.out.println("+++ List of books on system.");
    admin.viewBooks();
    System.out.println();

    LibUser user1 = new LibUser("Joey", "Tribbiani", "library user");
    LibUser user2 = new LibUser("Chandler", "Bing", "library user");
    LibUser user3 = new LibUser("Phoebe", "Buffay");

    System.out.println("---- Users were added on system.");
    admin.addUser(user1);
    admin.addUser(user2);
    admin.addUser(user3);
}
```

***** MENU *****

* SCENARIO FOR ADMINISTRATOR => 1 *

* SCENARIO FOR LIBRARY USER => 2 *

* SCENARIO FOR GET DATA FROM FILE => 3 *

* SCENARIO FOR POLYMORPHISM => 4 *

Enter a number:

----- SCENARIO FOR LIBRARY USER -----

---- Users were added on system.

+++ List of users on system.

Joey / Tribbiani / library user

Chandler / Bing / library user

Phoebe / Buffay / library user

---- Borrowing scenario of users.

>> Joey , The Stand kitabini aldi.

>> Chandler , On The Road kitabini aldi.

>> Phoebe , Into The Wild kitabini aldi.

+++ Availability of books on the system

The Stand / Stephen King / false

On The Road / Jack Kerouac / false

Into The Wild / Alexandre Supertrump / false

---- User's books returning scenario

>> Joey , The Stand kitabini geri birakti.

>> Chandler , On The Road kitabini geri birakti.

>> Phoebe , Into The Wild kitabini geri birakti.

+++ Availability of books on the system

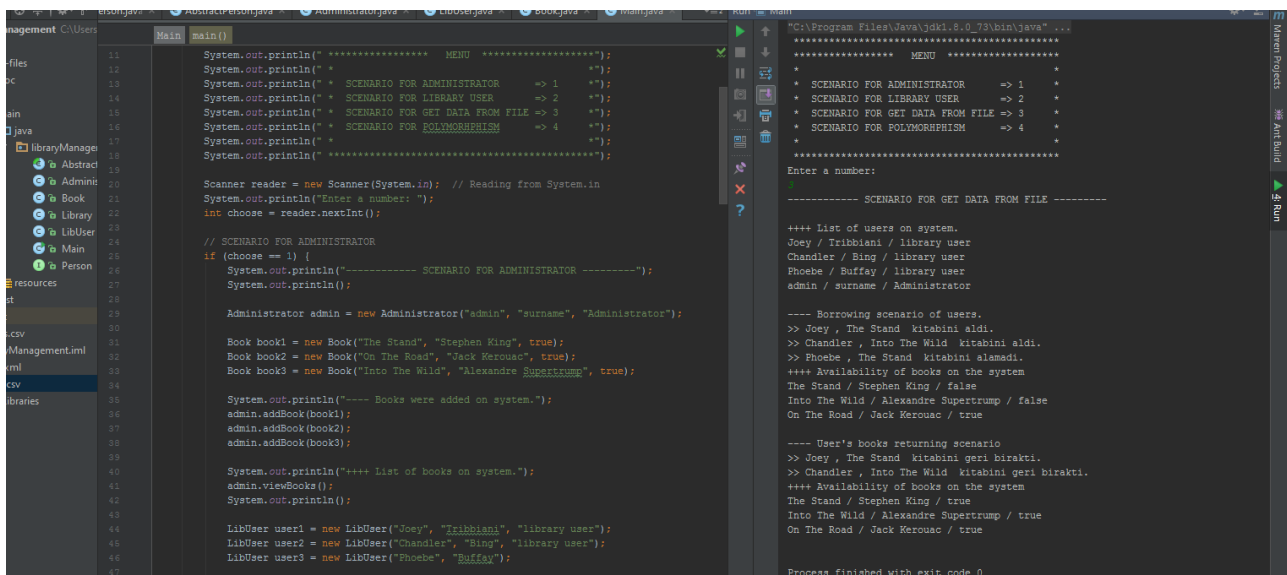
The Stand / Stephen King / true

On The Road / Jack Kerouac / true

Into The Wild / Alexandre Supertrump / true

Process finished with exit code 0

➤ Get Data From File Scenario



The screenshot shows the same IDE with the 'Main.java' file. The user selects option 3 from the menu. The application then displays a list of users on the system: Joey / Tribbiani / library user, Chandler / Bing / library user, and Phoebe / Buffay / library user. It also shows a borrowing scenario for each user, listing books like 'The Stand', 'On The Road', and 'Into The Wild'. Finally, it displays the availability of books on the system for each user.

```
System.out.println(" ***** MENU *****");
System.out.println(" *");
System.out.println(" * SCENARIO FOR ADMINISTRATOR => 1 *");
System.out.println(" * SCENARIO FOR LIBRARY USER => 2 *");
System.out.println(" * SCENARIO FOR GET DATA FROM FILE => 3 *");
System.out.println(" * SCENARIO FOR POLYMORPHISM => 4 *");
System.out.println(" *");
System.out.println(" *****");

Scanner reader = new Scanner(System.in); // Reading from System.in
System.out.println("Enter a number: ");
int choose = reader.nextInt();

// SCENARIO FOR ADMINISTRATOR
if (choose == 1) {
    System.out.println("----- SCENARIO FOR ADMINISTRATOR -----");
    System.out.println();

    Administrator admin = new Administrator("admin", "surname", "Administrator");

    Book book1 = new Book("The Stand", "Stephen King", true);
    Book book2 = new Book("On The Road", "Jack Kerouac", true);
    Book book3 = new Book("Into The Wild", "Alexandre Supertrump", true);

    System.out.println("---- Books were added on system.");
    admin.addBook(book1);
    admin.addBook(book2);
    admin.addBook(book3);

    System.out.println("+++ List of books on system.");
    admin.viewBooks();
    System.out.println();

    LibUser user1 = new LibUser("Joey", "Tribbiani", "library user");
    LibUser user2 = new LibUser("Chandler", "Bing", "library user");
    LibUser user3 = new LibUser("Phoebe", "Buffay");

    System.out.println("---- Users were added on system.");
    admin.addUser(user1);
    admin.addUser(user2);
    admin.addUser(user3);
}
```

***** MENU *****

* SCENARIO FOR ADMINISTRATOR => 1 *

* SCENARIO FOR LIBRARY USER => 2 *

* SCENARIO FOR GET DATA FROM FILE => 3 *

* SCENARIO FOR POLYMORPHISM => 4 *

Enter a number:

----- SCENARIO FOR GET DATA FROM FILE -----

+++ List of users on system.

Joey / Tribbiani / library user

Chandler / Bing / library user

Phoebe / Buffay / library user

admin / surname / Administrator

---- Borrowing scenario of users.

>> Joey , The Stand kitabini aldi.

>> Chandler , Into The Wild kitabini aldi.

>> Phoebe , The Stand kitabini aldi.

+++ Availability of books on the system

The Stand / Stephen King / false

Into The Wild / Alexandre Supertrump / false

On The Road / Jack Kerouac / true

---- User's books returning scenario

>> Joey , The Stand kitabini geri birakti.

>> Chandler , Into The Wild kitabini geri birakti.

+++ Availability of books on the system

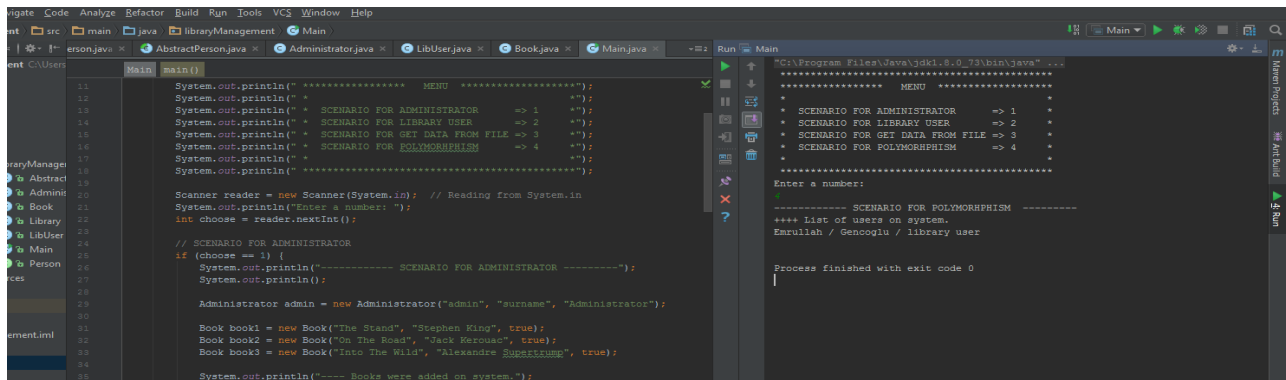
The Stand / Stephen King / true

Into The Wild / Alexandre Supertrump / true

On The Road / Jack Kerouac / true

Process finished with exit code 0

➤ Polymorphism Scenario



The screenshot shows an IDE with a Java project. The main class is `Main.java`, which contains a `main()` method. The code implements a menu-driven system with four scenarios: Administrator, Library User, Get Data from File, and Polymorphism. The Polymorphism scenario is currently selected, and the output window shows the corresponding menu and user list.

```
11: System.out.println(" ***** MENU *****");
12: System.out.println(" *");
13: System.out.println(" * SCENARIO FOR ADMINISTRATOR ==> 1 *");
14: System.out.println(" * SCENARIO FOR LIBRARY USER ==> 2 *");
15: System.out.println(" * SCENARIO FOR GET DATA FROM FILE ==> 3 *");
16: System.out.println(" * SCENARIO FOR POLYMORPHISM ==> 4 *");
17: System.out.println(" *");
18: System.out.println(" *****");
19:
20: Scanner reader = new Scanner(System.in); // Reading from System.in
21: System.out.println("Enter a number: ");
22: int choose = reader.nextInt();
23:
24: // SCENARIO FOR ADMINISTRATOR
25: if (choose == 1) {
26:     System.out.println("----- SCENARIO FOR ADMINISTRATOR -----");
27:     System.out.println();
28:     Administrator admin = new Administrator("admin", "Surname", "Administrator");
29:
30:     Book book1 = new Book("The Stand", "Stephen King", true);
31:     Book book2 = new Book("On The Road", "Jack Kerouac", true);
32:     Book book3 = new Book("Into The Wild", "Alexandre Dumas", true);
33:
34:     System.out.println("---- Books were added to system.");
35: }
```

Output:

```
***** MENU *****
*
* SCENARIO FOR ADMINISTRATOR ==> 1 *
* SCENARIO FOR LIBRARY USER ==> 2 *
* SCENARIO FOR GET DATA FROM FILE ==> 3 *
* SCENARIO FOR POLYMORPHISM ==> 4 *
*
*****

Enter a number:
----- SCENARIO FOR POLYMORPHISM -----
++++ List of users on system.
Emullah / Gencoglu / library user

Process finished with exit code 0
```