Exercise 8:

1.   Develop a simple OPAC system for library using event-driven and concurrent pro-
gramming paradigms of Java. Use JDBC to connect to a back-end database.

Instructions:

1.Create a Online Public Access Catalogue System for Library Management with the
following operations.

    a) Tables – Book Details (Title, Access no, Author, Category, Status (Available
/ Issued / Transfered) etc.,)

      - Members Details(Member name, Member id, Category (Student /
Staff) , Department, Year of Study, Issued count etc.,)

      - Issue Details (Book Access no, Member id, Issue Date, Return
Date, Fine if any etc.,)

    b) Operations : (Can Use Menu)

        i) Entry – for Book & for Member

        ii) Search – by Title & by Author

        iii) Issue

        iv) Return

        v) List issued books based on Member id

    c) Conditions:

      –   For Entry (i) the access should be given for only Librarian.

      –   For Search (ii) – Exception should be thrown for Book not found and if
found then the details of the book and its current status should be shown.
If issued then the member id should also be shown.

      –   For Issue(iii) A Staff can take 5 books. Return date is 6 months from
issue date. (Issue has to validate this maximum limit). A Student can
take 3 books. Return date is 3 month from issue date. (Issue (iii) has to
validate this maximum limit). Whenever a book is issued then the Issued
count field in Member details table should be updated.

- For return (iv) If the return date is expired then fine should be calculated Rs 2 per day. Whenever a book is returned then the Issued count field in Member details table should be updated.
- For List Issued books based on Member id (v) – Exception should be thrown if Member not found. Fine amount should be calculated based on return date and current date and it should be displayed.

2. The program should be event driven and should use necessary components. Database connectivity should be done with the help of JDBC.