Library Management System for COMSATS. The system is required to provide the following functionality:

**Registration**

This feature will allow prospective users to register themselves as library members by adding their details to the system. The system should be able to store at least basic information like name, address, email of each member. Members include students and teachers. The system will generate a unique identify (id) for each registered member. The registration feature will also allow members to update and delete their details.

**Item management**

The system will keep a list the item available in the library and their details. The library items include the books, journals, CDs, and video tapes. The system will include a feature for updating and deleting stored items. Please note that there may be more than one copy of the same item in the library.

**Lending**

This feature will allow a member to take and return items from the library. If an item is over due, the system also calculates the fine on that item. For this purpose, the system maintains (add/update/delete) the information about the fine schedule.

**Searching/ viewing**

* The system user will able to search for items by title, author name, topic etc. The result of the search should display the total number of items found, along with the list of the items found for that search. The user can then select a record from the search results to display items details.
* The user should also be able to search for books in the LUMS library. However these books cannot be issued.
* The user should be able to search for a member to find out the total number of items issued to the member and list of those items.
* The user should be able to generate a list of over due items and print notices to be sent to the members.

1. **Complexity Matrix for ILFs and EIFs**

|  |  |  |  |
| --- | --- | --- | --- |
| **RETs** | **DETs** | | |
| **1-19** | **20-50** | **≥ 51** |
| 1 | Low | Low | Average |
| 2-5 | Low | Average | High |
| > 5 | High | High | High |

1. **Complexity Matrix for EIs**

|  |  |  |  |
| --- | --- | --- | --- |
| **FTRs** | **DETs** | | |
| **1-4** | **5-15** | **≥ 16** |
| < 2 | Low | Low | Average |
| 2 | Low | Average | High |
| > 2 | Average | High | High |

1. **Complexity Matrix for EOs and EQs**

|  |  |  |  |
| --- | --- | --- | --- |
| **FTRs** | **DETs** | | |
| **1-5** | **6-19** | **≥ 20** |
| < 2 | Low | Low | Average |
| 2-3 | Low | Average | High |
| > 3 | Average | High | High |

|  |  |  |  |
| --- | --- | --- | --- |
| **FP Contribution of Different Analysis Components** | | | |
|  | **Complexity** | | |
| **Component** | **Low** | **Average** | **High** |
| ILF | 7 | 10 | 15 |
| EIF | 5 | 7 | 10 |
| EI | 3 | 4 | 6 |
| EO | 4 | 5 | 7 |
| EQ | 3 | 4 | 6 |



**Identification of ILF and EIF**

ILFs are: Member, Lending Item, Item

EIF are: LUMS Library

**Determine Complexity  
Count RETs**

* Member (2 subgroups) – count as 2 RET
* Member + Teacher
* Member + Student
* Lending Item (1 subgroups) – count as 1 RET
* Fine Management
* Item (0 subgroups) – count as 1 RET
* LUMS Library (0 subgroups) – count as 1 RET

**Determine Complexity  
Count DETs**

* + - Member < 20
    - Lending Item < 20
    - Item < 20
    - LUMS Library < 20

**Determine Complexity**

* Member

2 RETs, <20 DETs 🡪 Complexity = Low

* Lending Item

1 RETs, <20 DETs 🡪 Complexity = Low

* Item

1 RETs, <20 DETs 🡪 Complexity = Low

* LUMS Library

1 RETs, <20 DETs 🡪 Complexity = Low

**Contribution of ILF’s and EIF’s**

* ILF

Low 3 x 7 = 21

Average 0 x 10 = 0

High 0 x 15 = 0

* EIF

Low 1 x 5 = 5

Average 0 x 7 = 0

High 0 x 10 = 0

Total = 26

**Identification of EIs, EQs, and EOs**



**Contribution of Transaction Functions**

* **EI**

Low 7 x 3 = 21

Avg 0 x 4 = 0

High 4 x 6 = 24

* **EQ**

Low 3 x 3 = 9

Avg 1 x 4 = 4

High 0 x 6 = 0

* **EO**

Low 3 x 4 = 12

Avg 0 x 5 = 0

High 0 x 7 = 0

**Total = 70**

**Total Unadjusted FP Count**

* ILF: 21
* EIF: 5
* EI: 45
* EQ: 13
* EO: 12

Total: 96