After learning ER diagram concept of DBMS, we have done some changes in our project. We have completely removed present\_day\_record table and added date attribute in every relationship set where student buys old book, new book or stationery items.

We have explicitly added student entity set having attributes Roll no and name assuming buyers are students of Thapar University as shown in fig 1.

**Student**

|  |  |
| --- | --- |
| **Roll number** | **Name** |
| 101503006 | Abhishek Handa |
| 101503015 | Ajay |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| Roll\_Number | Number(9) | Not null |
| Name | Varchar(20) | Not null |

We have created new relationship sets between (student and new\_book),(student and old\_book) and (student and stationery) named stu\_nbk, stu\_obk\_sell,stu\_obk\_buy and stu\_stationery.

There are two entity sets possible between old\_book and student entity set, since student can either buy old book or student can sell old book.

DDL of nbk\_stu is

|  |  |  |
| --- | --- | --- |
| **ISBN** | **Roll Number** | **Date** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| ISBN | varchar(20) | Foreign key |
| Roll\_number | Number(9) | Foreign key |
| Date | Date | Not null |

DDL of obk\_stu is

|  |  |  |
| --- | --- | --- |
| **Barcode** | **Roll Number** | **Date** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| Barcode | Number(10) | Foreign key |
| Roll Number | Number(9) | Foreign key |
| Date | Date | Not null |

DDL of obk\_stu\_b

|  |  |  |  |
| --- | --- | --- | --- |
| **ISBN** | **Roll Number** | **Prize** | **Date** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| ISBN | Varchar(20) | Foreign Key |
| Roll Number | Number(9) | Foreign Key |
| Prize | Number(5) | Not null |
| date | date | Not null |

DDL of obk\_stu\_s

|  |  |  |  |
| --- | --- | --- | --- |
| **ISBN** | **Roll Number** | **Prize** | **Date** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| ISBN | Varchar(20) | Foreign Key |
| Rollno | Number(9) | Foreign key |
| Prize | Number(5) | Not null |
| Date | date | Not null |

For ensuring uniqueness and transparency of each supplier we are taking his supplier pan number.

DDL of Book\_supplier

|  |  |  |
| --- | --- | --- |
| **Pan\_number** | **Name** | **Address** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| Pan\_number | Number(10) | Primary Key |
| Name | Varchar(20) | Not null |
| Address | Varchar(60) | Not null |

On silmiler lines DDL for stationery suppler will be

|  |  |  |
| --- | --- | --- |
| **Pan\_Number** | **Name** | **Address** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| Pan\_number | Number(10) | Primary Key |
| Name | Varchar(20) | Not null |
| Address | Varchara(60) | Not null |

Now the stock for new\_book and stationery need to be added by their respective suppliers. We are assuming here that suppliers of new\_book and stationery are different. Therefore two relationship sets book\_supplier and stationery\_supplier will be made. Between these entity sets two relationship sets named (bs\_nb,ss\_s) will be formed.

DDL of bs\_nb (book supplier for new book) is

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pan Number** | **ISBN** | **Qty** | **Discount** | **Date** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| Pan\_number | Number(10) | Foreign Key |
| ISBN | Varchar(20) | Foreign Key |
| qty | Number(5) | Not null |
| discount | Number(2) | Check(discount >0 and discount<100) |
| Date | date | Not null |

On similer lines DDL of ss\_s(book supplier for old book) will be

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pan Number** | **ISBN** | **Qty** | **Discount** | **Date** |

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Data Type** | **Constraints** |
| Pan\_Number | Number(10) | Foreign Key |
| ISBN | Varchar(20) | Foreign Key |
| Qty | Number(5) | Not null |
| Discount | Number(2) | Check(discount >0 and discount<100) |
| date | date | Not null |

After doing all this still we left with two type of query. How are we going to generate the table for bill and requirement. To generate the bill of student when he buy a new book we are going to use group by to group all the things purchased by the student from table new\_book, old\_book and stationary. To generate the requirement table we are going to use similar command to group by using ISBN number and it will give us the count of the number of books required for the specific ISBN number and use same for the stationary table.