DipIT07 – Introduction to Database Systems

COURSEWORK – 1

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Section A

1.

Oracle

Oracle has been providing a large range of industry-leading on-premise and cloud based resolutions to reach the data management requirements from small sized businesses to large enterprises globally.
(Oracle, 2018)

Features of Oracle DBMS:

- Oracle database collects data, stores and organizes data, and retrieves related data used by a business.
- Oracle is the most widely used database management system globally.
- Oracle Database 12c, includes cloud architecture. The 'c' in '12c' stands for cloud computing.
- Oracle version 8 includes the core emphasis of the release along with the version number in its name.
- Versions 8 and 9 are called 'I' to indicate Internet computing.
- Versions 10 and 11 are called 'g' for grid computing.
- Oracle Database 12c allows to manage many databases as one, thereby reducing overhead and valuable resource consumption.
- An Oracle Database 12c server is a feature-rich RDBMS that extends its capabilities beyond any other RDBMS in the market, with object relational and cloud capabilities.

(Oracle DBA Society, 2018)

Major Clients of Oracle DBMS:

- MSI Corporation
- MLC Life Insurance
- Tidebuy.com

(Oracle, 2018)

MySQL

SQL is abbreviation for Structured Query Language. SQL allows user to access and manipulate databases. In 1986, 'SQL' became a standard of the 'American National Standards Institute (ANSI)'. In 1987 of the 'International Organization for Standardization (ISO)'.

Features

- SQL allows to execute queries against a database
- SQL allows to retrieves data from a database
- SQL allows to insert records in a database
- SQL allows to update records in a database
- SQL allows to delete records from a database
- SQL allows to create new databases
- SQL allows to create new tables in a database
- SQL allows to create stored procedures in a database
- SQL allows to create views in a database
- SQL allows to set permissions on tables, procedures, and views

Major Clients of MySQL DBMS:

- Alcatel.Lucent
- GitHub
- Booking.com

(MySQL, 2018)

MS SQL Server

MS SQL Server is a 'RDBMS' ('Relational Database Management System') that supports a larger variety of transaction processing, business intelligence and analytics applications in corporate IT environments. It is one of the three market-leading database technologies.
(SearchSQLServer, 2018)

Features:

- MS SQL Server converts column data types to appropriate Oracle data types automatically.
- MS SQL Server resolves object name conflicts, such as conflicts with Oracle reserved words automatically.
- MS SQL Server parses and transforms T-SQL stored procedures, functions, triggers, and views to Oracle PL/SQL.
- MS SQL Server provides advanced customization capabilities such as the ability to change data type mappings, delete and rename objects.
- MS SQL Server generates reports about the status of the migration.
- MS SQL Server generates the DDL scripts for the creation of the destination Oracle database.
- MS SQL Server generates scripts for data movement
- MS SQL Server displays informational, error, and warning messages about the migration in a progress window.

  (Oracle, 2018)

Major Clients of MS SQL Server:

- Rolls-Royce
- Infosys
- Stackoverflow

2.

Attributes for Student Table:

S.N	Attribute	Datatype	Datasize
1	Student_id	varchar	20
2	mobile_number	integer	10
3	Student_name	varchar	35
4	Email_id	varchar	50
5	contact_address	varchar	50

Attributes for Books Table:

S.N	Attribute	Datatype	Datasize
1	Book_title	varchar	25
2	Book_id	varchar	20
3	Price	decimal	(30,2)
4	Publisher	varchar	40
5	Author	varchar	35
6	ISBN	varchar	13

Attributes for Publisher Table:

S.N	Attribute	Datatype	Datasize
1	Publisher_id	varchar	15
2	Author_id	varchar	15
3	ISBN	varchar	13
4	Genre	varchar	15
5	Book_name	varchar	25

Section B

Borrower Table:

SN	Attributes	Data Type	Size
1	Borrower_ID	Int	10
2	Borrower_Name	Varchar	25
3	Borrower_Address	Varchar	30
4	Borrower_ContactNo.	Int	10

Book Table:

SN	Attributes	Data Type	Size
1	Book_ID	Varchar	13
2	Book_Name	Varchar	20
3	Book_Q	int	20

BorrowLog

SN	Attributes	Data Type	Size
1	LogID	varchar	13
2	Borrower_ID	varchar	10
3	Book_ID	varchar	10
4	Issue Date	date	-

Section C

1. CREATE table Borrower (Borrower_ID Int(10), Borrower_Name Varchar(25), Borrower_Address Varchar(30), Borrower_ContactNo Int(10), Book_ID Varchar(13) , Librarian_ID Varchar(13));

Borrower_ID	Borrower_Name	Borrower_Address	Borrower_ContactNo	Book_ID	Librarian_ID

2. CREATE table Book (Book_ID Varchar(13), Book_Name Varchar(20), Author_Name Varchar(20), Publisher_ID Int(15), ISBN Varchar(13));

Book_ID	Book_Name	Author_Name	Publisher_ID	ISBN

3. CREATE Table Library_Rules (Book_ID Int(13), Borrower_ID varchar(10), Total_Books varchar(10), Available_Books Int(10), Remaining_Books Int(10));

Book_ID	Borrower_ID	Total_Books	Available_Books	Remaining_Books

4. CREATE Table Librarian (Librarian_ID Int(13), Librarian_Name varchar(25), Librarian_Address varchar(30), Librarian_ContactNo Int(10));

Librarian_ID	Librarian_Name	Librarian_Address	Librarian_ContactNo

ER Diagram

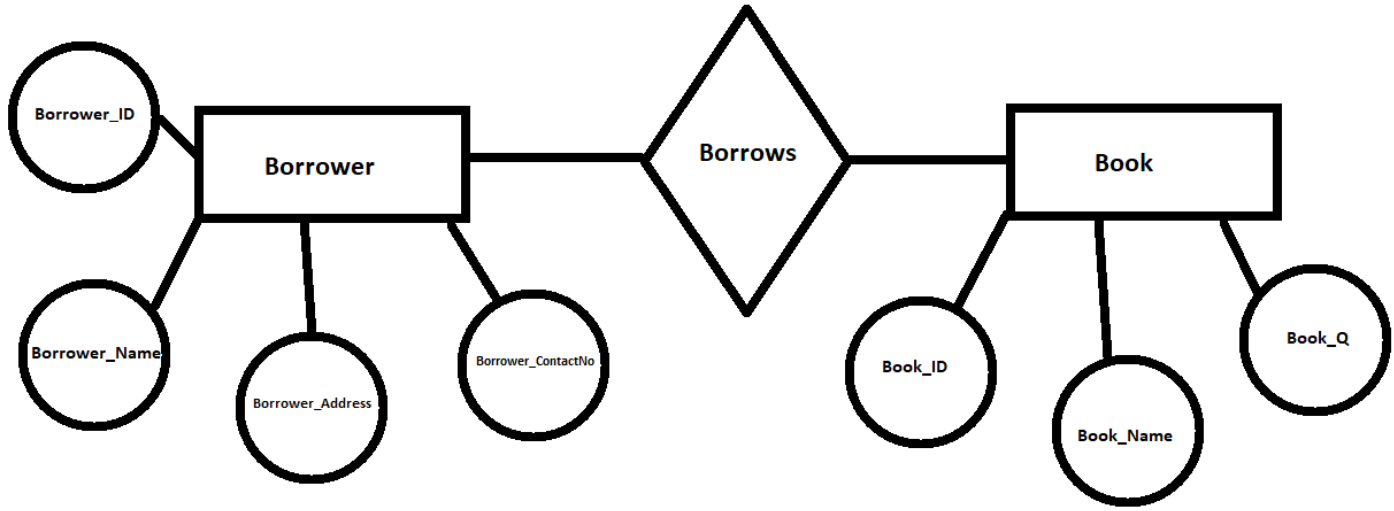

Figure 1: ER Diagram

Section D.

1.

For Borrower

```
INSERT INTO Borrower VALUES('R2001', 'Supereme K', 'Ktm', '987457l2812');
INSERT INTO Borrower VALUES('R2002', 'Manish', 'Pkr', '987457l2822');
INSERT INTO Borrower VALUES('R2003', 'Ram', 'Ktm', '987457l2813');
INSERT INTO Borrower VALUES('R2004', 'Shyam', 'Brt', '98745712512');
INSERT INTO Borrower VALUES('R2005', 'Hari', 'Brt', '987457l2842');
INSERT INTO Borrower VALUES('R2006', 'Prasadh', 'Pkr', '987457772812');
INSERT INTO Borrower VALUES('R2007', 'Ayush', 'Brt', '98745712612');
INSERT INTO Borrower VALUES('R2008', 'Kumar', 'Ktm', '98745712212');
INSERT INTO Borrower VALUES('R2009', 'Sadidi', 'Ktm', '987457l1812');
INSERT INTO Borrower VALUES('R2010', 'Adidi', 'Ktm', '98745712112');
```

For Book

```
INSERT INTO Book VALUES('B101', 'Maths', 5);
INSERT INTO Book VALUES('B201', 'Science', 4);
INSERT INTO Book VALUES('B207', 'EPH', 3);
INSERT INTO Book VALUES('B102', 'SQL', 2);
INSERT INTO Book VALUES('B108', 'JAVA', 1);
INSERT INTO Book VALUES('B100', 'WEB', 2);
INSERT INTO Book VALUES('B110', 'Deep Web', 3);
INSERT INTO Book VALUES('B209', 'English', 1);
INSERT INTO Book VALUES('B103', 'DB', 2);
INSERT INTO Book VALUES('B105', 'Logic', 5);
```

For BorrowLog

```
INSERT INTO BorrowLog VALUES('101', 'R2001', 'B101', '2018-09-12');
INSERT INTO BorrowLog VALUES('102', 'R2002', 'B102', '2018-09-12');
INSERT INTO BorrowLog VALUES('103', 'R2002', 'B103', '2018-09-12');
INSERT INTO BorrowLog VALUES('104', 'R2003', 'B105', '2018-09-12');
INSERT INTO BorrowLog VALUES('105', 'R2004', 'B100', '2018-09-12');
INSERT INTO BorrowLog VALUES('106', 'R2005', 'B209', '2018-09-12');
INSERT INTO BorrowLog VALUES('107', 'R2002', 'B100', '2018-09-12');
INSERT INTO BorrowLog VALUES('108', 'R2001', 'B102', '2018-09-12');
INSERT INTO BorrowLog VALUES('109', 'R2002', 'B101', '2018-09-12');
INSERT INTO BorrowLog VALUES('110', 'R2008', 'B102', '2018-09-12');
```

2

```
UPDATE Book
SET Book_Name = 'Introduction to Database'
WHERE Book_ID = 'B101';
```

Book_ID	Book_Name	Book_Q
B100	WEB	2
B101	Introduction to Database	5
B102	SQL	2
B103	DB	2
B105	Logic	5
B108	JAVA	1
B110	Deep Web	3
B201	Science	4
B207	EPH	3
B209	English	1

3

DELETE FROM Book

WHERE Book_ID= 'B207';

Book_ID	Book_Name	Book_Q
B100	WEB	2
B101	Introduction to Database	5
B102	SQL	2
B103	DB	2
B105	Logic	5
B108	JAVA	1
B110	Deep Web	3
B201	Science	4
B209	English	1

4

SELECT Book_Name FROM Book

ORDER BY Book_Name;

Book_Name
DB
Deep Web
English
Introduction to Database
JAVA
Logic

5

SELECT Book_ID, Book_Name, Book_Q FROM Book

ORDER BY Book_Q DESC;

Book_ID	Book_Name	Book_Q
B101	Introduction to Database	5
B105	Logic	5
B201	Science	4
B110	Deep Web	3
B100	WEB	2
B102	SQL	2

6

```
SELECT Book_Name FROM Book

JOIN BorrowLog ON Book.Book_ID = BorrowLog.Book_ID

WHERE Borrower_ID = 'R2002';
```

	Book_Name
	SOL
	DB
	WEB
	Introduction to Database

Conclusion

The main motive to engage students in understanding Database, SQL query is successfully accomplished with the help of this coursework. Working with Xampp, SQL queries and testing helped to learn and practice database management very effectively. This coursework has helped students to become familiar with the entities, attributes while generating the ER diagram. Queries were clearly understood. The syntax and functions to create, update and insert attributes were properly understood. Using Xampp was interesting which helped in maintaining quite good level of interest in doing the coursework.

In general, problems are faced during completion of any given task. Likewise, different problems were faced during the preparation as well as completion of the course work. First of all, problems were faced during making ER diagram and were resolved with the help of Module Tutor. Secondly, problems were faced about structure of the SQL query and finally the problems faced were about the process of report writing.

The coursework not only helped in understanding the database management system but also helped in self-evaluation while facing problems and looking for the solutions. Report made students involved in SQL queries which helped to gain extra skills, knowledge and developed problem solving skills.

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