Department of Electrical Engineering, UET Lahore
EE432: Computer Networks

Course Instructor: Dr. Naveed Nawaz	Dated: 20/11/2024
Session: Fall 2024	Semester: 7th

LAB 9 Data Import and Export in MySQL Workbench

Name	Roll. No.	Total Marks	Obtained Marks	Viva Marks
Ayesha Ahmad	2021-EE-052			

Checked on: _____

Signature: _____

9.1 Task 1

Show all steps and attach the files that were used to import data and that were populated after exporting data from database

I. Create a new Database with all the tables as mentioned below:

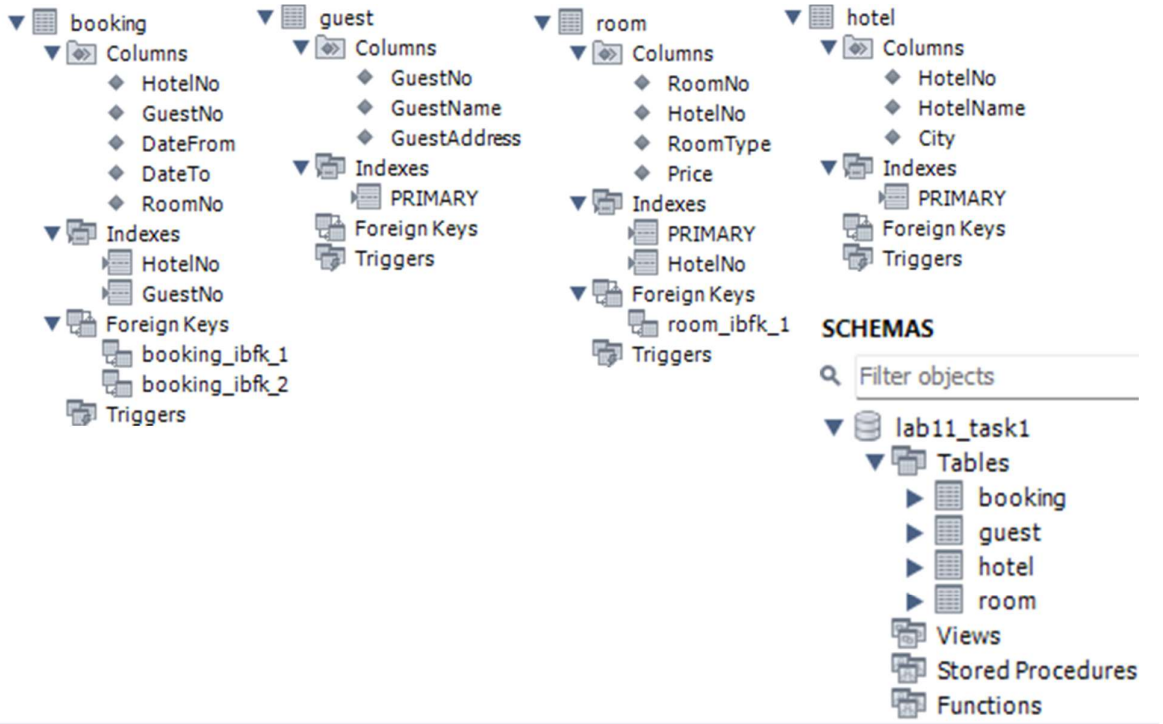
- HOTEL (HotelNo, HotelName, City)
- GUEST (GuestNo, GuestName, GuestAddress)
- ROOM (RoomNo, HotelNo, Type, Price)
- BOOKING (HotelNo, GuestNo, DateFrom, DateTo, RoomNo)

INT:	HotelNo, GuestNo, RoomNo
FLOAT:	Price
DateTime:	DateFrom, DateTo
Varchar:	HotelName, City, GuestName, GuestAddress, Type

```
1    -- Setting up Database lab11_task1, and delete if table already exists
2    CREATE DATABASE IF NOT EXISTS lab11_task1;
3    USE lab11_task1;
4    DROP TABLE IF EXISTS `lab11_task1`.`booking`;
5    DROP TABLE IF EXISTS `lab11_task1`.`room`;
6    DROP TABLE IF EXISTS `lab11_task1`.`hotel`;
7    DROP TABLE IF EXISTS `lab11_task1`.`guest`;
8
9    -- TASK 1-1: Creating Empty Tables
10   CREATE TABLE HOTEL (
11       HotelNo INT PRIMARY KEY,
12       HotelName VARCHAR(50) NOT NULL,
13       City VARCHAR(50)
14       );
15   CREATE TABLE GUEST (
16       GuestNo INT PRIMARY KEY,
17       GuestName VARCHAR(50) NOT NULL,
18       GuestAddress VARCHAR(50)
19       );
```

```sql
CREATE TABLE ROOM (
    RoomNo INT,
    HotelNo INT,
    RoomType VARCHAR(50),
    Price FLOAT,
    PRIMARY KEY (RoomNo, HotelNo), -- declaring a COMPOSITE KEY
    FOREIGN KEY (HotelNo) REFERENCES HOTEL (HotelNo)
    );
CREATE TABLE BOOKING (
    HotelNo INT ,
    GuestNo INT,
    DateFrom DateTime NOT NULL,
    DateTo DateTime,
    RoomNo INT,
    FOREIGN KEY (HotelNo) REFERENCES HOTEL (HotelNo),
    FOREIGN KEY (GuestNo) REFERENCES GUEST (GuestNo)
    );
```

The above SQL script was run to create the 4 empty tables according to given specifications as shown.



Output

Action Output

#	Time	Action	Message	Duration / Fetch
74	09:07:55	CREATE TABLE HOTEL (HotelNo INT PRIMARY KEY, HotelName VARCHAR(50) NOT NULL, City VARCHAR(50))	0 row(s) affected	0.031 sec
75	09:07:55	CREATE TABLE GUEST (GuestNo INT PRIMARY KEY, GuestName VARCHAR(50) NOT NULL, GuestAddress VARCHAR(50))	0 row(s) affected	0.047 sec
76	09:07:55	CREATE TABLE ROOM (RoomNo INT, HotelNo INT, RoomType VARCHAR(50), Price FLOAT, PRIMARY KEY (RoomNo, Hot...	0 row(s) affected	0.062 sec
77	09:07:55	CREATE TABLE BOOKING (HotelNo INT , GuestNo INT, DateFrom DateTime NOT NULL, DateTo DateTime, RoomNo INT, ...	0 row(s) affected	0.063 sec

II. Populate each table with at least 3 rows by importing data from the CSV file

```
68 •  LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/HOTEL.csv'
69    INTO TABLE HOTEL
70    FIELDS TERMINATED BY ','
71    LINES TERMINATED BY '\r\n'
72    IGNORE 1 ROWS (`HotelNo`,`HotelName`,`City`);
73
74 •  LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/GUEST.csv'
75    INTO TABLE GUEST
76    FIELDS TERMINATED BY ','
77    ENCLOSED BY '"'
78    LINES TERMINATED BY '\r\n'
79    IGNORE 1 ROWS (`GuestNo`,`GuestName`,`GuestAddress`);
80
81 •  LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/ROOM.csv'
82    INTO TABLE ROOM
83    FIELDS TERMINATED BY ','
84    LINES TERMINATED BY '\r\n'
85    IGNORE 1 ROWS (`RoomNo`,`HotelNo`,`RoomType`,`Price`);
86
87 •  LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/BOOKING.csv'
88    INTO TABLE BOOKING
89    FIELDS TERMINATED BY ','
90    LINES TERMINATED BY '\r\n'
91    IGNORE 1 ROWS (HotelNo,GuestNo,@DateFrom,@DateTo,RoomNo)
92    SET DateFrom = STR_TO_DATE(@DateFrom,'%d/%m/%Y'), DateTo = STR_TO_DATE(@DateTo,'%d/%m/%Y');
```

```
1 •  SELECT * FROM lab11_task1.booking;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

HotelNo	GuestNo	DateFrom	DateTo	RoomNo
1	4	2024-11-28 00:00:00	2024-11-29 00:00:00	2
2	3	2024-11-29 00:00:00	2024-12-02 00:00:00	1
4	1	2024-11-30 00:00:00	2024-12-03 00:00:00	3
3	2	2024-12-01 00:00:00	2024-12-30 00:00:00	1

```
1 •  SELECT * FROM lab11_task1.room;
```

Result Grid | Filter Rows:

RoomNo	HotelNo	RoomType	Price
1	2	Single	150
1	3	Penthouse	1000
2	1	Double	250
2	4	DeluxeSuite	400

```
1 •  SELECT * FROM lab11_task1.guest;
```

Result Grid | Filter Rows: | Edit:

GuestNo	GuestName	GuestAddress
1	A	32-B,Hikikomori Village,Temporary City
2	B	6-C,Senkaimon Checkpoint,Sereitei
3	C	1-A,Instance Villa,Temporary City
4	D	112-F,Downtown,Nigite City

```
1 •  SELECT * FROM lab11_task1.hotel;
```

Result Grid | Filter Rows:

HotelNo	HotelName	City
1	SunRise Hotel	Sunset City
2	Seashore City Hotel	Seashore City
3	Palm Hotel	Coast Ville
4	5-Star Hotel	Lakeside City

Output

Action Output

#	Time	Action	Message	Duration / Fetch
32	08:44:42	LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/HOTEL.csv' INTO TABLE HOTEL FI...	4 row(s) affected Records: 4 Deleted: 0 ...	0.016 sec
33	08:44:42	LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/GUEST.csv' INTO TABLE GUEST FI...	4 row(s) affected Records: 4 Deleted: 0 ...	0.016 sec
34	08:44:42	LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/ROOM.csv' INTO TABLE ROOM FIE...	4 row(s) affected Records: 4 Deleted: 0 ...	0.015 sec
35	08:44:42	LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab11/BOOKING.csv' INTO TABLE BOOKIN...	4 row(s) affected Records: 4 Deleted: 0 ...	0.031 sec

III. Transfer the data of at least 2 tables from DB to CSV files

```
109 •  SELECT *
110    FROM HOTEL
111    INTO OUTFILE 'C:/DriveA/Workspaces/MySQL/Lab11/HOTEL_out.csv'
112    FIELDS TERMINATED BY ','
113    ENCLOSED BY '"'
114    LINES TERMINATED BY '\r\n';
115
116 •  SELECT *
117    FROM GUEST
118    INTO OUTFILE 'C:/DriveA/Workspaces/MySQL/Lab11/GUEST_out.csv'
119    FIELDS TERMINATED BY ','
120    ENCLOSED BY '"'
121    LINES TERMINATED BY '\r\n';
```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
36	08:44:42	SELECT * FROM HOTEL INTO OUTFILE 'C:/DriveA/Workspaces/MySQL/Lab11/HOTEL_out.csv' FIELDS...	4 row(s) affected	0.016 sec
37	08:44:42	SELECT * FROM GUEST INTO OUTFILE 'C:/DriveA/Workspaces/MySQL/Lab11/GUEST_out.csv' FIELD...	4 row(s) affected	0.000 sec

HOTEL_out.csv

File Edit View

```
"1"," SunRise Hotel"," Sunset City"
"2"," Seashore City Hotel"," Seashore City"
"3"," Palm Hotel"," Coast Ville"
"4"," 5-Star Hotel"," Lakeside City"
```

GUEST_out.csv

File Edit View

```
"1","A","32-B,Hikikomori Village,Temporary City"
"2","B","6-C,Senkaimon Checkpoint,Sereitei"
"3","C","1-A,Instance Villa,Temporary City"
"4","D","112-F,Downtown,Nigite City"
```

9.2 Task 2

Introduction to DDL-DML and Constraints

Data Definition Language (DDL) statements are used to define the database structure or schema. Some examples:

- CREATE - to create objects in the database
- ALTER - alters the structure of the database
- DROP - deletes objects from the database
- TRUNCATE - removes all records from a table, including all spaces allocated for the records are removed

Data Manipulation Language (DML) statements are used for managing data within schema objects. Some examples:

- SELECT - retrieves data from the a database
- INSERT - inserts data into a table
- UPDATE - updates existing data within a table
- DELETE - deletes records from a table, the space for the records remain

Data Control Language (DCL) statements. Some examples:

- GRANT - gives user's access privileges to database
- REVOKE - withdraws access privileges given with the GRANT command

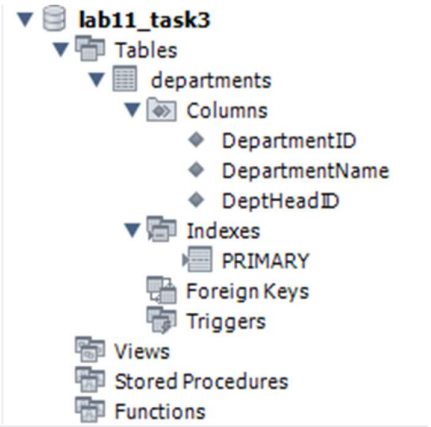
Transaction Control (TCL) statements are used to manage the changes made by DML statements. It allows statements to be grouped together into logical transactions.

- COMMIT - saves work done
- SAVEPOINT - identifies a point in a transaction to which you can later roll back
- ROLLBACK - restores database to original since the last COMMIT

9.3 Task 3

I. Create Table Departments with column DepartmentID, DepartmentName, DeptHeadID with DepartmentID as primary key. Set the data types in accordance to the real time scenario.

```
1   -- Setting up database lab11_task3, and delete tables if already exists
2   CREATE DATABASE IF NOT EXISTS lab11_task3;
3   USE lab11_task3;
4   DROP TABLE IF EXISTS `lab11_task3`.`departments`;
5   DROP TABLE IF EXISTS `lab11_task3`.`employees`;
6
7   -- TASK 3-1: Creating Table Departments
8   CREATE TABLE Departments (
9       DepartmentID INT PRIMARY KEY,
10      DepartmentName Varchar(20),
11      DeptHeadID INT
12     );
```



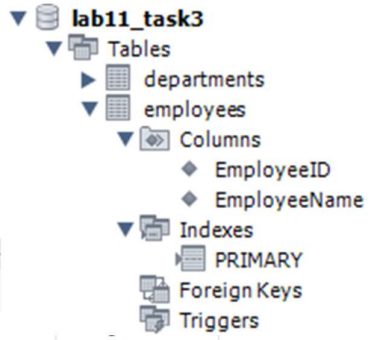
Output

Action Output

#	Time	Action	Message	Duration / Fetch
100	09:23:20	CREATE DATABASE IF NOT EXISTS lab11_task3	1 row(s) affected	0.015 sec
101	09:23:22	USE lab11_task3	0 row(s) affected	0.000 sec
102	09:23:24	CREATE TABLE Departments (DepartmentID INT PRIMARY KEY, DepartmentName Var...	0 row(s) affected	0.031 sec

II. Create Table Employees with column EmployeeID, EmployeeName with EmployeeID as primary key. Set the data types in accordance to the real time scenario.

```
14      -- TASK 3-2: Creating Table  Employees
15  CREATE TABLE Employees (
16      EmployeeID INT PRIMARY KEY,
17      EmployeeName Varchar(20)
18     );
```



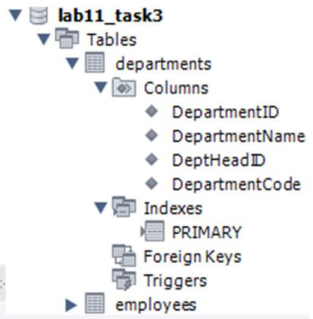
Output

Action Output

#	Time	Action			Message	Duration / Fetch
104	09:27:15	CREATE TABLE Employees (EmployeeID INT PRIMARY KEY,	EmployeeName Varchar...		0 row(s) affected	0.047 sec

III. Alter Table Departments by adding new column DepartmentCode.

```
20      -- TASK 3-3: Altering Table Departments
21  ALTER TABLE Departments
22      ADD COLUMN DepartmentCode Varchar(5);
23
```



Output

Action Output

#	Time	Action	Message	Duration / Fetch
106	09:30:39	ALTER TABLE Departments ADD COLUMN DepartmentCode Varchar(5)	0 row(s) affected ...	0.031 sec

IV. Insert at least two records in both tables.

```
24      -- TASK 3-4: Inserting Records
25  •   INSERT INTO Departments
26          (DepartmentID, DepartmentName, DeptHeadID, DepartmentCode)
27      VALUES
28          (1, 'Marketing' , 12345, 'MRKT'),
29          (2, 'Accounting', 67890, 'ACNT');
30
31  •   INSERT INTO Employees
32          (EmployeeID, EmployeeName)
33      VALUES
34          (12345, 'Ahmad'),
35          (67890, 'Rizwan');
```

```
1 •  SELECT * FROM lab11_task3.departments;
```

DepartmentID	DepartmentName	DeptHeadID	DepartmentCode
1	Marketing	12345	MRKT
2	Accounting	67890	ACNT

```
1 •  SELECT * FROM lab11_task3.employees;
```

EmployeeID	EmployeeName
12345	Ahmad
67890	Rizwan

Output

Action Output

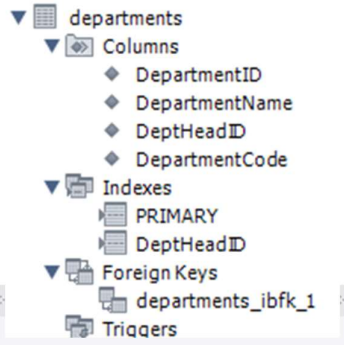
#	Time	Action	Message	Duration / Fetch
108	09:36:23	INSERT INTO Departments (DepartmentID, DepartmentName, DeptHeadID, DepartmentCod...	2 row(s) affected ...	0.000 sec
109	09:36:33	INSERT INTO Employees (EmployeeID, EmployeeName) VALUES (12345, 'Ahmad'), (67890,...	2 row(s) affected ...	0.016 sec

V. Develop foreign key relation between two tables.

VI. Implement referential integrity constraint of Set Null on Delete Rule on above relationship.

VII. Implement referential integrity constraint of Set Cascade on Update Rule on above relationship.

```
37      -- TASK 3-5, 3-6, 3-7: Declare Foreign Key and set referential integrity constraints
38  •   ALTER TABLE Departments
39      ADD FOREIGN KEY (DeptHeadID)
40          REFERENCES Employees(EmployeeID)
41          ON DELETE SET NULL
42          ON UPDATE CASCADE;
```



Output

Action Output

#	Time	Action	Message	Duration / Fetch
111	09:39:09	ALTER TABLE Departments ADD FOREIGN KEY (DeptHeadID) REFERENCES Employees(...	2 row(s) affected ...	0.109 sec

Note:

Please zip your report and CSV files and name the zipped folder with your roll no. Please send your zip folder.

Assessment Rubrics for

EE432: Computer Networks Lab 9

Student Name: _____ **Roll Number**: _____

Method:

Lab report evaluation and instructor observation during lab sessions.

Outcomes Assessed:

a. Ability to conduct experiments as well as to analyze and interpret data
b. Ability to adhere to safety and disciplinary rules
c. Ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Performance	Exceeds expectation (5-4)	Meets expectation (3-2)	Does not meet expectation (1)	Marks
Realization of experiment (a)	Downloads and installs required software and sets up the system according to the experiment requirements	Needs guidance to set up the system according to the experiment requirements	Incapable of selecting relevant software to the experiment and unable to setup the system with required software tools	
Conducting experiment (a, c)	Carries out each procedural step in a satisfactory manner and studies outputs of the software application rigorously	Needs assistance or guidance to proceed through experiment steps, studies outputs with minor errors in interpretation	Unable to carry out procedural steps and make any useful observations of outputs	
Laboratory safety and disciplinary rules (b)	Observes lab safety rules; adheres to the lab disciplinary guidelines aptly	Observes safety rules and disciplinary guidelines with minor deviations	Disregards lab safety and disciplinary rules	
Data collection (c)	Completes data collection from the experiment setup by following procedural steps, ensures that the data is entered in the lab manual according to the specified instructions	Completes data collection with minor error and enters data in lab manual with slight deviation from guidelines	Fails at collecting data by giving proper inputs and observing output states of experiment setup, unable to fill the lab manual properly	
Data analysis (a, c)	Analyzes the data obtained from experiment thoroughly and accurately verifies it with theoretical understanding, accounts for any discrepancy in data from theory with sound explanation	Analyzes data with minor error and correlates it with theoretical values reasonably. Attempts to account for any discrepancy in data from theory	Unable to establish the relationship between practical and theoretical values and lacks the theoretical understanding to explain any discrepancy in data	