ITM 6271: Project 1

Morgan Blein

1. I chose to study the business process of a hotel. In this case, I will be describing the booking process of “La Reine Astride” a luxury hotel in Lyon.
2. See **exhibit A** for the complete database enhanced E-R model.

Entities:

* Hotel
* employee
* Customer
* Reservation
* Room booking line (associative entity)
* Room

**Note**: in this case, employees work full time for this hotel. (The hotel to employee relationship is not many to many).

1. SQL statements.

**Exhibit B** are the SQL statements to develop database tables for each entities in the model. (This is the basic assignment described in the syllabus)

**Exhibit C:** the same statements with examples for each entities inserted in the database. I made sure all my examples work. There is also a description of entities and their attributes. (I wanted to test my database and insert rows)

**Exhibit D** is the outcome of DESC statements and some

**Exhibit E:** an example of row inserted in a table.

**Exhibit B: SQL statements**

DROP TABLE HOTEL\_t CASCADE CONSTRAINTS ;

DROP TABLE EMPLOYEE\_t CASCADE CONSTRAINTS ;

DROP TABLE CUSTOMER\_t CASCADE CONSTRAINTS ;

DROP TABLE RESERVATION\_t CASCADE CONSTRAINTS ;

DROP TABLE ROOM\_t CASCADE CONSTRAINTS ;

DROP TABLE BOOKING\_LINE\_t CASCADE CONSTRAINTS ;

CREATE TABLE HOTEL\_t

(Hotel\_ID number NOT NULL,

Hotel\_Name VARCHAR2(25) NOT NULL,

Hotel\_Address VARCHAR2(30) ,

Hotel\_Zip VARCHAR2(9) ,

CONSTRAINT HOTEL\_PK PRIMARY KEY (Hotel\_ID));

CREATE TABLE EMPLOYEE\_t

(Employee\_ID VARCHAR2(10) NOT NULL,

Employee\_Last\_Name VARCHAR2(25) NOT NULL,

Employee\_First\_Name VARCHAR2(25) ,

Employee\_Phone\_Number VARCHAR2(15) ,

Employee\_Address VARCHAR2(30) ,

Employee\_Zip VARCHAR2(9) ,

Hotel\_ID number(11,0) NOT NULL,

CONSTRAINT EMPLOYEE\_PK PRIMARY KEY (Employee\_ID),

CONSTRAINT EMPLOYEE\_FK FOREIGN KEY (Hotel\_ID) REFERENCES HOTEL\_t(Hotel\_ID));

CREATE TABLE CUSTOMER\_t

(Customer\_ID number NOT NULL,

Customer\_Last\_Name VARCHAR2(25) NOT NULL,

Customer\_First\_Name VARCHAR2(25) ,

Customer\_Phone\_Number VARCHAR2(15) ,

Customer\_Address VARCHAR2(30) ,

Customer\_Zip VARCHAR2(9) ,

Hotel\_ID number(11,0) NOT NULL,

CONSTRAINT CUSTOMER\_PK PRIMARY KEY (Customer\_ID),

CONSTRAINT CUSTOMER\_FK FOREIGN KEY (Hotel\_ID) REFERENCES HOTEL\_t(Hotel\_ID));

CREATE TABLE RESERVATION\_t

(Reservation\_ID VARCHAR2(10) NOT NULL,

Reservation\_invoice number(9,2) ,

Customer\_ID number (11,0) NOT NULL,

CONSTRAINT RESERVATION\_PK PRIMARY KEY (Reservation\_ID ),

CONSTRAINT RESERVATION\_FK FOREIGN KEY (Customer\_ID) REFERENCES CUSTOMER\_t(Customer\_ID));

CREATE TABLE ROOM\_t

(Room\_ID number (5,0) NOT NULL,

Room\_Type VARCHAR2(20)

CHECK(Room\_Type IN('Twins', 'Queen', 'King', 'Suite', 'King\_suite')),

Room\_Fee number (7,2) ,

CONSTRAINT ROOM\_PK PRIMARY KEY (Room\_ID));

CREATE TABLE BOOKING\_LINE\_t

(Reservation\_ID VARCHAR2(10) NOT NULL,

Room\_ID number (5,0) NOT NULL,

Check\_in VARCHAR2(10) ,

Check\_out VARCHAR2(10) ,

CONSTRAINT BOOKING\_LINE\_PK PRIMARY KEY (Reservation\_ID, Room\_ID),

CONSTRAINT BOOKING\_LINE\_FK1 FOREIGN KEY (Reservation\_ID) REFERENCES RESERVATION\_t(Reservation\_ID),

CONSTRAINT BOOKING\_LINE\_FK2 FOREIGN KEY (Room\_ID) REFERENCES ROOM\_t(Room\_ID));

delete from HOTEL\_t;

delete from EMPLOYEE\_t;

delete from CUSTOMER\_t;

delete from RESERVATION\_t;

delete from ROOM\_t;

delete from BOOKING\_LINE\_t

DESC HOTEL\_t;

DESC EMPLOYEE\_t;

DESC CUSTOMER\_t;

DESC RESERVATION\_t;

DESC ROOM\_t;

DESC BOOKING\_LINE\_t

**Exhibit C: SQL statements + inserts and comments**

(note: comments come after #)

DROP TABLE HOTEL\_t CASCADE CONSTRAINTS ;

DROP TABLE EMPLOYEE\_t CASCADE CONSTRAINTS ;

DROP TABLE CUSTOMER\_t CASCADE CONSTRAINTS ;

DROP TABLE RESERVATION\_t CASCADE CONSTRAINTS ;

DROP TABLE ROOM\_t CASCADE CONSTRAINTS ;

DROP TABLE BOOKING\_LINE\_t CASCADE CONSTRAINTS ;

**# dropping all tables to make sure we start fresh**

CREATE TABLE HOTEL\_t **# creating table hotel**

(Hotel\_ID number NOT NULL, **# unique hotel ID: cannot be null (primary key) and is a number**

Hotel\_Name VARCHAR2(25) **NOT NULL, # hotel name limited to 25 characters**

Hotel\_Address VARCHAR2(30) ,

Hotel\_Zip VARCHAR2(9) ,

CONSTRAINT HOTEL\_PK PRIMARY KEY (Hotel\_ID)); **#key definition**

CREATE TABLE EMPLOYEE\_t

(Employee\_ID VARCHAR2(10) NOT NULL,

Employee\_Last\_Name VARCHAR2(25) NOT NULL,

Employee\_First\_Name VARCHAR2(25) ,

Employee\_Phone\_Number VARCHAR2(15) ,

Employee\_Address VARCHAR2(30) ,

Employee\_Zip VARCHAR2(9) ,

Hotel\_ID number(11,0) NOT NULL, **#foreign key**

CONSTRAINT EMPLOYEE\_PK PRIMARY KEY (Employee\_ID),

CONSTRAINT EMPLOYEE\_FK FOREIGN KEY (Hotel\_ID) REFERENCES HOTEL\_t(Hotel\_ID)); **# foreign key definition**

CREATE TABLE CUSTOMER\_t

(Customer\_ID number NOT NULL,

Customer\_Last\_Name VARCHAR2(25) NOT NULL,

Customer\_First\_Name VARCHAR2(25) ,

Customer\_Phone\_Number VARCHAR2(15) ,

Customer\_Address VARCHAR2(30) ,

Customer\_Zip VARCHAR2(9) ,

Hotel\_ID number(11,0) NOT NULL,

CONSTRAINT CUSTOMER\_PK PRIMARY KEY (Customer\_ID),

CONSTRAINT CUSTOMER\_FK FOREIGN KEY (Hotel\_ID) REFERENCES HOTEL\_t(Hotel\_ID));

CREATE TABLE RESERVATION\_t

(Reservation\_ID VARCHAR2(10) NOT NULL,

Reservation\_invoice number(9,2) **, # number with 2 decimals for cents. A hotel invoice would not be more than 999 999 9$ )**

Customer\_ID number (11,0) NOT NULL,

CONSTRAINT RESERVATION\_PK PRIMARY KEY (Reservation\_ID ),

CONSTRAINT RESERVATION\_FK FOREIGN KEY (Customer\_ID) REFERENCES CUSTOMER\_t(Customer\_ID));

CREATE TABLE ROOM\_t

(Room\_ID number (5,0) NOT NULL, **#room id is a number usually short ie 315**

Room\_Type VARCHAR2(20)

CHECK(Room\_Type IN('Twins', 'Queen', 'King', 'Suite', 'King\_suite')), **# different types of room**

Room\_Fee number (7,2) ,

CONSTRAINT ROOM\_PK PRIMARY KEY (Room\_ID)); **# room fee per night. 2 decimal spaces for cents.**

CREATE TABLE BOOKING\_LINE\_t **# associative entry created to make sure there is no many to many relationship: a reservation can hold many rooms and a room can be reserved many times. We had to create an associative entity.**

(Reservation\_ID VARCHAR2(10) NOT NULL,

Room\_ID number (5,0) NOT NULL,

Check\_in VARCHAR2(10) ,

Check\_out VARCHAR2(10) ,

CONSTRAINT BOOKING\_LINE\_PK PRIMARY KEY (Reservation\_ID, Room\_ID**), # primary key is composite of 2 foreign keys.**

CONSTRAINT BOOKING\_LINE\_FK1 FOREIGN KEY (Reservation\_ID) REFERENCES RESERVATION\_t(Reservation\_ID),

CONSTRAINT BOOKING\_LINE\_FK2 FOREIGN KEY (Room\_ID) REFERENCES ROOM\_t(Room\_ID));

**# deleting all rows to start a new DB.**

delete from HOTEL\_t;

delete from EMPLOYEE\_t;

delete from CUSTOMER\_t;

delete from RESERVATION\_t;

delete from ROOM\_t;

delete from BOOKING\_LINE\_t

**# insertion examples to populate the first row of each tables.**

INSERT INTO HOTEL\_t (Hotel\_ID, Hotel\_Name, Hotel\_Address, Hotel\_Zip)

VALUES (01, 'La Reine Astride', '1 place de la republique', '69005');

INSERT INTO EMPLOYEE\_t (Employee\_ID, Employee\_Last\_Name, Employee\_First\_Name, Employee\_Phone\_Number, Employee\_Address, Employee\_Zip, Hotel\_ID)

VALUES (001, 'Jean', 'Francois', '+3361010101010', '1 golden gate ave', '69003', 01);

INSERT INTO CUSTOMER\_t (Customer\_ID, Customer\_Last\_Name, Customer\_First\_Name, Customer\_Phone\_Number, Customer\_Address, Customer\_Zip, Hotel\_ID)

VALUES (001, 'Smith', 'John', '415-000-0000', '1 golden gate ave', '94117', 01);

INSERT INTO RESERVATION\_t (Reservation\_ID, Reservation\_invoice, Customer\_ID)

VALUES (001, '438.00', 001);

INSERT INTO ROOM\_t (Room\_ID, Room\_Type, Room\_Fee)

VALUES (315, 'King', '219.00');

INSERT INTO BOOKING\_LINE\_t (Reservation\_ID, Room\_ID, Check\_in, Check\_out)

VALUES (001, 315, '10/23/1015', '10/25/1015');

**#tables descriptions.**

DESC HOTEL\_t;

DESC EMPLOYEE\_t;

DESC CUSTOMER\_t;

DESC RESERVATION\_t;

DESC ROOM\_t;

DESC BOOKING\_LINE\_t

**Exhibit D: outcome of DESC statements.**

Name Null? Type

----------------------------------------------------------------------------------- -------- --------------------------------------------------------

HOTEL\_ID NOT NULL NUMBER

HOTEL\_NAME NOT NULL VARCHAR2(25)

HOTEL\_ADDRESS VARCHAR2(30)

HOTEL\_ZIP VARCHAR2(9)

Name Null? Type

----------------------------------------------------------------------------------- -------- --------------------------------------------------------

EMPLOYEE\_ID NOT NULL VARCHAR2(10)

EMPLOYEE\_LAST\_NAME NOT NULL VARCHAR2(25)

EMPLOYEE\_FIRST\_NAME VARCHAR2(25)

EMPLOYEE\_PHONE\_NUMBER VARCHAR2(15)

EMPLOYEE\_ADDRESS VARCHAR2(30)

EMPLOYEE\_ZIP VARCHAR2(9)

HOTEL\_ID NOT NULL NUMBER(11)

Name Null? Type

----------------------------------------------------------------------------------- -------- --------------------------------------------------------

CUSTOMER\_ID NOT NULL NUMBER

CUSTOMER\_LAST\_NAME NOT NULL VARCHAR2(25)

CUSTOMER\_FIRST\_NAME VARCHAR2(25)

CUSTOMER\_PHONE\_NUMBER VARCHAR2(15)

CUSTOMER\_ADDRESS VARCHAR2(30)

CUSTOMER\_ZIP VARCHAR2(9)

HOTEL\_ID NOT NULL NUMBER(11)

Name Null? Type

----------------------------------------------------------------------------------- -------- --------------------------------------------------------

RESERVATION\_ID NOT NULL VARCHAR2(10)

RESERVATION\_INVOICE NUMBER(9,2)

CUSTOMER\_ID NOT NULL NUMBER(11)

Name Null? Type

----------------------------------------------------------------------------------- -------- --------------------------------------------------------

ROOM\_ID NOT NULL NUMBER(5)

ROOM\_TYPE VARCHAR2(20)

ROOM\_FEE NUMBER(7,2)

Name Null? Type

----------------------------------------------------------------------------------- -------- --------------------------------------------------------

RESERVATION\_ID NOT NULL VARCHAR2(10)

ROOM\_ID NOT NULL NUMBER(5)

CHECK\_IN VARCHAR2(10)

CHECK\_OUT VARCHAR2(10)

**Exhibit E: an example of row inserted in a table.**

SQL> SELECT \* FROM Customer\_T;

CUSTOMER\_ID CUSTOMER\_LAST\_NAME CUSTOMER\_FIRST\_NAME CUSTOMER\_PHONE \_NUMBER CUSTOMER\_ADDRESS CUSTOMER\_ZIP HOTEL\_ID

1 Smith John 415-000-0000 1 golden gate ave 94117 1