**Database Project Final Report**

**Assignment 1 (Team Formation and Subject Selection):**

**Group Members**: Latasha Cooper, Britnie Ojie-Ahamiojie, Dominic Smith

**Database Selection**: Hotel Booking System Database

**Assignment 2 (Business Rules & ER Diagram):**

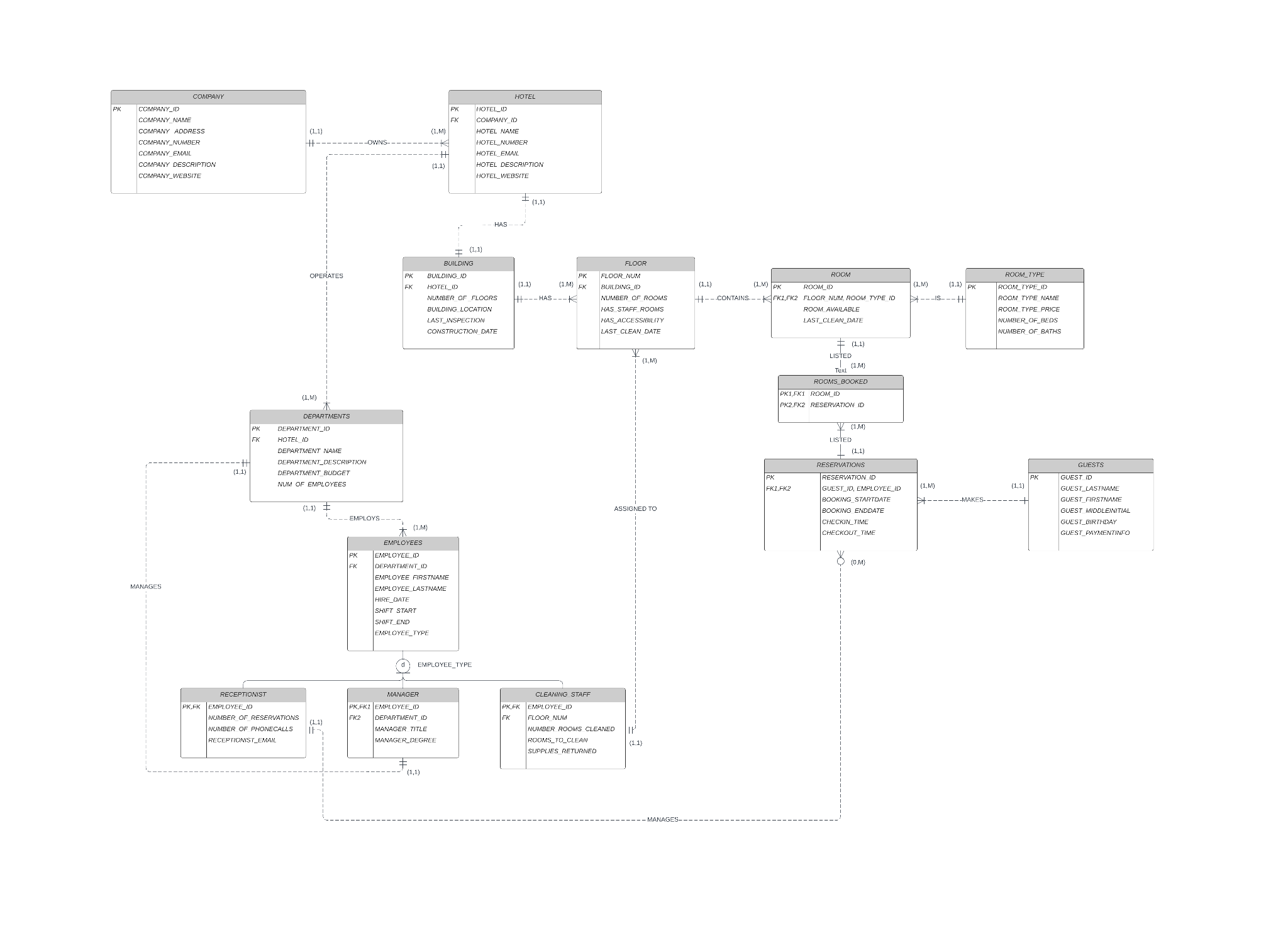
Submit a document that contains the following (only one team member submits):

1. A short overview of the organization that you are building your database for including identification of the various types of users, administrators, etc. who will be accessing the system in various ways (10 points)

* The database that we are constructing is for a high-end hotel company. The Hotel Management System would be utilized by various employees within the hotel’s departments alongside the end-users. The end-users in this case are the hotel’s guests, who would access the database online or through an app when checking for availability and booking their rooms. The Database and System Administrators would be responsible for maintaining the database and the information it contains. The hotel’s receptionists would access the database while performing their daily responsibilities, like checking guests in and out, documenting issues with rooms, handling service requests, and making outbound calls. The hotel’s managers from each department, like HR, Housekeeping, Kitchen, General, Sales, Accounting, Purchare, and IT would each access the database alongside their higher staff to manage their respective operations.

1. Your database’s business rules (have at least 20 business rules) (50 points):
   1. You can update/add more business rules as you progress
      1. One company owns at least 1 hotel, each hotel is owned by one company.
      2. Each hotel has one building, each building can be part of one hotel.
      3. Each building must have at least one floor, each floor is part of one building.
      4. Each floor contains many rooms, each room is on one floor.
      5. Each room has one type, each room type is used in many rooms.
      6. Each Hotel operates many departments, each department can only be operated by one hotel.
      7. Each department employs many employees, each employee is employed by one department.
      8. Each employee must be either a receptionist, manager, or cleaning staff.
      9. Each department has one manager, each manager manages one department.
      10. Every guest must make at least one reservation, each reservation is made by a guest.
      11. Every manager must be an employee, each employee does not have to be a manager.
      12. Each receptionist can manage many reservations, each reservation must be managed by a receptionist.
      13. Each cleaning staff cleans one floor, each floor is cleaned by one cleaning staff.
      14. Each room is listed in many reservations, each reservation is listed in many rooms.
2. List your resources for the business rules in your document. For example, did you find a document that describes the business, or did you interview any person working in that business?

* <https://www.revfine.com/hotel-positions/>
* <https://vertabelo.com/blog/a-database-model-for-a-hotel-reservation-booking-app-and-channel-manager/>

1. A complete Entity Relationship (ER) model that includes entities (at least 8 entities), attributes (at least 4 attributes per entity), keys, cardinality, connectivity, and relationships (each entity will have at least one relationship) and their types. The relational schema should be in some appropriate Normal Form, with identification and justification of the Normal Form. (80 points)

LINK For Readability: <https://lucid.app/lucidchart/84b5389b-7fe8-49c4-9b89-e1ee871c8e65/edit?invitationId=inv_61a4baed-37cc-4692-baa6-737b514bcbb1>

* In the diagram, the Room Type entity was created to normalize the Room entity and eliminate the transitive dependency. The Room Type attributes depend on the Room, and the Room determines the Room Type, making the Room Type functionally dependent on the Room.
* The diagram is in its first normal form because every table has a primary key and no attributes repeat.
* The diagram is in its second normal form because there is no partial dependency. No attributes depend on part of the primary key rather than the whole.
* The diagram is in its third normal form because there is no transitive dependency. No attributes depend on other attributes.

**Assignment 3: (Data Dictionary & DDL Statements):**

Submit a document that contains the following:

1. The SQL DDL statements to create your relational scheme (40 points)
   1. DDL statements must contain constraints that will prevent the entry of data that does not conform to your business rules.

* CREATE TABLE COMPANY (

COMPANY\_ID NUMBER(4),

COMPANY\_NAME VARCHAR2(50),

COMPANY\_ADDRESS VARCHAR2(50) ,

COMPANY\_NUMBER NUMBER(10),

COMPANY\_EMAIL VARCHAR(50),

COMPANY\_DESCRIPTION VARCHAR(250),

COMPANY\_WEBSITE VARCHAR(50),

CONSTRAINT PK\_COMPANY PRIMARY KEY (COMPANY\_ID)

);

* CREATE TABLE HOTEL (

HOTEL\_ID NUMBER(4),

COMPANY\_ID NUMBER(4),

HOTEL\_NAME VARCHAR2(50) NOT NULL,

HOTEL\_NUMBER NUMBER(10),

HOTEL\_EMAIL VARCHAR2(30),

HOTEL\_DESCRIPTION VARCHAR2(250),

HOTEL\_WEBSITE VARCHAR2(50),

CONSTRAINT PK\_HOTEL PRIMARY KEY (HOTEL\_ID),

CONSTRAINT FK\_HOTEL\_COMPANY\_ID FOREIGN KEY (COMPANY\_ID)

REFERENCES COMPANY (COMPANY\_ID)

);

* CREATE TABLE DEPARTMENTS (

DEPARTMENT\_ID NUMBER(4),

HOTEL\_ID NUMBER(4),

DEPARTMENT\_NAME VARCHAR2(50) NOT NULL,

DEPARTMENT\_DESCRIPTION VARCHAR2(250),

DEPARTMENT\_BUDGET NUMBER(10),

NUM\_OF\_EMPLOYEES NUMBER(4),

CONSTRAINT PK\_DEPARTMENTS PRIMARY KEY (DEPARTMENT\_ID),

CONSTRAINT FK\_DEPARTMENTS\_HOTEL\_ID FOREIGN KEY (HOTEL\_ID) REFERENCES HOTEL (HOTEL\_ID)

);

* CREATE TABLE EMPLOYEES (

EMPLOYEE\_ID NUMBER(4),

DEPARTMENT\_ID NUMBER(4),

EMPLOYEE\_FIRSTNAME VARCHAR2(50) NOT NULL,

EMPLOYEE\_LASTNAME VARCHAR2(50) NOT NULL,

HIRE\_DATE DATE,

SHIFT\_START NUMBER(4),

SHIFT\_END NUMBER(4),

EMPLOYEE\_TYPE VARCHAR2(50),

CONSTRAINT PK\_EMPLOYEES PRIMARY KEY (EMPLOYEE\_ID),

CONSTRAINT FK\_EMPLOYEES\_DEPARTMENT\_ID FOREIGN KEY (DEPARTMENT\_ID) REFERENCES DEPARTMENTS (DEPARTMENT\_ID)

);

* CREATE TABLE RECEPTIONIST (

EMPLOYEE\_ID NUMBER(4),

NUMBER\_OF\_RESERVATIONS NUMBER(4),

NUMBER\_OF\_PHONECALLS NUMBER(4),

RECEPTIONIST\_EMAIL VARCHAR2(30),

CONSTRAINT PK\_RECEPTIONIST PRIMARY KEY (EMPLOYEE\_ID),

CONSTRAINT FK\_RECEPTIONIST\_EMPLOYEE\_ID FOREIGN KEY (EMPLOYEE\_ID) REFERENCES EMPLOYEES (EMPLOYEE\_ID)

);

* CREATE TABLE MANAGER (

EMPLOYEE\_ID NUMBER(4),

DEPARTMENT\_ID NUMBER(4),

MANAGER\_TITLE VARCHAR2(50),

MANAGER\_DEGREE VARCHAR2(50),

CONSTRAINT PK\_MANAGER PRIMARY KEY (EMPLOYEE\_ID),

CONSTRAINT FK\_MANAGER\_EMPLOYEE\_ID FOREIGN KEY (EMPLOYEE\_ID) REFERENCES EMPLOYEES (EMPLOYEE\_ID),

CONSTRAINT FK\_MANAGER\_DEPARTMENT\_ID FOREIGN KEY (DEPARTMENT\_ID) REFERENCES DEPARTMENTS (DEPARTMENT\_ID)

);

* CREATE TABLE BUILDING (

BUILDING\_ID NUMBER(4),

HOTEL\_ID NUMBER(4),

NUMBER\_OF\_FLOORS NUMBER(4),

BUILDING\_LOCATION VARCHAR2(50),

LAST\_INSPECTION DATE,

CONSTRUCTION\_DATE DATE,

CONSTRAINT PK\_BUILDING PRIMARY KEY (BUILDING\_ID),

CONSTRAINT FK\_BUILDING\_HOTEL\_ID FOREIGN KEY (HOTEL\_ID) REFERENCES HOTEL (HOTEL\_ID)

);

* CREATE TABLE FLOOR (

FLOOR\_NUM NUMBER(2),

BUILDING\_ID NUMBER(4),

NUMBER\_OF\_ROOMS NUMBER(4),

HAS\_STAFF\_ROOMS NUMBER(1),

HAS\_ACCESSIBILITY NUMBER(1),

CONSTRAINT PK\_FLOOR PRIMARY KEY (FLOOR\_NUM),

CONSTRAINT FK\_FLOOR\_BUILDING\_ID FOREIGN KEY (BUILDING\_ID ) REFERENCES BUILDING (BUILDING\_ID)

);

* CREATE TABLE CLEANING\_STAFF (

EMPLOYEE\_ID NUMBER(4),

FLOOR\_NUM NUMBER(2),

NUMBER\_ROOMS\_CLEANED NUMBER(4),

ROOMS\_TO\_CLEAN NUMBER(4),

SUPPLIES\_RETURNED NUMBER(1),

CONSTRAINT PK\_CLEANING\_STAFF PRIMARY KEY (EMPLOYEE\_ID),

CONSTRAINT FK\_CLEANING\_STAFF\_FLOOR\_NUM FOREIGN KEY (FLOOR\_NUM) REFERENCES FLOOR (FLOOR\_NUM)

);

* CREATE TABLE ROOM\_TYPE (

ROOM\_TYPE\_ID NUMBER(4),

ROOM\_TYPE\_NAME VARCHAR2(50) NOT NULL,

ROOM\_TYPE\_PRICE NUMBER(10) NOT NULL,

NUMBER\_OF\_BEDS NUMBER(2),

NUMBER\_OF\_BATHS NUMBER(2),

CONSTRAINT PK\_ROOM\_TYPE PRIMARY KEY (ROOM\_TYPE\_ID)

);

* CREATE TABLE ROOMS (

ROOM\_ID NUMBER(4),

FLOOR\_NUM NUMBER(2),

ROOM\_TYPE\_ID NUMBER(4),

ROOM\_AVAILABLE NUMBER(1),

LAST\_CLEAN\_DATE DATE,

CONSTRAINT PK\_ROOMS PRIMARY KEY (ROOM\_ID),

CONSTRAINT FK\_ROOMS\_FLOOR\_NUM FOREIGN KEY (FLOOR\_NUM) REFERENCES FLOOR (FLOOR\_NUM),

CONSTRAINT FK\_ROOMS\_ROOM\_TYPE\_ID FOREIGN KEY (ROOM\_TYPE\_ID) REFERENCES ROOM\_TYPE (ROOM\_TYPE\_ID)

);

* CREATE TABLE GUESTS (

GUEST\_ID NUMBER(4),

GUEST\_LASTNAME VARCHAR2(30) NOT NULL,

GUEST\_FIRSTNAME VARCHAR2(30) NOT NULL,

GUEST\_MIDDLEINITIAL VARCHAR2(1),

GUEST\_BIRTHDAY DATE,

GUEST\_PAYMENTINFO VARCHAR(50) NOT NULL,

CONSTRAINT PK\_GUESTS PRIMARY KEY (GUEST\_ID)

);

* CREATE TABLE RESERVATIONS (

RESERVATION\_ID NUMBER(4),

GUEST\_ID NUMBER(4),

EMPLOYEE\_ID NUMBER(4),

BOOKING\_STARTDATE DATE,

BOOKING\_ENDDATE DATE,

CHECKIN\_TIME NUMBER(4),

CHECKOUT\_TIME NUMBER(4),

CONSTRAINT PK\_RESERVATIONS PRIMARY KEY (RESERVATION\_ID),

CONSTRAINT FK\_RESERVATIONS\_GUEST\_ID FOREIGN KEY (GUEST\_ID) REFERENCES GUESTS (GUEST\_ID)

);

* CREATE TABLE ROOMS\_BOOKED (

ROOM\_ID NUMBER(4),

RESERVATION\_ID NUMBER(4),

CONSTRAINT FK\_ROOMS\_BOOKED\_ROOM\_ID FOREIGN KEY (ROOM\_ID) REFERENCES ROOMS (ROOM\_ID),

CONSTRAINT FK\_ROOMS\_BOOKED\_RESERVATION\_ID FOREIGN KEY (RESERVATION\_ID) REFERENCES RESERVATIONS (RESERVATION\_ID)

);

1. The complete data dictionary for your database (20 points)

| Data Dictionary | | | | |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Field Length | Constraint | Description |
| COMPANY\_ID | number | 4 | PK, FK | Company’s identification number |
| COMPANY\_NAME | varchar2 | 50 | NOT NULL | Company’s name |
| COMPANY\_ADDRESS | varchar2 | 50 |  | Company’s address |
| COMPANY\_NUMBER | number | 10 |  | Company’s phone number |
| COMPANY\_EMAIL | varchar2 | 50 |  | Company’s email |
| COMPANY\_DESCRIPTION | varchar2 | 250 |  | Company’s description |
| COMPANY\_WEBSITE | varchar2 | 50 |  | Company’s website |
| HOTEL\_ID | number | 4 | PK, FL | Hotel’s identification number |
| HOTEL\_NAME | varchar2 | 50 | NOT NULL | Hotel’s name |
| HOTEL\_NUMBER | number | 10 |  | Hotel’s phone number |
| HOTEL\_EMAIL | varchar2 | 30 |  | Hotel’s email |
| HOTEL\_DESCRIPTION | varchar2 | 250 |  | Hotel’s description |
| DEPARTMENT\_ID | number | 4 | PK, FK | Department’s identification number |
| DEPARTMENT\_NAME | varchar2 | 4 |  | Name of the department |
| DEPARTMENT\_DESCRIPTION | varchar2 | 50 | NOT NULL | Description of the department |
| DEPARTMENT\_BUDGET | number | 10 |  | Department’s budget |
| NUM\_OF\_EMPLOYEES | number | 4 |  | Number of employees in a department |
| EMPLOYEE\_ID | number | 4 | PK, FK | ID of an employee |
| EMPLOYEE\_FIRSTNAME | varchar2 | 50 | NOT NULL | Employee’s first name |
| EMPLOYEE\_LASTNAME | varchar2 | 50 | NOT NULL | Employee’s last name |
| HIRE\_DATE | Date |  |  | Employee’s hire date |
| SHIFT\_START | number | 4 |  | Employee’s start time of shift |
| SHIFT\_END | number | 4 |  | Employee’s end time of shift |
| EMPLOYEE\_TYPE | varchar2 | 50 |  | Type of employee |
| NUMBER\_OF\_RESERVATIONS | number | 4 |  | Receptionist’s number of reservations completed |
| NUMBER\_OF\_PHONECALLS | number | 4 |  | Receptionist’s number of phone calls made |
| RECEPTIONIST\_EMAIL | varchar2 | 30 |  | Receptionist’s email |
| MANAGER\_TITLE | varchar2 | 50 |  | Type of manager |
| MANAGER\_DEGREE | varchar2 | 50 |  | Highest education manager has completed |
| NUMBER\_ROOMS\_CLEANED | number | 4 |  | Number of rooms that are clean |
| ROOMS\_TO\_CLEAN | number | 4 |  | Number of rooms yet to be cleaned |
| SUPPLIES\_RETURNED | number | 1 |  | Boolean using 0 as false and 1 as true, Whether cleaning staff has returned their supplies or not |
| BUILDING\_ID | number | 4 | PK, FK | Building’s identification number |
| NUMBER\_OF\_FLOORS | number | 4 |  | Number of floors the building has |
| BUILDING\_LOCATION | varchar2 | 50 |  | Where the building is located |
| LAST\_INSPECTION | date |  |  | Date of the last building inspection completed |
| CONSTRUCTION\_DATE | date |  |  | Date of when the building was constructed |
| FLOOR\_NUM | number | 2 | PK, FK | Floor number |
| NUMBER\_OF\_ROOMS | number | 4 |  | Number of rooms per floor |
| HAS\_STAFF\_ROOMS | number | 1 |  | Boolean using 0 as false and 1 as true, Whether a floor has staff rooms or not |
| HAS\_ACCESSIBILITY | number | 1 |  | Boolean using 0 as false and 1 as true, Whether a floor has accessibility or not |
| LAST\_CLEAN\_DATE | date |  |  | The date of the last time a room was cleaned |
| ROOM\_ID | number | 4 | PK, FK | ID of a room |
| ROOM\_AVAILABLE | number | 1 |  | Boolean using 0 as false and 1 as true, Whether the room is available or not |
| LAST\_CLEAN\_DATE | date |  |  | Date of the last time the room was cleaned |
| ROOM\_TYPE\_ID | number | 4 | PK, FK | ID of the room type |
| ROOM\_TYPE\_NAME | varchar2 | 50 | NOT NULL | Name of the room type |
| ROOM\_TYPE\_PRICE | number | 10 | NOT NULL | Price of the room type |
| NUMBER\_OF\_BEDS | number | 2 |  | The number of beds |
| NUMBER\_OF\_BATHS | number | 2 |  | The number of baths |
| RESERVATION\_ID | number | 4 | PK,FK | ID of the reservation |
| BOOKING\_STARTDATE | date |  |  | Start date of a reservation |
| BOOKING\_ENDDATE | date |  |  | End date of a reservation |
| CHECKIN\_TIME | number | 4 |  | Time of check in |
| CHECKOUT\_TIME | number | 4 |  | Time of checkout |
| GUEST\_ID | number | 4 | PK,FK | Guests’s identification number |
| GUEST\_LASTNAME | varchar2 | 30 | NOT NULL | Guest’s last name |
| GUEST\_FIRSTNAME | varchar2 | 30 | NOT NULL | Guest’s first name |
| GUEST\_MIDDLEINTIAL | varchar2 | 1 |  | Guest’s middle initial |
| GUEST\_BIRTHDAY | date |  |  | Guest’s birthday |
| GUEST\_PAYMENTINFO | varchar2 | 50 | NOT NULL | Guest’s card number used for a reservation |

**Assignment 4: (Data, Queries & Updates)**

Submit a document that contains the following:

1. Scripts to populate data into all your tables (at least 5 rows per table) (20 points)
   * INSERT INTO company (Company\_ID, Company\_Name, Company\_address, Company\_number, company\_email, company\_description, company\_website) VALUES (0001, 'Marriot', '28530 Emerald St. Lakeland FL 29647', 2074386275, 'Marriot@gmail.com', 'We own great hotels!', 'Marriot.Com');
   * INSERT INTO company (Company\_ID, Company\_Name, Company\_address, Company\_number, company\_email, company\_description, company\_website) VALUES (0002, 'Hilton', '64396 Grassy St. Orange FL 92648', 1964930267, 'Hilton@gmail.com', 'We own great hotels!', 'Hilton.Com');
   * INSERT INTO company (Company\_ID, Company\_Name, Company\_address, Company\_number, company\_email, company\_description, company\_website) VALUES (0003, 'Days Inn', '96386 Grassy St. Orange FL 92648', 8490382675, 'Days\_Inn@gmail.com', 'We own great hotels!', 'DaysInn.Com');
   * INSERT INTO company (Company\_ID, Company\_Name, Company\_address, Company\_number, company\_email, company\_description, company\_website) VALUES (0004, 'Holiday Inn', '28195 Marriott St. Lakeland FL 29467', 1954839023, 'Holiday\_Inn@gmail.com', 'We own great hotels!', 'HolidayInn.Com');
   * INSERT INTO company (Company\_ID, Company\_Name, Company\_address, Company\_number, company\_email, company\_description, company\_website) VALUES (0005, 'Barns&Noble', '28195 Barn St. Winter Garden FL 34787', 1234567890, 'Barns@gmail.com', 'We own great hotels!', 'Barns.Com');
   * INSERT INTO Hotel (Hotel\_ID, Company\_ID, Hotel\_Name, Hotel\_Number, Hotel\_Email, Hotel\_Description, Hotel\_Website) VALUES (1001, 0001, 'LBD Suites', 7073224545, 'contact@LBDSuites.com', '5 Star Hotel', 'LBDSuites.com');
   * INSERT INTO Hotel (Hotel\_ID, Company\_ID, Hotel\_Name, Hotel\_Number, Hotel\_Email, Hotel\_Description, Hotel\_Website) VALUES (1002, 0002, 'Hilton Orange Inn', 2349870202, 'contact@HiltonOrangeInn.com', '4 Star Hotel', 'HiltonOrangeInn.com');
   * INSERT INTO Hotel (Hotel\_ID, Company\_ID, Hotel\_Name, Hotel\_Number, Hotel\_Email, Hotel\_Description, Hotel\_Website) VALUES (1003, 0003, 'New Days Resort', 9545622144, 'contact@NewDaysResort.com', '5 Star Resort', 'NewDaysResort.com');
   * INSERT INTO Hotel (Hotel\_ID, Company\_ID, Hotel\_Name, Hotel\_Number, Hotel\_Email, Hotel\_Description, Hotel\_Website) VALUES (1004, 0004, 'Holiday Stays', 3657894656, 'contact@HolidayStays.com', '3 Star Hotel', 'HolidayStays.com');
   * INSERT INTO Hotel (Hotel\_ID, Company\_ID, Hotel\_Name, Hotel\_Number, Hotel\_Email, Hotel\_Description, Hotel\_Website) VALUES (1005, 0005, 'Barns and Books Bookings', 7071253521, 'contact@BarnsAndBooks.com', '4 Star Hotel', 'BookBarnsAndBooks.com');
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2001, 1001, 'Customer Service', 'Oversees all aspects of customer service', 180000000, 2800);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2002, 1001, 'Food and Beverage', 'Oversees all aspects of guest dining and food service', 13000000, 1300);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2003, 1001, 'Marketing and Budgeting', 'Oversees all aspects of hotel marketing and budgeting', 280000000, 567);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2004, 1002, 'Customer Service', 'Oversees all aspects of customer service', 13000000, 2300);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2005, 1002, 'Food and Beverage', 'Oversees all aspects of guest dining and food service', 11000000, 890);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2006, 1002, 'Marketing and Budgeting', 'Oversees all aspects of hotel marketing and budgeting', 197000000, 346);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2007, 1003, 'Customer Service', 'Oversees all aspects of customer service', 170000000, 1980);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2008, 1003, 'Food and Beverage', 'Oversees all aspects of guest dining and food service', 11600000, 760);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2009, 1003, 'Marketing and Budgeting', 'Oversees all aspects of hotel marketing and budgeting', 265000000, 500);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2010, 1004, 'Customer Service', 'Oversees all aspects of customer service', 8900000, 1200);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2011, 1004, 'Food and Beverage', 'Oversees all aspects of guest dining and food service', 2800000, 320);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2012, 1004, 'Marketing and Budgeting', 'Oversees all aspects of hotel marketing and budgeting', 46500000, 220);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2013, 1005, 'Customer Service', 'Oversees all aspects of customer service', 12700000, 2200);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2014, 1005, 'Food and Beverage', 'Oversees all aspects of guest dining and food service', 10500000, 770);
   * INSERT INTO Departments (Department\_ID, Hotel\_ID, Department\_Name, Department\_Description, Department\_Budget, Num\_Of\_Employees) VALUES (2015, 1005, 'Marketing and Budgeting', 'Oversees all aspects of hotel marketing and budgeting', 173000000, 298);
   * INSERT INTO employees VALUES (3001, 2001, 'Bob', 'Miller', DATE '2015-12-02', 1000, 1230, 'receptionist');
   * INSERT INTO employees VALUES (3002, 2004, 'Jake', 'Brown', DATE '2015-10-07', 1200, 1800, 'receptionist');
   * INSERT INTO employees VALUES (3003, 2001, 'Sally', 'Butterscotch', DATE '2000-08-07', 0800, 1600, 'manager');
   * INSERT INTO employees VALUES (3004, 2008, 'Mike', 'Lemon', DATE '2000-08-07', 1600, 2400, 'manager');
   * INSERT INTO employees VALUES (3005, 2002, 'Markus', 'Smith', DATE '2012-11-10', 0800, 1800, 'cleaning\_staff');
   * INSERT INTO employees VALUES (3006, 2007, 'Britnie', 'Moores', DATE '2010-11-17', 1030, 0900, 'receptionist');
   * INSERT INTO employees VALUES (3007, 2010, 'Artie', 'Zackers', DATE '2013-02-09', 1230, 1630, 'receptionist');
   * INSERT INTO employees VALUES (3008, 2014, 'Amy', 'Regoth', DATE '2001-04-20', 0800, 1800, 'receptionist');
   * INSERT INTO employees VALUES (3009, 2015, 'Mike', 'Lemon', DATE '2000-08-07', 1630, 2400, 'manager');
   * INSERT INTO employees VALUES (3010, 2005, 'Javon', 'Whicks', DATE '2018-11-03', 0100, 1300, 'cleaning\_staff');
   * INSERT INTO employees VALUES (3011, 2008, 'Cleo', 'Yimms', DATE '2003-03-11', 0800, 1630, 'cleaning\_staff');
   * INSERT INTO employees VALUES (3012, 2011, 'Noah', 'Clobb', DATE '2012-02-27', 0200, 1030, 'cleaning\_staff');
   * INSERT INTO employees VALUES (3013, 2014, 'Tiffany', 'Ordaith', DATE '2019-09-18', 1200, 2400, 'cleaning\_staff');
   * INSERT INTO employees VALUES (3014, 2012, 'Ani', 'Unzi', DATE '2001-04-02', 0800, 2000, 'manager');
   * INSERT INTO employees VALUES (3015, 2003, 'Olivia', 'Quips', DATE '2000-12-23', 1600, 0800, 'manager');
   * INSERT INTO receptionist VALUES (3001, 0020, 0065, 'Bobmiller@hotmail.com');
   * INSERT INTO receptionist VALUES (3002, 0100, 0045, 'LitFlame42@hotmail.com');
   * INSERT INTO receptionist VALUES (3006, 0245, 1299, 'BigChunk12@hotmail.com');
   * INSERT INTO receptionist VALUES (3007, 1998, 5678, 'Notdum88@hotmail.com');
   * INSERT INTO receptionist VALUES (3008, 1200, 245, 'Insertemailhere@hotmail.com');
   * INSERT INTO manager VALUES (3003, 2001, 'Customer Service Manager', 'Bachelors');
   * INSERT INTO manager VALUES (3004, 2008, 'Food and Beverage Manager', 'Masters');
   * INSERT INTO manager VALUES (3009, 2015, 'Marketing and Budgeting Manager', 'Masters');
   * INSERT INTO manager VALUES (3014, 2011, 'Food and Beverage Manager', 'Bachelors');
   * INSERT INTO manager VALUES (3015, 2003, 'Marketing and Budgeting Manager', 'Masters');
   * INSERT INTO building VALUES (4001, 1001, 0022, 'Lakeland FL', date '2022-04-12', date '2012-06-07');
   * INSERT INTO building VALUES (4002, 1002, 0050, 'Birch OH', date '2022-01-09', date '2000-07-22');
   * INSERT INTO building VALUES (4003, 1003, 0005, 'Seattle WA', date '2021-06-09', date '2000-12-31');
   * INSERT INTO building VALUES (4004, 1004, 0013, 'Urbandale VA', date '2020-11-30', date '2014-10-12');
   * INSERT INTO building VALUES (4005, 1005, 0018, 'Tokyo NY', date '2021-06-09', date '2009-05-22');
   * INSERT INTO floor VALUES(01, 4001, 25, 1, 1);
   * INSERT INTO floor VALUES(02, 4002, 34, 1, 0);
   * INSERT INTO floor VALUES(03, 4003, 29, 0, 1);
   * INSERT INTO floor VALUES(04, 4004, 40, 0, 0);
   * INSERT INTO floor VALUES(05, 4005, 32, 0, 1);
   * INSERT INTO cleaning\_staff VALUES (3005, 01, 0200, 0010, 1);
   * INSERT INTO cleaning\_staff VALUES (3010, 02, 0070, 0020, 0);
   * INSERT INTO cleaning\_staff VALUES (3011, 03, 0010, 0340, 1);
   * INSERT INTO cleaning\_staff VALUES (3012, 04, 1000, 0120, 1);
   * INSERT INTO cleaning\_staff VALUES (3013, 05, 0680, 0670, 0);
   * INSERT INTO room\_type VALUES (1012, 'Suite', 1200, 2, 2);
   * INSERT INTO room\_type VALUES (2004, 'Single', 425, 1, 1);
   * INSERT INTO room\_type VALUES (3047, 'Quad', 630, 4, 2);
   * INSERT INTO room\_type VALUES (4008, 'Deluxe room', 800, 4, 2);
   * INSERT INTO room\_type VALUES (5042, 'Presidential suite', 2500, 1, 1);
   * INSERT INTO rooms VALUES (1011, 01, 1012, 1, date '2022-04-12');
   * INSERT INTO rooms VALUES (2012, 02, 1012, 0, date '2022-04-12');
   * INSERT INTO rooms VALUES (3045, 03, 2004, 0, date '2022-03-18');
   * INSERT INTO rooms VALUES (4037, 04, 4008, 1, date '2022-04-12');
   * INSERT INTO rooms VALUES (5001, 05, 5042, 0, date '2022-02-22');
   * INSERT INTO GUESTS VALUES (209, 'Jefferson', 'Tasha', NULL, DATE '1990-11-14', 'Visa');
   * INSERT INTO GUESTS VALUES (124, 'Craft', 'Jordan', 'M', DATE '2001-06-17', 'Mastercard');
   * INSERT INTO GUESTS VALUES (169, 'Smith', 'Andrew', 'W', DATE '1987-03-23', 'American Express');
   * INSERT INTO GUESTS VALUES (170, 'Cunningham', 'Cindy', 'I', DATE '1999-09-11', 'Discover');
   * INSERT INTO GUESTS VALUES (201, 'Robertson', 'James', NULL, DATE '2001-01-23', 'Citi');
   * INSERT INTO RESERVATIONS VALUES (7001, 209, 3001, DATE '2020-02-10', DATE '2020-02-17', 0830, 1100);
   * INSERT INTO RESERVATIONS VALUES (7002, 124, 3002, DATE '2008-03-18', DATE '2008-03-20', 0800, 1200);
   * INSERT INTO RESERVATIONS VALUES (7003, 169, 3001, DATE '2019-09-07', DATE '2020-09-02', 0930, 0830);
   * INSERT INTO RESERVATIONS VALUES (7004, 170, 3007, DATE '2017-11-20', DATE '2017-11-27', 0900, 0900);
   * INSERT INTO RESERVATIONS VALUES (7005, 201, 3008, DATE '2021-01-13', DATE '2021-01-15', 0130, 1000);
   * INSERT INTO ROOMS\_BOOKED VALUES(2012, 7001);
   * INSERT INTO ROOMS\_BOOKED VALUES(2012, 7004);
   * INSERT INTO ROOMS\_BOOKED VALUES(5001, 7003);
   * INSERT INTO ROOMS\_BOOKED VALUES(4037, 7003);
   * INSERT INTO ROOMS\_BOOKED VALUES(1011, 7005);
2. Scripts to update data (update (SQL DML) statements should be in various complexity, at least 2 per table) (20 points)
   * UPDATE company SET company\_address = '14108 funky st. Lakeland FL' where company\_id = 0001;
   * UPDATE company SET company\_name = 'Best Hotel Ever' where company\_name = 'Holiday Inn';
   * UPDATE hotel Set Hotel\_Number = '8005881234' WHERE Hotel\_Name = 'Barns and Books Bookings';
   * UPDATE hotel Set Hotel\_Description = '3 Star Resort' WHERE Hotel\_Description = '4 Star Hotel' AND Hotel\_Email LIKE '%Orange%';
   * UPDATE departments SET num\_of\_employees = 600 where num\_of\_employees > 200;
   * UPDATE departments SET department\_description = 'This Department is better than the rest' where department\_id = 2001;
   * UPDATE receptionist SET receptionist\_email = 'Sussy44@hotmail.com' where employee\_id = 3007;
   * UPDATE receptionist SET number\_of\_phonecalls = 1200 where number\_of\_reservations = 20 or number\_of\_reservations = 1200;
   * UPDATE Manager SET Manager\_Title = 'Guest Dining Manager' WHERE Department\_ID IN ('2002','2005','2008','2011','2014');
   * UPDATE Manager SET Manager\_Degree = 'Masters' WHERE Employee\_ID = '3003';
   * UPDATE building SET number\_of\_floors = 7 where building\_location = 'Birch OH' or number\_of\_floors = 50;
   * UPDATE building SET building\_location = 'Oakland FL' where building\_location = 'Lakeland FL';
   * UPDATE Floor SET Has\_Staff\_Rooms = '1' WHERE Floor\_Num < 4;
   * UPDATE Floor SET Number\_Of\_Rooms = Number\_Of\_Rooms + '5' WHERE Has\_Staff\_Rooms = 1;
   * UPDATE cleaning\_staff SET number\_rooms\_cleaned = 11 where number\_rooms\_cleaned = 10;
   * UPDATE cleaning\_staff SET rooms\_to\_clean = 339 where number\_rooms\_cleaned = 11;
   * UPDATE Room\_Type SET Room\_Type\_Price = Room\_Type\_Price + '500' WHERE ROOM\_TYPE\_NAME LIKE '%suite%';
   * UPDATE Room\_Type SET Number\_Of\_Beds= '3', Number\_Of\_Baths = '3' WHERE Room\_Type\_ID = '1012';
   * UPDATE ROOMS SET FLOOR\_NUM = 3 WHERE ROOM\_ID = 2012;
   * UPDATE ROOMS SET LAST\_CLEAN\_DATE = DATE '2022-03-14' WHERE ROOM\_ID = 1011;
   * UPDATE GUESTS SET GUEST\_PAYMENTINFO = 'Chase' WHERE GUEST\_ID = 201;
   * UPDATE GUESTS SET GUEST\_BIRTHDAY = DATE '1984-11-06' WHERE GUEST\_FIRSTNAME = 'James';
   * UPDATE RESERVATIONS SET CHECKIN\_TIME = 915 WHERE RESERVATION\_ID = 7001;
   * UPDATE RESERVATIONS SET CHECKOUT\_TIME = 1200 WHERE EMPLOYEE\_ID = 3007;
   * UPDATE ROOMS\_BOOKED SET ROOM\_ID = 3045 WHERE RESERVATION\_ID = 7001;
   * UPDATE ROOMS\_BOOKED SET RESERVATION\_ID = 7002 WHERE ROOM\_ID = 1011;
3. At least 5 query scripts to answer questions about your organization and its operations (40 points)
   1. Must include at least 2 aggregation queries utilizing group by and order by.
   2. Should be in various complexity joining two, three, and four tables

* *Employee information in alphabetical order?*
  + SELECT \* FROM employees ORDER BY employee\_firstname ASC;
* *How many of each type of employee are employed?*
  + SELECT COUNT (employee\_id), employee\_type FROM employees GROUP BY employee\_type;
* *What types of rooms are available and what are their prices?*
  + SELECT \* FROM (SELECT Room\_Type.Room\_Type\_ID, Room\_Type.Room\_Type\_Name, Room\_Type.Room\_Type\_Price, Rooms.Room\_ID, Rooms.Room\_Available FROM Room\_Type INNER JOIN Rooms ON Rooms.Room\_Type\_ID = Room\_Type.Room\_Type\_ID) WHERE Room\_Available = '1';
* *What is all the employee's information?*
  + SELECT employees.employee\_id, employees.EMPLOYEE\_FIRSTNAME, employees.EMPLOYEE\_LASTNAME, employees.HIRE\_DATE, employees.SHIFT\_START, employees.SHIFT\_END, employees.EMPLOYEE\_TYPE, receptionist.RECEPTIONIST\_EMAIL, manager.MANAGER\_TITLE, manager.MANAGER\_DEGREE, cleaning\_staff.FLOOR\_NUM FROM employees FULL OUTER JOIN receptionist ON employees.employee\_id = receptionist.employee\_id FULL OUTER JOIN manager ON employees.employee\_id = manager.employee\_id FULL OUTER JOIN cleaning\_staff ON employees.employee\_id = cleaning\_staff.employee\_id;
* *Which room is booked under a guest's last name?*
  + SELECT Guests.Guest\_LastName, Rooms\_Booked.Room\_ID

FROM Guests JOIN Reservations ON Guests.Guest\_ID = Reservations.Guest\_ID JOIN Rooms\_Booked ON Reservations.Reservation\_ID = Rooms\_Booked.Reservation\_ID;

* *Which cleaning staff did not return their supplies after their last cleaning?*
  + SELECT \* FROM Cleaning\_Staff WHERE Supplies\_Returned = '0'ORDER BY Employee\_ID ASC;

1. At least 4 scripts (update or insert) to demonstrate that you receive errors from the database because of the constraints (integrity, check, referential, not null constraints) implemented in your database. (20 points)
   1. One script per constraint type (integrity, check, referential, not null)

* Cannot insert NULL for employee first name (not null)
  + 'INSERT INTO GUESTS VALUES (201, '', 'James', 'V', DATE '2001-01-23', 'Citi');
* Cannot insert 5 number characters into employee id (check)
  + INSERT INTO employees VALUES (12345, 2004, 'James', 'Brown', DATE '2015-10-07', 1200, 1800, 'receptionist');
* Cannot repeat primary key (integrity)
  + UPDATE Hotel SET Hotel\_ID = 1001 WHERE Company\_ID = '5';
* Cannot have a foreign key that does not exist (referential)
  + INSERT INTO Reservations VALUES (7005, 9999, 3008, DATE '2021-01-13', DATE '2021-01-15', 0130, 1000);