Conference Room Scheduler

Database Project

Hood College, IT/BIFX 530 Applied Database Systems

Submitted to: Submitted by:

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Scope

The company has previously struggled with managing the requests for meeting spaces that are difficult to keep track of in the scattered manner they currently are kept in. Employees are often wasting a lot of time looking for a room to hold a meeting and occasionally plans conflict and multiple teams reserve the same room at the same time. This process seemed to be inefficient and unproductive for the company. Introducing the conference room scheduler will help the company to achieve its goal.

Description

The conference room scheduler helps to conduct the meetings by utilizing the space effectively. The system will collect data about the employees, meetings, and rooms available to be booked. Employee data will consist of employee ID, department, and personal information. The meeting data will be the date and time of the meeting, which room is being used and what the purpose of the meeting is. Room data will consist of the building the room is in, what the capacity of the room is, and which AV setup is contained in the room. These are starting point, and these may expand in development if needed.

We will use a web-based application that will allow employees to both reserve a room for a meeting and to search for open time slots.

ER Design

**ER Design**

The employee field will contain an employee ID, the name of the employee, the ID of the department they work in and what teams they are a part of

The room field will contain the room number, the building, capacity, and audio visual set up of the room

The reservation will contain the start and end times, the date, room number, meeting type, and

The ID of the employee who made it.

The building will contain the ID, name, and location of the building

The team will contain the team ID and the employee ID of the leader of the team.

The department will contain the ID and name of the department.

The login will contain the ID and password used to login to the system.

**Assumptions**

Employees can work in only one team, but a team can have many employees.

Employees belong to only one department.

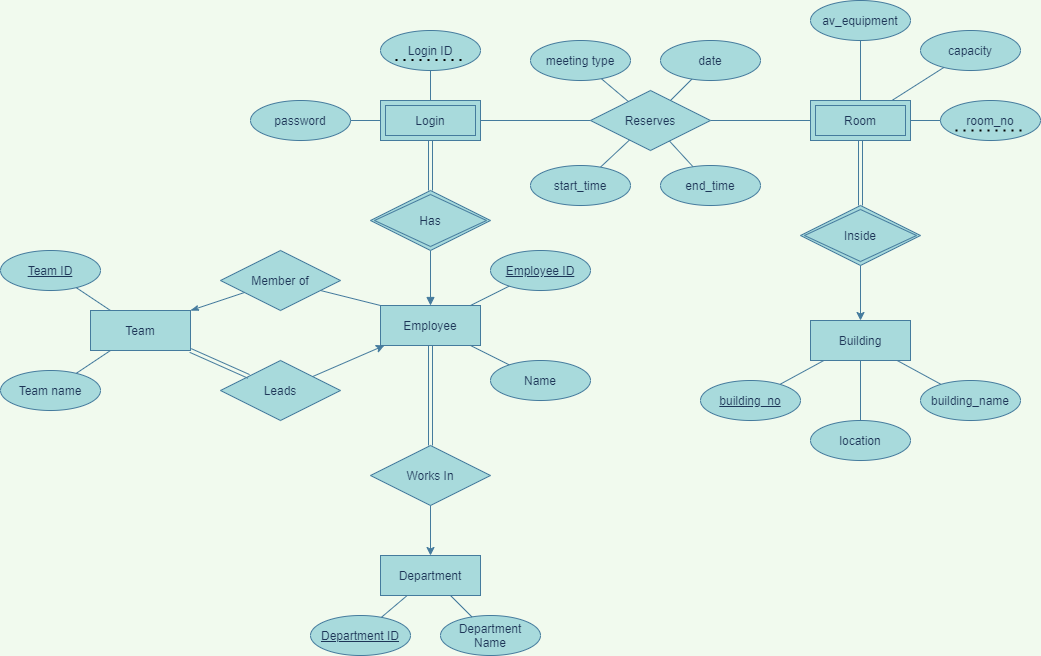
Reservations must be tied to a room and an employee.

A room must be tied to a building.

There can be only one appointment per room for a given time.

Employees can reserve multiple rooms and a room can be reserved multiple times.

Each employee is given one login and each login must belong to an employee



Schema and SQL implementation

Relational Schema

Employee (Employee\_ID, name, Department\_ID, Team\_ID)

Department (Department\_ID, Department\_Name)

Team (Team\_ID, Team\_name, Employee\_ID)

Login (Login\_ID, password, Employee\_ID)

Reserves (Login\_ID, room\_no, date, meeting\_type, start\_time, end\_time, Employee\_ID, building\_no)

Room (Room\_no, capacity, av\_equipment, building\_no)

Building (building\_no, building\_name, location)

Explanations for each relation

1. Employees must work in only one Department and must be part of a team. This relation is many to one employee with total participation from Employee side. Employee\_ID is the Primary Key of table Employee. department ID and Team\_ID are foreign keys referencing respectively Department table and Team table.
2. Each Team must be leaded by an Employee. This is a many to one relationship with total participation on the Team side.

Team\_ID is the primary key and Employee\_ID becomes a foreign key in the Team table referencing Employee.

1. Each Login must belong to at most one Employee. This is a many to one relationship with total participation on the Login side.

Login\_ID is the primary key of relation Schema then Employee\_ID is a foreign key referencing Employee table.

1. Login can reserve multiple rooms. This is a binary many to many relationship
2. Reserves is a cross reference relation in a binary relationship many to many. Login\_ID, room\_no, Employee\_ID, and building\_no become the full primary key for Reserves.
3. Room must be tied to a building. This is a many to one relationship with total participation on the Room side. Room\_no is the primary key of the relation schema and building\_no becomes a foreign key in the relation schema referencing Building.

SQL script to create tables with comments and script for loading data

/\* Database Table Creation \*/

/\* Drop any existing tables. Any errors are ignored. \*/

DROP TABLE IF EXISTS Reserves;

DROP TABLE if EXISTS Room;

DROP TABLE IF EXISTS Team;

DROP TABLE IF EXISTS Login;

DROP TABLE IF EXISTS Employee;

DROP TABLE IF EXISTS Department;

DROP TABLE IF EXISTS Building;

/\* Add each table. \*/

CREATE TABLE Department(

Department\_ID VARCHAR(20),

Department\_Name VARCHAR(20),

PRIMARY KEY (Department\_ID)) ENGINE=InnoDB;

CREATE TABLE Building(

Building\_no VARCHAR(20),

Building\_name VARCHAR(20),

Location VARCHAR(20),

PRIMARY KEY (building\_no)) ENGINE=InnoDB;

CREATE TABLE Room(

Room\_no VARCHAR(20),

Capacity VARCHAR(20),

Building\_no VARCHAR(20) NOT NULL

av\_equipment VARCHAR(20),

PRIMARY KEY (room\_no, building\_no),

FOREIGN KEY (Building\_no) REFERENCES Building(Building\_no)

ON DELETE CASCADE

ON UPDATE CASCADE) ENGINE=InnoDB;

CREATE TABLE Login(

login\_id VARCHAR(20),

employee\_id VARCHAR(20),

password VARCHAR(20),

PRIMARY KEY (login\_id)) ENGINE=InnoDB;

FOREIGN KEY (Employee\_ID) REFERENCES Employee(Employee\_ID)

CREATE TABLE Employee (

Employee\_ID VARCHAR(20),

name VARCHAR(50),

Department\_ID VARCHAR(20) NOT NULL

Team\_ID VARCHAR(20),

PRIMARY KEY (Employee\_ID),

FOREIGN KEY (Team\_ID) REFERENCES Team(Team\_ID),

FOREIGN KEY (Department\_ID) REFERENCES Department(Department\_ID)

ON UPDATE CASCADE) ENGINE=InnoDB;

CREATE TABLE Team(

Team\_ID VARCHAR(20),

Team\_name VARCHAR(20),

Employee\_ID VARCHAR(20) NOT NULL

PRIMARY KEY (Team\_ID),

FOREIGN KEY (Employee\_ID) REFERENCES Employee(Employee\_ID)

ON UPDATE CASCADE) ENGINE=InnoDB;

CREATE TABLE Reserves(

Login\_ID VARCHAR(20),

room\_no VARCHAR(20),

Employee\_ID VARCHAR(20),

building\_no VARCHAR(20),

date Date,

meeting\_type VARCHAR(20),

start\_time Time,

end\_time Time,

PRIMARY KEY (Login\_ID, room\_no, Employee\_ID, Building\_no),

FOREIGN KEY (Login\_ID, Employee\_ID) REFERENCES Login(Login\_ID, Employee\_ID),

FOREIGN KEY (room\_no, building\_no) REFERENCES Room(room\_no, building\_no)) ENGINE=InnoDB;

insert into employee(employee\_id, name, department\_id, team\_id) values(30000000,”Carrie Fisher”,1,1);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000001,”Harrison Ford”,3,1);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000002,”John Boyega”,9,1);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000003,”Daisy Ridley”,7,2);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000004,”Adam Driver”,5,2);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000005,”Mark Hamill”,2,2);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000006,”James Jones”,3,3);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000007,”John Doe”,1,3);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000008,”Mike Smith”,8,3);

insert into employee(employee\_id, name, department\_id, team\_id) values(30000009,”Jane Olson”,10,4);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000001,”Kelly Smith”,1,1);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000002,”James Johnson”,3,5);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000003,”Maria Miller”,5,6);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000004,”Robert Clark”,2,7);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000005,”George Davis”,9,8);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000006,”David Wilson”,7,2);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000007,”Kathy Taylor”,8,10);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000008,”Tina Brown”,5,6);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000009,”Courtney Jones”,2,6);

insert into employee(employee\_id, name, department\_id, team\_id) values(20000010,”Mary Miller”,10,5);

insert into login(login\_id, password) values(”cfisher”,”password1”);

insert into login(login\_id, password) values(”hford”,”password2”);

insert into login(login\_id, password) values(”jboyega”,”password3”);

insert into login(login\_id, password) values(”dridley”,”password4”);

insert into login(login\_id, password) values(”adriver”,”password5”);

insert into login(login\_id, password) values(”mhamill”,”password6”);

insert into login(login\_id, password) values(”jjones”,”password7”);

insert into login(login\_id, password) values(”jdoe”,”password8”);

insert into login(login\_id, password) values(”msmith”,”password9”);

insert into login(login\_id, password) values(”jolson”,”password10”);

insert into login(login\_id, password) values(”Ksmith”,”password11”);

insert into login(login\_id, password) values(”Jjonson”,”password12”);

insert into login(login\_id, password) values(”Mmiller”,”password13”);

insert into login(login\_id, password) values(”Rclark”,”password14”);

insert into login(login\_id, password) values(”Gdavis”,”password15”);

insert into login(login\_id, password) values(”Dwilson”,”password16”);

insert into login(login\_id, password) values(”Ktaylor”,”password17”);

insert into login(login\_id, password) values(”Tbrown”,”password18”);

insert into login(login\_id, password) values(”Cjones”,”password19”);

insert into login(login\_id, password) values(”Mmiller”,”password20”);

insert into employee\_login(login\_id, employee\_id) values(30000000,”cfisher”);

insert into employee\_login(login\_id, employee\_id) values(30000001,”hford”);

insert into employee\_login(login\_id, employee\_id) values(30000002,”jboyega”);

insert into employee\_login(login\_id, employee\_id) values(30000003,”dridley”);

insert into employee\_login(login\_id, employee\_id) values(30000004,”adriver”);

insert into employee\_login(login\_id, employee\_id) values(30000005,”mhamill”);

insert into employee\_login(login\_id, employee\_id) values(30000006,”jjones”);

insert into employee\_login(login\_id, employee\_id) values(30000007,”jdoe”);

insert into employee\_login(login\_id, employee\_id) values(30000008,”msmith”);

insert into employee\_login(login\_id, employee\_id) values(30000009,”jolson”);

insert into employee\_login(login\_id, employee\_id) values(20000001,”Ksmith”);

insert into employee\_login(login\_id, employee\_id) values(20000002,”Jjohnson”);

insert into employee\_login(login\_id, employee\_id) values(20000003,”Mmiller”);

insert into employee\_login(login\_id, employee\_id) values(20000004,”Rclark”);

insert into employee\_login(login\_id, employee\_id) values(20000005,”Gdavis”);

insert into employee\_login(login\_id, employee\_id) values(20000006,”Dwilson”);

insert into employee\_login(login\_id, employee\_id) values(20000007,”Ktaylor”);

insert into employee\_login(login\_id, employee\_id) values(20000008,”Tbrown”);

insert into employee\_login(login\_id, employee\_id) values(20000009,”Cjones”);

insert into employee\_login(login\_id, employee\_id) values(200000010,”Mmiller”);

insert into team(team\_id, team\_name, employee\_id) values(1,”Metro”,30000000);

insert into team(team\_id, team\_name, employee\_id) values(1,”Metro”,30000001);

insert into team(team\_id, team\_name, employee\_id) values(1,”Metro”,30000002);

insert into team(team\_id, team\_name, employee\_id) values(2,”Liberty”,30000003);

insert into team(team\_id, team\_name, employee\_id) values(2,”Liberty”,30000004);

insert into team(team\_id, team\_name, employee\_id) values(2,”Liberty”,30000005);

insert into team(team\_id, team\_name, employee\_id) values(3,”Classic”,30000006);

insert into team(team\_id, team\_name, employee\_id) values(3,”Classic”,30000007);

insert into team(team\_id, team\_name, employee\_id) values(3,”Classic”,30000008);

insert into team(team\_id, team\_name, employee\_id) values(4,”Rock”,30000009);

insert into team(team\_id, team\_name, employee\_id) values(1,”Metro”,20000001);

insert into team(team\_id, team\_name, employee\_id) values(5,”Star”,20000002);

insert into team(team\_id, team\_name, employee\_id) values(6,”Trump”,20000003);

insert into team(team\_id, team\_name, employee\_id) values(7,”Courageous”,20000004);

insert into team(team\_id, team\_name, employee\_id) values(8,”Winner”,20000005);

insert into team(team\_id, team\_name, employee\_id) values(2,”Liberty”,20000006);

insert into team(team\_id, team\_name, employee\_id) values(10,”Joe Biden”,20000007);

insert into team(team\_id, team\_name, employee\_id) values(6,”Trump”,20000008);

insert into team(team\_id, team\_name, employee\_id) values(6,”Trump”,20000009);

insert into team(team\_id, team\_name, employee\_id) values(5,”Star”,20000010);

insert into employee\_team(employee\_id, team\_id) values(30000000,1);

insert into employee\_team(employee\_id, team\_id) values(30000001,1);

insert into employee\_team(employee\_id, team\_id) values(30000002,1);

insert into employee\_team(employee\_id, team\_id) values(30000003,2);

insert into employee\_team(employee\_id, team\_id) values(30000004,2);

insert into employee\_team(employee\_id, team\_id) values(30000005,2);

insert into employee\_team(employee\_id, team\_id) values(30000006,3);

insert into employee\_team(employee\_id, team\_id) values(30000007,3);

insert into employee\_team(employee\_id, team\_id) values(30000008,3);

insert into employee\_team(employee\_id, team\_id) values(30000009,4);

insert into employee\_team(employee\_id, team\_id) values(20000001,1);

insert into employee\_team(employee\_id, team\_id) values(20000002,5);

insert into employee\_team(employee\_id, team\_id) values(20000003,6);

insert into employee\_team(employee\_id, team\_id) values(20000004,7);

insert into employee\_team(employee\_id, team\_id) values(20000005,8);

insert into employee\_team(employee\_id, team\_id) values(20000006,2);

insert into employee\_team(employee\_id, team\_id) values(20000007,10);

insert into employee\_team(employee\_id, team\_id) values(20000008,6);

insert into employee\_team(employee\_id, team\_id) values(20000009,6);

insert into employee\_team(employee\_id, team\_id) values(20000010,5);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”cfisher”,1,110920,”Training”,1000,1130);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”hford”,1,111120,”Training”,1400,1530);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”jboyega”,2,112520,”Brainstorming”,0900,1100);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”dridley”,2,120320,”Tier Meeting”,0930,1030);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”adriver”,2,031220,”Skype”,1130,1200)

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”mhamill”,3,121020,”skype”,0900,1030);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”jjones”,2,111020,”Orientation”,0830,1430);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”jdoe”,3,121220,”Brainstorming”,1600,1700);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”msmith”,4,122320,”Brainstorming”,1400,1500);

insert into reserves(login\_id, room\_no, date, meeting\_type, start\_time, end\_time) values(”jolson”,4,122120,”Training”,1000,1130);

insert into department(department\_id, department\_name) values(1,”Accounting”);

insert into department(department\_id, department\_name) values(2,”Sales”);

insert into department(department\_id, department\_name) values(3,”Quality Control”);

insert into department(department\_id, department\_name) values(4,”Human Resources”);

insert into department(department\_id, department\_name) values(5,”Maintenance”);

insert into department(department\_id, department\_name) values(6,”Information Tech”);

insert into department(department\_id, department\_name) values(7,”Validation”);

insert into department(department\_id, department\_name) values(8,”Manufacturing”);

insert into department(department\_id, department\_name) values(9,”Production”);

insert into department(department\_id, department\_name) values(10,”Lab Services”);

insert into building(building\_no, building\_name, location) values(100,”Pembro”,”Frederick”);

insert into building(building\_no, building\_name, location) values(101,”Tralo”,”Frederick”);

insert into building(building\_no, building\_name, location) values(102,”Durva”,”Frederick”);

insert into building(building\_no, building\_name, location) values(103,”R&D”,”Walkersville”);

insert into building(building\_no, building\_name, location) values(300,”Oligo”,”Walkersville”);

insert into building(building\_no, building\_name, location) values(301,”RawM”,”Walkersville”);

insert into building(building\_no, building\_name, location) values(200,”Anifro”,”Urbana”);

insert into building(building\_no, building\_name, location) values(201,”COVID Testing”,”Urbana”);

insert into building(building\_no, building\_name, location) values(203,”STAT Testing”,”Urbana”);

insert into building(building\_no, building\_name, location) values(303,”Purification”,”Walkersville”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(1,100,10,”Projector”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(2,100,20,”Printer”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(3,100,50,”Projector”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(4,100,96,”Projector”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(10,101,80,”Printer”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(11,101,36,”LED TV”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(12,101,9,”LED TV”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(20,200,15,”Projector”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(21,200,60,”LED TV”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(22,200,40,”Printer”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(23,200,120,”Printer”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(30,300,19,”Printer”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(31,300,55,”Speaker”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(32,300,60,”Speaker”);

insert into room(room\_no, building\_no, capacity, av\_equipment) values(33,300,40,”Coffee Maker”);

User interface design

Website diagram

Cancel

About us

Home Page

Reservation

Department

Contact

Building

Functionality of each webpage

* Building: Users will be presented the following information: building\_no, building\_name and location
* About us: Users will be presented more insight into who is involved with the given business and exactly what it does. The about us page will reflect to users the purpose and personality of the business.
* Cancel: Users will be presented with option to cancel the reservation.
* Contact page: Users will be presented with business address, email address, phone number, or specific employee/department contact information.
* Department: Users will be presented Department\_ID and Department\_Name
* Reserves: Users will be presented building\_no, room\_no, date, meeting\_type, start\_time, end\_time, Employee\_ID.