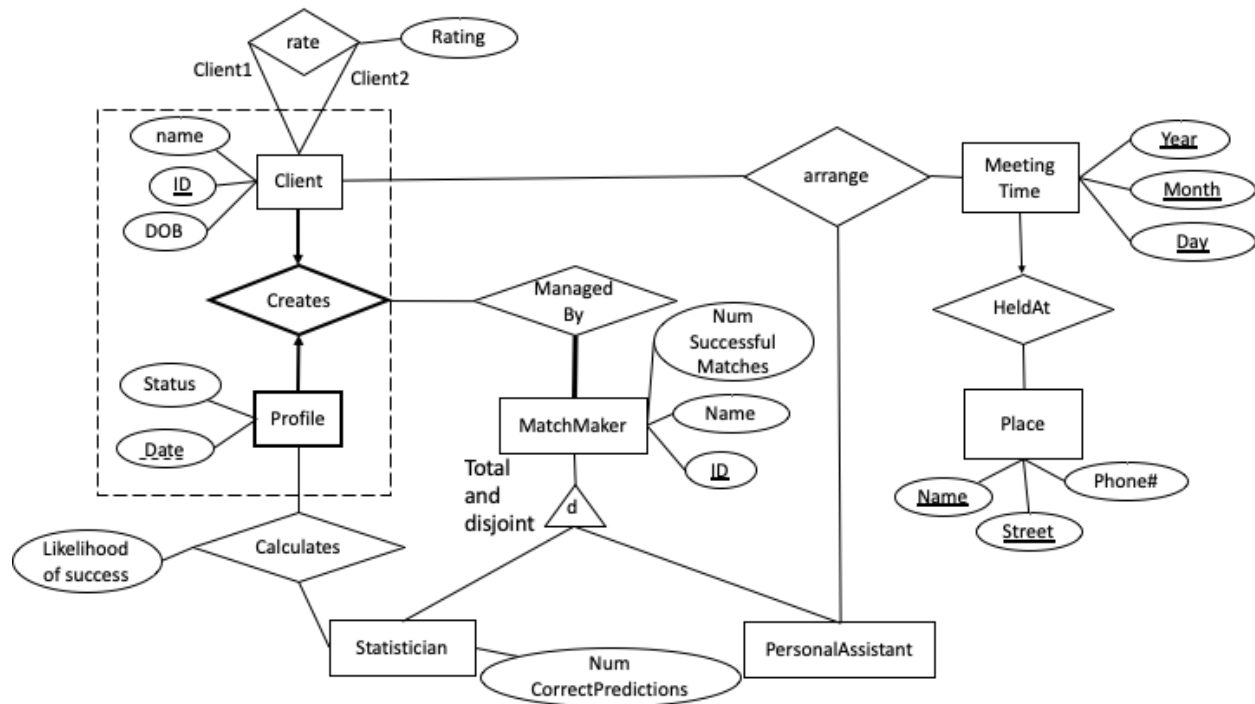


## Evaluate the ER Diagram

While grading assignments, the CPSC 368 TAs decided to consider alternate employment options and worked together to create a matchmaking app where users can sign up for accounts and the TAs will play matchmaker. The first draft of their ER diagram is below.

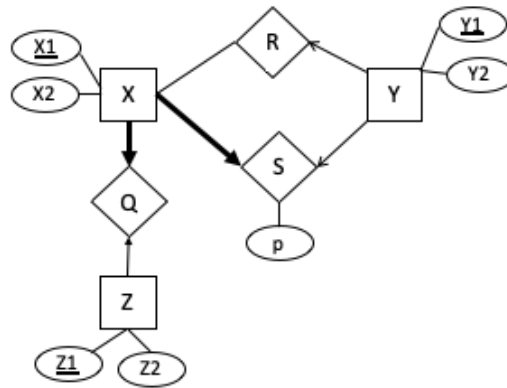


Answer the following questions based on the ER diagram above. Read the following statements and decide if each statement is true or false. Answers that are unclear or unreadable will be considered as incorrect.

Statement	True or False
Multiple MatchMakers can manage a client's profile.	
A client can rate another client multiple times and the history of all ratings can be stored.	
A meeting can be arranged without a personal assistant.	
Different clients can create profiles on the same date.	
The likelihood of success will be used for arranging the meeting.	

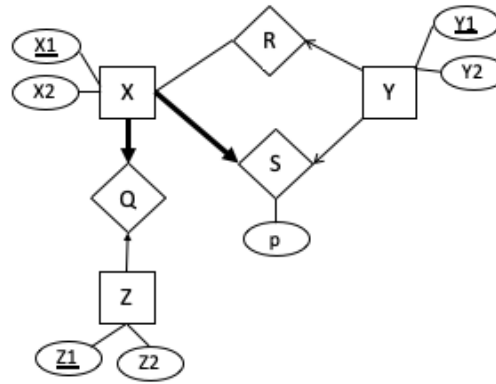
### Translate an ER Diagram into a Schema

Write relational schemas for the E-R diagram below. State any assumptions that you make – but your assumptions cannot contradict the facts given. Clearly identify all primary keys by underlining and foreign keys by circling. If any attribute is required to be not null or unique, be sure to clearly state that too. **No SQL DDL is required.**



### Writing SQL DDL

Translate the following ER diagram into relations. Write the SQL DDL statement for the relation that contains the relationship S from the ER diagram. Be sure to capture its required participation constraints (if any). Choose any data type you want for the attributes.



**CPSC 368: Databases in Data Science**  
**Practice Midterm**

## Referential Integrity

EMPLOYEE			
<u>EmplID</u>	Name	Insurance Agent	Spouse Name
C111	Tom	A1	Jenny
C222	Karin	A1	Bill
C333	Cole	A2	Amy
C444	Dorothy	A2	
C555	Andy	A3	Amy

AGENT			
<u>AgentID</u>	Name	AgentArea	ManagerID
A1	Katty	1	
A2	Ani	2	A1
A3	Luda	3	
A4	John	3	A3

AREA		
<u>AreaID</u>	AreaHQ	Province
1	Vancouver	BC
2	Delta	Ontario
3	Delta	BC

In the relational instance above:

- Agent.ManagerID is a foreign key that references Agent.AgentID and has a DELETE NO ACTION specification.
- Employee.InsuranceAgent references Agent.AgentID and has a DELETE CASCADE specification.

**Question:** Is it true that you can delete the second record in the Agent table?

- A. True
- B. False
- C. It depends

## SQL Schema

Consider the following schema for a hotel:

1. Hotel(branchID, city, country, maxCapacity)
2. Rooms(bID, floorNumber, roomNumber, type, capacity, smokingAllowed, area)
  - bID refers to branchID in Hotel
  - capacity represents the maximum capacity a room can hold
3. Amenities(amenityID, description)
4. HotelAmenities(bID, amenityID)
  - amenityID references Amenities
  - bID references Hotel
5. Customers(passportNumber, firstName, lastName, nationality, dateOfBirth)
6. HotelClubMember(pNum)
  - pNum references passportNumber in Customers
7. Reservation(id, bID, pNum, startDate, endDate, numGuests, smokingRequested)
  - bID refers to branchID in Hotel
  - pNum refers to passportNumber in Customers
8. HotelStay(rID, bID, floorNum, roomNum)
  - rID refers to id in Reservation
  - bID, floorNum and roomNum refer to bID, floorNumber and roomNumber in Rooms
9. Employees(id, firstName, lastName, occupation, startDate, endDate)
10. EmployeeCheckInLocations(eID, beaconID, date, time)
  - This relation holds information about when and where an employee has checked in
  - eID refers to id in Employees
  - beaconID refers to id in CheckInBeacons
11. CheckInBeacons(id, bID, floorNumber, direction)
  - This relation represents information about electronic check in points where employees have to tap their badge against to prove they were at a particular location at a particular time
  - bID refers to branchID in Hotel

### Hotel Club Members in Vancouver

For each hotel in Vancouver, find the total number of hotel club members who have stayed there.

### Popular Types of Rooms

Find the nationality that most frequently stays in a smoking room.

### Fix the Error

Due to a system glitch, the number of guests per reservation was incorrectly stored. Every reservation that has more than three guests recorded one additional guest than they have. For example, a reservation that says there were four guests actually should have three guests. A reservation that says there are three guests should stay at three guests.

Write an UPDATE statement that would update the reservation so that every booking has the correct number of guests.



### Booked Out Hotel

Return hotels where all rooms have been reserved.

### All Amenities

Return Canadian hotels that have all amenities. Do not use the EXPECT operator.