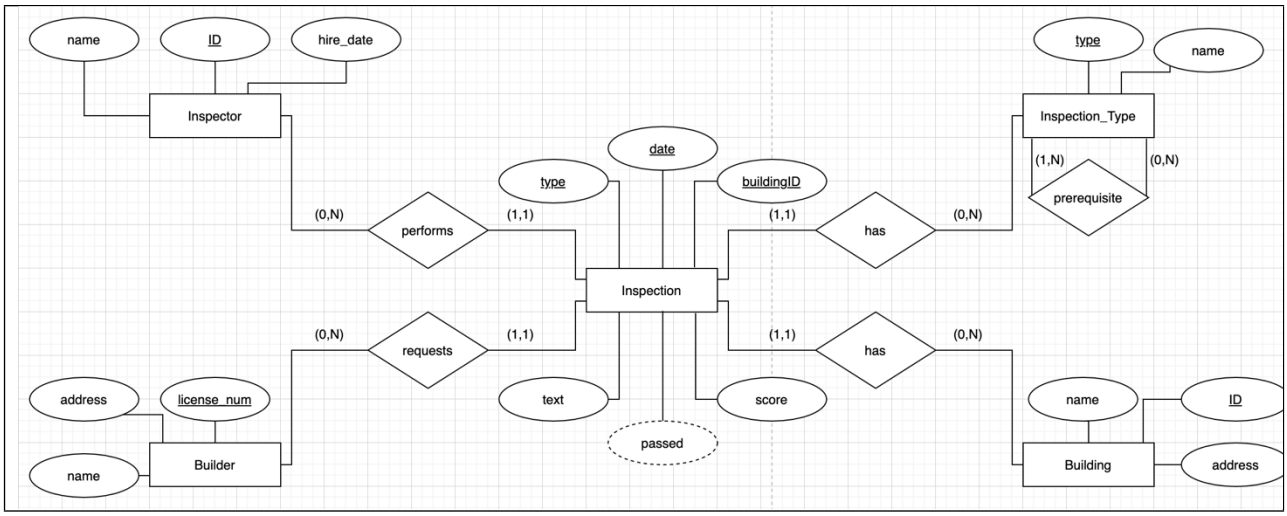
CS 5/7330 Project Part 1 **Deuce Palmer**

Problem:
You are to ***design*** a database to keep track of building inspections required by the department of Faulty or Damaged Buildings (FODB). Implementation will be done in part 2.

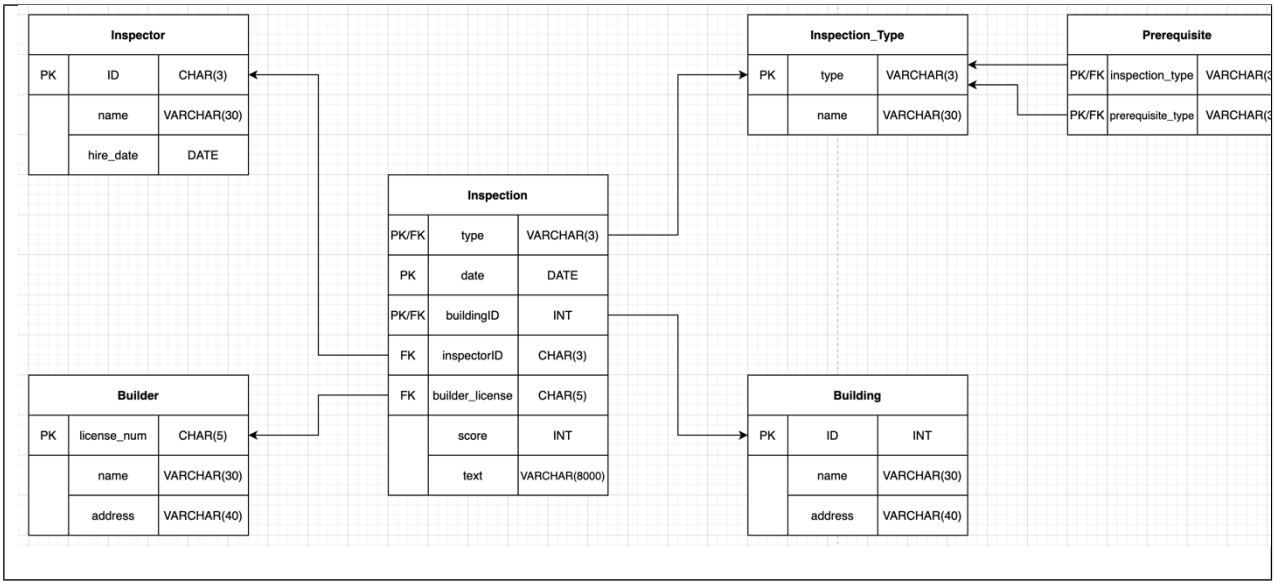
Data Requirements:
FODB coordinates building inspections requested by builders on a monthly basis. Each building inspection is either passed or not. Inspections have a type code (3 characters, e.g. PLU, FRM, ELE, etc.) and possibly sequencing requirements. Some inspections cannot be performed before other inspections, e.g. final plumbing inspection cannot be performed until the framing inspection is passed. Each inspection has a numeric score, with 75 or more out of 100 being sufficient for a pass status. Each inspection data contains the date of inspection, inspector identification, inspection score, and textual information about the inspection. The textual information can be updated later, but the score can never be changed. FODB maintains a pool of inspectors. Each inspector has a unique 3-digit employee ID, name, and date they were hired. They can conduct any type of inspection but can only perform at most 5 inspections per month. Any failed inspection can be repeated until passed. Particular information maintained about builders includes: Name (30 byte character string), address (40 byte character string), license# (5 digit number). A builder's license# is unique. A builder and location must exist prior to requesting an inspection. A request for an inspection may be assigned to any available inspector assuming the prerequisite inspections have a pass status.

Tasks:

1. Construct an ER Diagram with attributes, being precise in your notation, including (min,max) constraints. The ER diagram you create must support all requirements stated above. If you add any restrictions or information not stated above, please specify.
   Assumptions:
   An inspection has 1 inspector, 1 builder, 1 type, and 1 building.
   The inability to update an inspection score will be implemented using a trigger.
   Pass status of an inspection is derived from the score.
   The process of limiting each inspector to 5 inspections per month will be implemented using a trigger.
   Checking for completion of prerequisite inspections will be implemented using a trigger and the Prerequisite table.



2. Given your ER diagram, provide an initial description of the tables you plan to create, identifying keys and foreign keys (i.e., an initial relational schema)



3. Write the code for a trigger that ensures an inspection is assigned to an inspector hired before the date of the inspection. (Note: additional triggers may be needed later to complete the project.)

```
CREATE TRIGGER BINS_Inspection BEFORE INSERT ON Inspection
FOR EACH ROW
BEGIN
DECLARE tempdate DATE;
SELECT hire_date INTO tempdate
FROM Inspector
WHERE new.inspectorID = Inspector.ID;
IF new.date < tempdate
```

```
THEN
SIGNAL SQLSTATE'45000' set MESSAGE_TEXT = "Unavailable inspector. Inspector needs to be hired before the date of the inspection";
END IF;
END;
```