Database Design Project — Part 1

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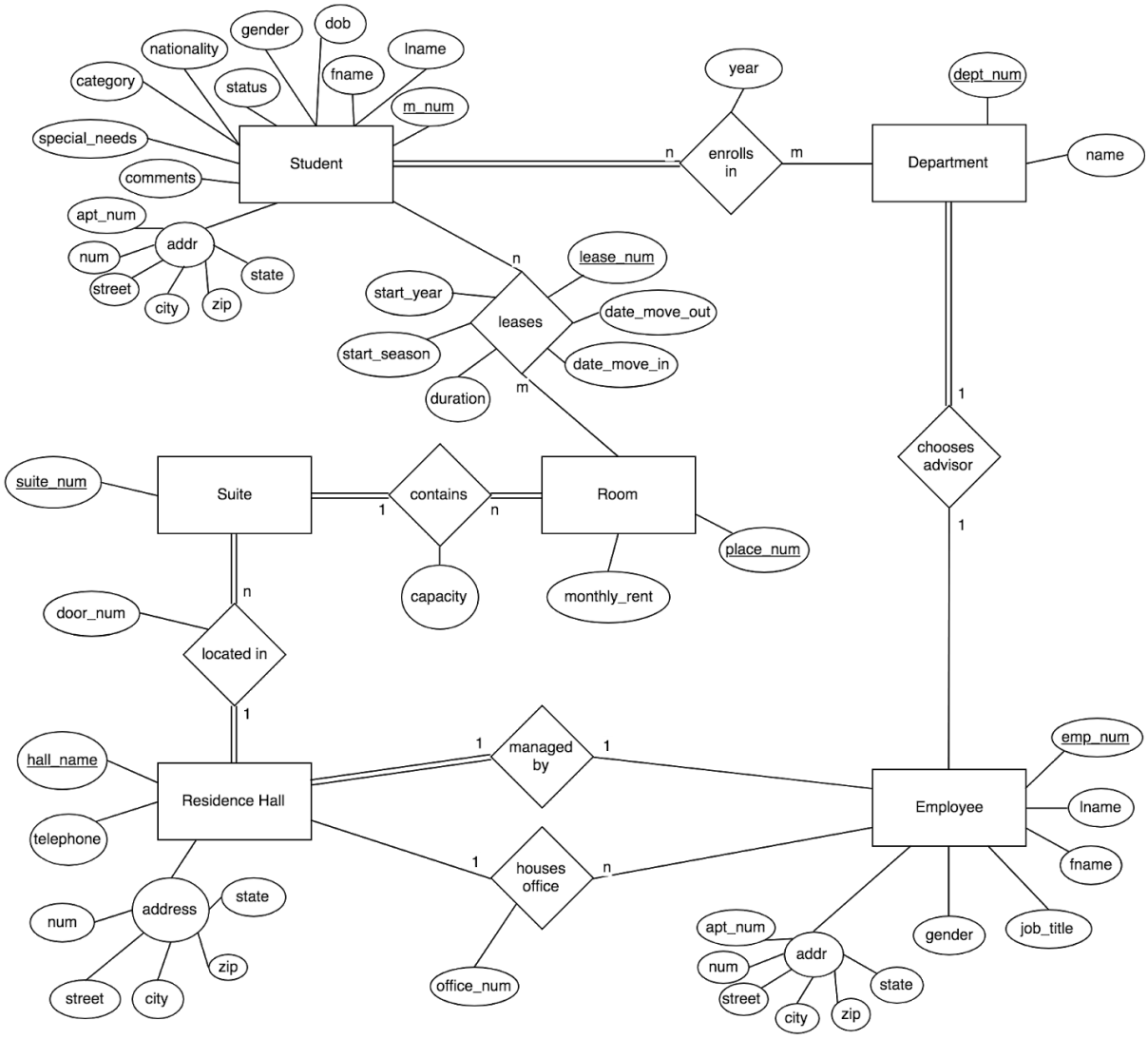
Diagram



Assumptions

Entities and attributes

- All students are from nations that have an assigned ISO 3166-1 alpha-2 code.
- Academic departments have names.
- Just like students' permanent addresses, residence hall addresses need a house number, street name, city, state, and zip code, but they don't need an apartment number.
- Room rental prices are in US Dollars and can be represented using a DECIMAL(10,2) field.
- If a room is leased for multiple semesters, those semesters must be consecutive. We make this assumption so that we can track which semesters a lease is for simply by storing the duration and starting semester (start_year + start_season)
- Just like students' permanent addresses, employee home addresses need a house number, street name, city, state, zip code, and apartment number.

Relationships

- Department academic advisors are university employees, and thus, their contact should be stored in the Employee table instead of in the Department table.
- Each department has only one advisor for all students enrolled in that department.
- Residence hall names are all unique.
- A single room can be represented as a Suite with one Room.
- Because the suite number, door number, and residence number can all be looked up just by knowing the place number of a Room, we don't need to store all these numbers in the Lease relation.

Miscellaneous

- Example query #3 describes calculating total rent over several years. With the way our schema is set up, this query would only be possible to run if we assume that a room's rent never changes. (If this assumption is wrong, then a monthly_rent field would need to be added to the Lease table.)

Work log

Friday, July 20 — 12:50–2:30 — CEAS lounge

- planned out basic schema
- Hayden is going to work on assumptions
- Martina is going to work on ERD diagram

Monday, July 23 — 12:50–3:30 — CEAS lounge

- worked out finer details and made corrections/improvements to schema
- Hayden is going to wrap up assumptions, and help with/look over ERD diagram
- Martina is going to wrap up ERD diagram, and help with/look over assumptions

Tables

Department (dept_num, name, advisor_emp_num)
Student (m_num, fname, lname, addr_num, addr_street, addr_city,
addr_state, addr_zip, addr_apt_num, dob, gender,
nationality, category, special_needs, comments, status)
Enrollment (m_num, dept_num, year)
Residence_hall (hall_name, addr_num, addr_street, addr_city,
addr_state, addr_zip, telephone, hall_manager_emp_num)
Suite (suite_num, hall_name, capacity, door_num)
Room (place_num, suite_num, monthly_rent)
Lease (lease_num, m_num, duration, start_year, start_season,
place_num, date_move_in, date_move_out)
Employee (emp_num, fname, lname, addr_num, addr_street,
addr_city, addr_state, addr_zip, addr_apt_num, gender,
job_title, hall_name, office_num)