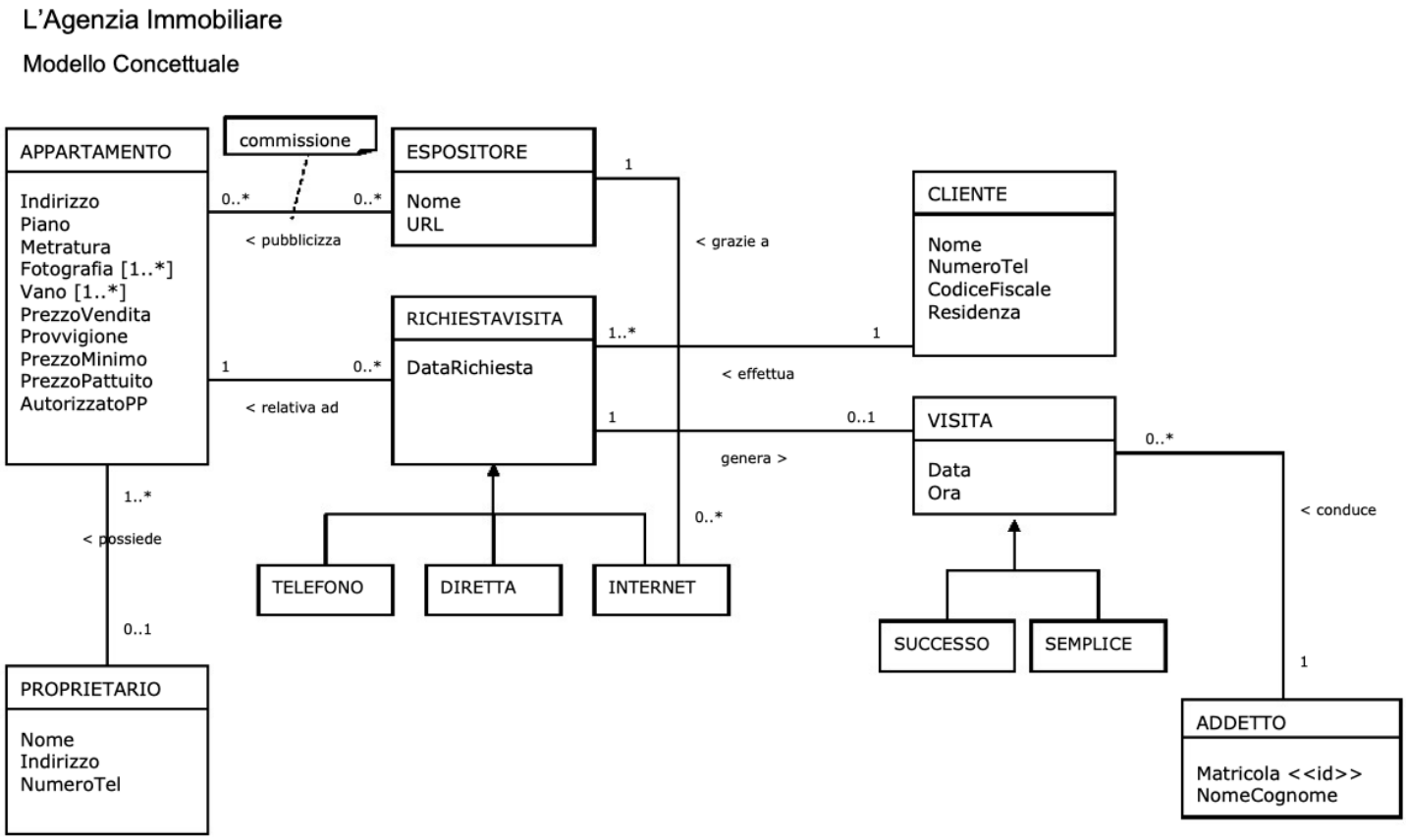
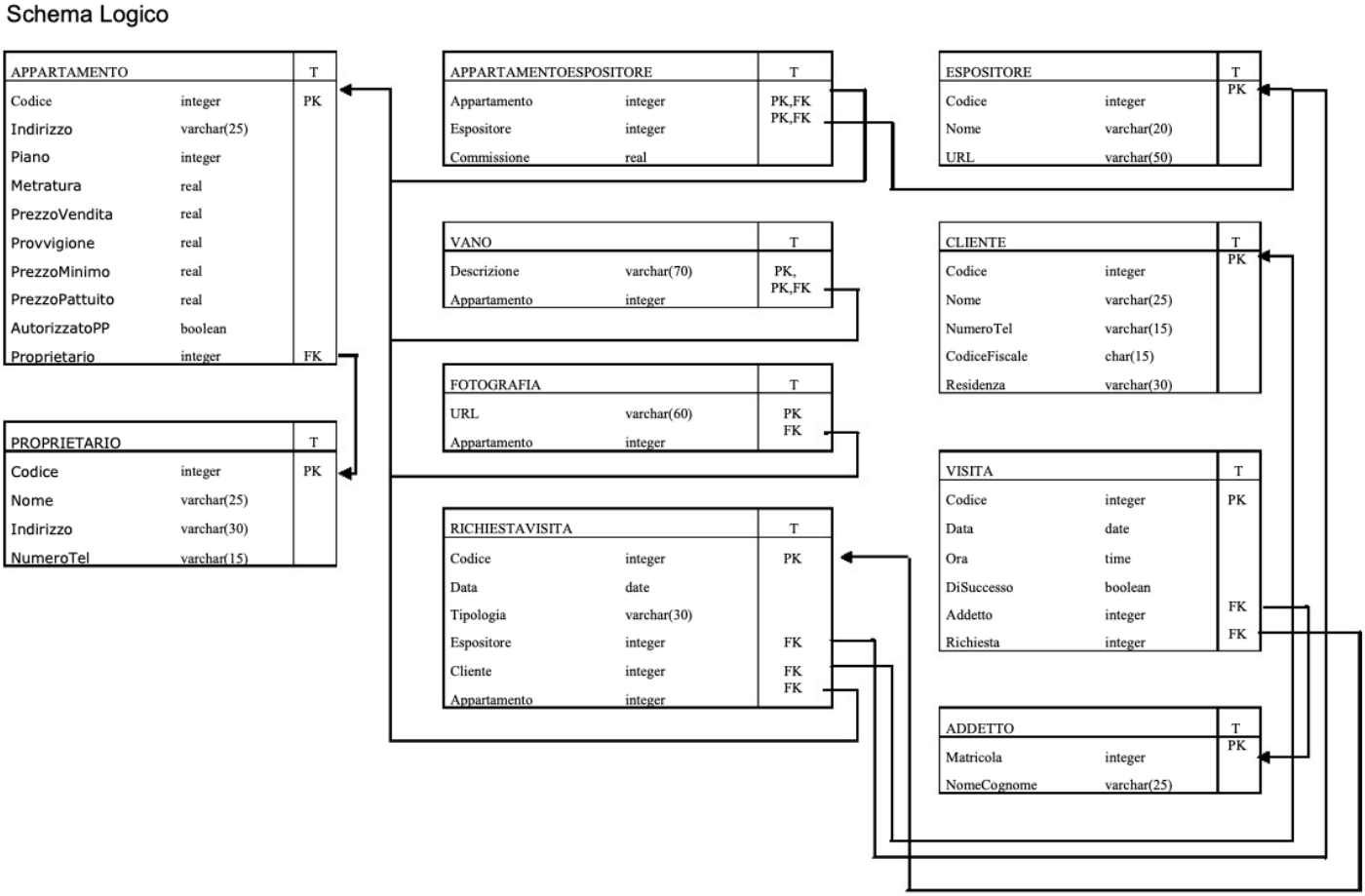
ER-Modelling

A real estate agency sells apartments in town.

For each apartment, the address, the floor, the size, the number and composition of the bedrooms, the sale price, one or more photos and the minimum sale price must be stored in the database. If the apartment has been sold to a private individual, the agreed price must be added, as well as the name, address and telephone number of the buyer. The houses for sale can be posted on the Web on various sites broadcasting advertisements, and, in this case, it is necessary to know the name of the site (the exhibitor), the URL of the advertisement, and the tax paid at the exponent (defined for each apartment independently). The agency receives requests to visit the apartments and its employees schedule appointments. Each visit is made for a potential customer whose name and telephone number must be recorded. To make the visit, you must notify an employee of the agency, who must add a visit to his daily visit plan.

Espostitore -> Exposer
RichiestaVisita -> Visit Request
Addetto -> Employee
Propertiario -> Owner
etc.





Relational Algebra

Movies(**fid**,title,director,year)
Actors(**aid**,name,nationality)
Roles(**fid**,**aid**,character,cost)

- Question 1.1: Find all movie titles.
  - $\pi_{title}(Movies)$
- Question 1.2: Give all the details of the French actors.
  - $\pi_{aid,nom,nationality}(\sigma_{nationality='French'}(Actors))$
- Question 1.3: Give only the names of French artists.
  - $\pi_{na,e}(\sigma_{nationality='French'}(Actors))$
- Question 1.4: Give the titles of the 2014 films.
  - $\pi_{title}(\sigma_{year=2014}(Movies))$
- Question 1.5: Give the titles of films from 2014 or 2013.
  - $\pi_{title}(\sigma_{year=2014 \vee year=2013}(Movies))$
- Question 1.6: Give the names of the French or Italian actors. Find equivalent queries, which produce this list, with different techniques.
  - $\pi_{name}(\sigma_{nationality='French' \vee nationality='French'}(Actors))$
- Question 1.7: Same for the list of French and Italian artists.
  - Impossible, the database does not allow modelling multiple nationalities
- Question 1.8: List the names of active actors (i.e. who have acted in at least one film), using a natural join and a projection.

- $\pi_{name}(Actors \bowtie (\pi_{aid}(Roles)))$
- Question 1.9: Give the list of active actors, with their production cost and the title of the corresponding film.
  - $\pi_{name,title,cost}(Actors \bowtie \pi_{title,cost}(Roles \bowtie Movies))$
- Question 1.10: Find the identifiers of actors whose production cost in each of their roles is less than 50000 euros.
  - $\pi_{aid}(\sigma_{cost<50000}(Actors))$
- Question 1.11: Find the identifiers of films in which the artists of the previous question have acted.
  - $\pi_{fid}(Roles \bowtie \pi_{aid}(\sigma_{cost<50000}(Actors)))$
- Question 1.12: Give the titles of films in which actors have played whose production cost in each of their roles is between 10,000 and 20,000 euros. Hint: Use a compound Boolean expression for the selection condition.
  - $\pi_{title}(\pi_{fid,title}(Movies) \bowtie \pi_{fid}\sigma_{cost>10k \wedge cost<2000}(Roles)$
- Question 1.13: Give the identifiers of films in which French actors act
  - $\pi_{fid}(Roles \bowtie \sigma_{nationality='French'}(Actors))$
  - Question 1.14: In which films (give titles and directors) have only played French actors? Give their credentials.
- Question 1.15: Now give the names of inactive actors.
- Question 1.16: Find the identifiers of artists who have acted in several films. Question 1.17: Find the names of films in which neither French nor Italian actors act.
- Question 1.18: Find the names of the actors who have always played the character Cyrano in their career.
  - Question 1.19: Find for each actor the film in which they played their most profitable role (i.e. with maximum cost).