Parliament elections 1999
Exercise

The context for this assignment is the Parliament elections of October, 10th 1999.

The country is divided in circumscriptions, called district (distrito), though on the islands the circumscription coincides with the region. The parties (partido) present lists (lista) for the circumscriptions where they stand up for election. It is at the district level that the MP mandates are obtained. MP elected by the emigrants are not considered, so the total number of mandates is 226.

However, voting results in parties are recorded with a finer-grain, at the parish (freguesia) level. Parishes belong to municipalities (concelho), which belong to districts (distrito).

The total votings in parties, plus the white (brancos) and null (nulos) votes are the number of voting citizens (votantes). Adding up the abstentions, one gets the enrolled (inscritos). The information on enrolled, abstentions, white and null votes is only known at the district level.

Parties may submit lists just to some districts.

Data model

This database has 7 tables with actual data. (Oracle database, user GTD7)

- The tables **freguesias** (parishes), **concelhos** (municipalities) and **distritos** (districts) are relative to electoral circumscriptions and administrative areas. The region is ('C' - Continent, 'A' - Açores, 'M' - Madeira).

- The table **listas** (candidate lists) has information about the number of mandates obtained by each party (sigla) in the districts (codigo) where it has participated. The value 0 means that the party has presented a list but it got no MP mandate.

- The table **votacoes** (voting) keeps the number of votes received by the party in the parishes.

- The table **participacoes** (participations) contains, for each district, the number of enrolled citizens (inscritos), voting (votantes), abstentions (abstenções), null (nulos) and white (brancos) votes. Note that:

  inscritos = votantes + abstenções

  votantes = soma de votos no distrito + brancos + nulos.

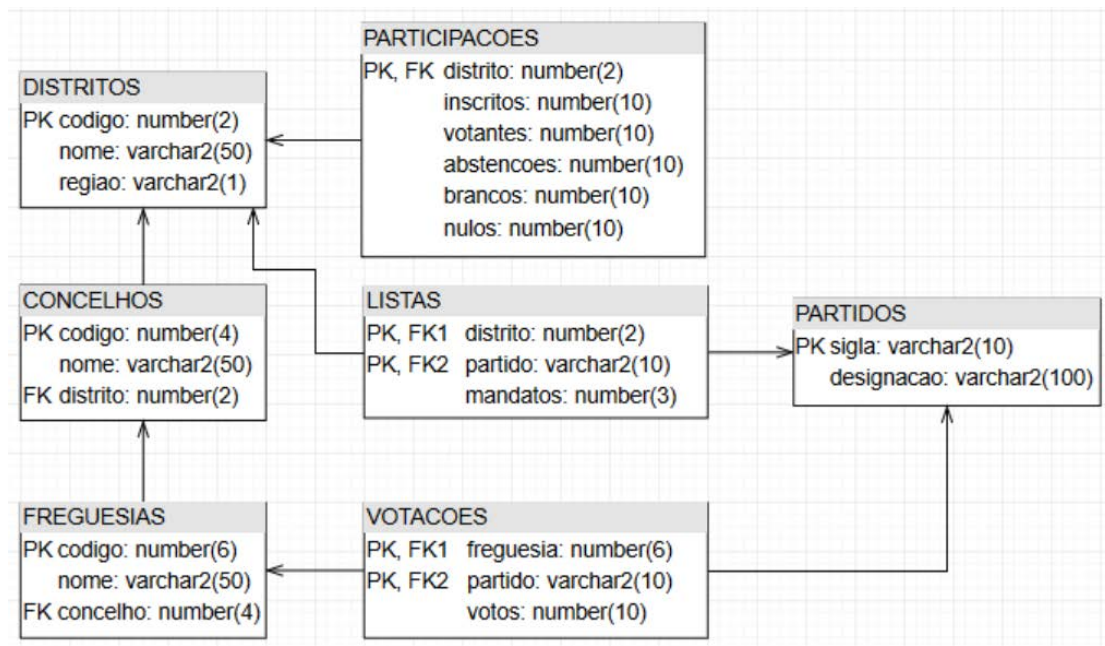- The table **partidos** (parties) records the acronym (sigla) and the designation of the 12 existing parties.

Figure 1: Relational schema.

a) What to do to guarantee that there are no candidates participating in more than one list, on each election? Suppose that the table Listas has one more column named Election and that there is a table of Politicians with a personal ID number, name and date of birth.

Express the following queries in SQL.

b) Calculate the total number of Members of the Parliament that each party has got.

c) In each district, how many votes got each party?

d) Find the names of the districts and the designations of the parties for the cases where the party got an absolute majority in the district (meaning more votes than the sum of the remaining lists).

e) Check whether any district violates the following integrity rule: the sum of the votes in the several lists, the white and the null votes, plus the number of abstentions must equal the number of enrolled citizens.

f) Which are the diferences between the percentages of mandates and of votes for each party at the national level?

g) Which parties got Members of the Parliament in every district?