

Week 4: Language Level Intermediate

Exercises

Exercise 18.1.1

Develop the data definition for classes that represent employees and their project groups. Each employee (identified by a name and year of birth) belongs to one or more project groups, and may be a leader of one or more groups. Each group has a name, one leader, and a list of employees in the group.

Exercise 18.1.2

Develop the data definition for classes that represent the teams in the town youth baseball league. League has a list of teams and a list of coaches. Each team has a name, a coach, a list of players, and the current record of wins and losses. A coach may coach more than one team. For each coach we record the name, phone number, and coach's teams. For each player we need to know the name, year of birth, and the team. Player can be on only one team.

Exercise 21.1.1

Return to the data definition for classes that represent employees and their project groups. Develop the methods to solve the following problems:

1. Determine the size of some group given the list of groups in the company;
2. An employee want to report on the yearly review how many people she supervised;
3. An employee want to know whether he is in the same work group as another employee;
4. An employee wants to know how many people are in all the groups he is assigned to. Make sure everyone is counted only once.

Exercise 21.1.2

Recall the data definition for classes that represent the teams in the town youth baseball league. Develop the methods to solve the following problems:

1. A player wants to know how many people are on his team;
2. A coach want to know how many players are on all her teams;
3. The league wants a list of all the winning teams;
4. The league wants a list of all coaches of winning teams;
5. The league wants to know the total number of players on all teams;
6. A player wants to know whether her friend's team has a better record than her team;
7. A player want to know whether his friend has the same coach as he.