

A school is planning some outdoor pursuits for its students. It wants to create a database of how parents can help. The secretary sets up the database table as in Figure A-1 to keep the information.

last_name	first_name	phone	contribution	contribution2
Smith	Jane	4623598	Food preparation	Driving
Green	Rob	8965431	Transport	
Henry	James	9576342	Camping Gear	Cooking
Wang	Li	9612345	Cooking	

Figure A-1. Initial database table for recording parent contributions

a) What problems can you foresee in making good use of the information in the table in Figure A-1?

The table was probably designed as in Figure A-1 because the school secretary prepared a list of people and asked them to fill in what they could do to help with the school camping trips. However the main use of the data will likely be the other way around—who can provide this help? If you want to find someone to help with driving then you will have to check both columns, so filtering or sorting the table to find the drivers will be difficult. There is also a category or keyword problem. Some people have called their willingness to get the children to a camp “driving,” while others call it “transport.” This makes any automated selection of appropriate people almost impossible. A human would need to check every row.

b) Suggest some better ways that this information could be stored.

One improvement would be to predetermine some categories: transport, provide equipment, and food preparation. A simple spreadsheet or table based on these categories, as shown in Figure A-2, would be much easier to manipulate. For example, some simple filtering of the transport column will find all the drivers very quickly.

last_name	first_name	phone	transport	food_preparation	equipment
Smith	Jane	4623598	Yes	Yes	
Green	Rob	8965431	Yes		
Henry	James	9576342	Yes		
Wang	Li	9612345		Yes	Yes

ure A-2. A spreadsheet or database table using categories

The solution in Figure A-2 is fine if this is all the information the school wants to keep, and that may very well be the case. However, if the school later decides that it wants to elaborate on tasks such as food preparation, or keep dates about availability, then the design will be difficult to amend. We are actually storing information about two things, People and Contributions, and the relationship between them (i.e., who can provide what and possibly when). A solution similar to that proposed in Figure 2-1 for plants and uses would be a more general solution for this problem but it might not be worth the effort. There is always a tension between providing a good, cheap solution for the current problem and providing an extensible design which has the ability to evolve.

a) What problems can you foresee in making good use of the information in the database table in Figure A-3?

week_start	Mon	Tue	Wed	Thur	Fri
17/10/2011	Jane	Sue	George	Sue	Jane
24/10/2011	Jane	Sue	Linda	Sue	Lee
31/10/2011	Sue	Sue	Lee	George	George

A-3. An initial database table to record roster duties

This table is based on a report that the user has envisaged. It will be handy to print out for a given month and place by the phone or on the wall. That is pretty much all it will be useful for, though, and it could just as easily have been written on a piece of paper. One additional piece of information that could be available from this data is a report for each person showing the days on which they are rostered. The data is there but it is not at all easy to extract it with this design. Once again, it is useful to think about the data rather than the output. We are keeping information about two things: people and days, and the relationships between them.

b) Suggest some better ways that this information could be stored.

A table or spreadsheet similar to the one in Figure A-4 would enable many more views of the data. We can filter by name to get the roster for a person or select particular weeks to get the same information, as in Figure A-3.

week_start ▾	day	name
17/10/2011	Mon	Jane
17/10/2011	Tue	Sue
17/10/2011	Wed	George
17/10/2011	Thu	Sue
17/10/2011	Fri	Jane
24/10/2011	Mon	Jane
24/10/2011	Tue	Sue
24/10/2011	Wed	Linda
24/10/2011	Thu	Sue
24/10/2011	Fri	Lee
31/10/2011	Mon	Sue
31/10/2011	Tue	Sue
31/10/2011	Wed	Lee
31/10/2011	Thu	George
31/10/2011	Fri	George

Figure A-4. A more useful way to store data about roster duties

It is not particularly easy to get a report set out exactly as in Figure A-3 from the table in Figure A-4, although the information is all there. So here is the trade off. I really want the table format in Figure A-3, but I'm prepared to compromise on the formatting to get the additional views of the data that Figure A-4 allows.