

1. How many records does the file contain? How many fields are there per record? There are 7 records and each has 5 fields.
2. What problem would you encounter if you wanted to produce a listing by city? How would you solve this problem by altering the file structure? The problem you would encounter would simply be difficulty, the address is contained in one string. Sorting it by a piece isn't as easy because every character is treated the same. I would solve it by having fields for the street address, city, state, and zip. If the city was contained in its own field, it would be far easier to sort the records.
3. If you wanted to produce a listing of the file contents by last name, area code, city, state, or zip code, how would you alter the file structure? Similarly to the question above, I would create a first name, middle initial, and last name field rather than a generalized name field.
4. What data redundancies do you detect? How could those redundancies lead to anomalies? Out of seven records, Holly appears three times and George appears twice. These duplicates can skew sums and provide falsified results when the data is queried. On top of this, if any of their information were to change in the future, all of the other records would need to be changed to match exactly.
5. Identify and discuss the serious data redundancy problems exhibited by the file structure shown in Figure P1.5. The Job Code that correlates with Job Hours appear to have different values. It should be 60, but in two records it is 62 and 26. On top of that, Anne and David each have two records. They are both on two projects, despite needing to keep that separate, all of their other information is a duplication. If an employee were deleted from the table you would lose their project hours which will affect the cost of the project. To combat this, when a Job Hours number is updated, it should update every other item that falls under that Job Code.

11. Using your school's student information system, print your class schedule. The schedule probably would contain the student identification number, student name, class code, class name, class credit hours, class instructor name, the class meeting days and times, and the class room number. Use Figure P1.11 as a template to complete the following actions.

STU ID	STU_NAME	CLASS_CODE	CLASS_NAME	CLASS_CREDHRS	INSTR_NAME	CLASS_DAYS	CLASS_TIMES	ROOM
1	Emily	411	CIS	3	Sundrup	MoWe	5:30-6:45	201
1	Emily	310	CIS	3	Karimi	MoWe	1:00-2:15	008
1	Emily	320	CIS	3	Barker	MoWe	9:30-10:45	008
1	Emily	301	FIN	3	Brandi	MoWe	8:00-9:15	106
1	Emily	404	MGMT	3	Manikas	Distance	Online	N/A
2	Nathan	310	CIS	3	Karimi	MoWe	1:00-2:15	008
2	Nathan	199	CIS	3	Wright	TuTh	4:00-5:15	008
3	Tamia	350	CIS	3	Zurada	MoWe	11:00-12:15	003
3	Tamia	320	CIS	3	Barker	MoWe	9:30-10:45	008

Students will recognize the redundancies within their class data if schedules are stored in this format. Data will be duplicated several times. As long as there are classes with multiple students enrolled and max capacities, almost identical records will be stored. Students will have shared commonalities within their schedules because they are enrolled with others. It is difficult to isolate information when it is frequently repeated. Class information does not need to be repeated, instead, there should be a data table for each class and the records should contain student information.