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Chapter 1 Problems 1-10.

1. How many records does the file contain? How many fields are there per record?

**Ans. The file contains 7 records and there are 5 fields per record.**

1. 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?

**Ans. The city names are listed in the Manager\_address and this would only make writing queries to extract only the city name troublesome. I would solve this problem by creating a separate field for each city.**

1. 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?

**Ans. The best route to take would be to reorganize the way that data has been stored in this database so far. New fields would involve Manager\_firstname, Manager\_lastname, area\_code, city, state, zip\_code. Manager\_firstname and Manager\_lastname can be taken from Project\_Manager and the rest from Manager\_Address and Manager\_Phone.**

1. What data redundancies do you detect? How could those redundancies lead to anomalies?

**Ans. First of all, there are three different occurrences for Manager Holly B. Parker which means that she is the manager for three different departments and George F. Dorts is the manager for 2. If at any point one of these managers changes his or her address or phone number then all occurrences of each of their names has to be updated separately without making any typos.**

1. Identify and discuss the serious data redundancy problems exhibited by the file structure shown in figure P1.5.

**Ans. In the file structure there are more than one record for each client because a new record is created for the person for each project he or she is associated with. The person responsible for maintaining this data would have to be very careful to update each record accordingly. If said person responsible for maintaining this database was to update one record it doesn’t exactly meaning he/she is going to update every record.**

1. Looking at the EMP\_NAME and EMP\_PHONE contents, what change(s) would you recommend?

**Ans. My recommendation would be to break up each field into multiple fields. That is, changing Emp\_name into emp\_firstname and emp\_lastname. I would also organize Emp\_Phone into Emp\_area\_code and emp\_phone.**

1. Identify the various data sources in the file you examined in Problem 5.

**Ans. There is employee data which includes employee name and employee phone number. There is project data which includes the project name, project number, and project hours. There is job data which includes the job code and the job charge per hour.**

1. Given your answer to Problem 7, what new files should you create to help eliminate the data redundancies found in the file shown in Figure P1.5?

**Ans. I would create a new employees file to hold employee data such as employee name, phone number and address and whichever other data is specific to each employee. I would also create a project file to hold the project name, the project manager’s name. I would also create a job file to hold data for job code and the job charge per hour.**

1. Identify and discuss the serious data redundancy problems exhibited by the file structure shown in Figure P1.9. (The file is meant to be used as a teacher class assignment schedule. One of the many problems with data redundancy is the likely occurrence of data inconsistencies—two different initials have been entered for the teacher named Maria Cordoza.)

**Ans. Data redundancy in figure P1.9 whenever anything in the database needs to be updated with the teacher named Maria Cordoza. Her name occurs three times and one of those entries has a wrong initial which whenever queries are to be ran against the database, data inconsistencies will occur once her name is involved.**

1. Given the file structure shown in Figure P1.9, what problem(s) might you encounter if building KOM were deleted?

**Ans. First of all you would lose all the data about rooms 34, 204E and room 123. You would also lose assignment data on teachers Hawkins, Cordoza and Williston.**