***CIS 310 - Assignment 1***

*Due: Jan 17 before 1pm*

*Finish Exercises 1-4 on page 33*

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Given the file structure shown in Figure P1.1, page 32, answer Problems 1–4:

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

The file contains 7 records, 21-5Z through 31-7P. Each record contains 5 fields, PROJECT\_CODE through PROJECT\_BID\_PRICE.

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?**

There is no field in the raw data for city listings. To solve this problem a field for cities should be added. The city is referenced within the complete address which makes it difficult to produce a listing when there are many records. To solve this problem we can split MANAGER\_ADDRESS into 4 fields such as MANAGER\_ADDRESS, MANAGER\_STATE, MANAGER\_CITY and MANAGER\_ZIP.

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?**

In order to produce a listing by last name separately one must break the field into 2 such as PROJECT\_MANAGER\_FIRST and PROJECT\_MANAGER\_LAST, by dividing MANAGER\_ADDRESS into its component parts such as MANAGER\_STREET, MANAGER\_CITY, MANAGER\_STATE, and MANAGER\_ZIP we can easily select records on the basis of ZIP, city names and states.

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

The same name, phone and address are mentioned more than once creates a redundancy within the table and when mentioned in more than one table. Redundancies can lead to anomalies which can cause an error message when trying to view the document. Assume one makes a change to the last name of Holly B. Parker because she got married but forgot to change it in all fields and tables; this could cause many problems within the company itself and the database.