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CISD 40
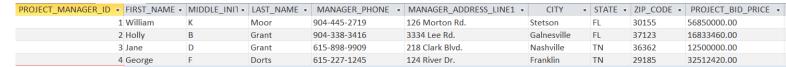
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<div align="center">Chapter 1 - Problems</div>

1. How many records does the file contain? How many fields are there per record?
    a. The file contains 7 records, and 5 Fields in each record.

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?
    a. The MANAGER_ADDRESS is not broken up by address line, city, state, and zip so you cannot create a listing by city easily. You would need to modify the table to look like this

PROJECT_CODE	PROJECT_MANAGER	MANAGER_PHONE	MANAGER_ADDRESS_LINE1	CITY	STATE	ZIP_CODE	PROJECT_BID_PRICE
21-5Z	Holly B. Grant	904-338-3416	3334 Lee Rd.	Galnesville	FL	37123	16833460.00
25-2D	Jane D. Grant	615-898-9909	218 Clark Blvd.	Nashville	TN	36362	12500000.00
25-5A	George F. Dorts	615-227-1245	124 River Dr.	Franklin	TN	29185	32512420.00
25-9T	Holly B. Grant	904-338-3416	3334 Lee Rd.	Galnesville	FL	37123	21563234.00
27-4Q	George F. Dorts	615-227-1245	124 River Dr.	Franklin	TN	29185	10314545.00
29-2D	Holly B. Grant	904-338-3416	3334 Lee Rd.	Galnesville	FL	37123	25559999.00
31-7P	William K Moor	904-445-2719	126 Morton Rd.	Stetson	FL	30155	56850000.00

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?
    a. Create a new table for PROJECT_MANAGER that has PROJECT_MANAGER_ID, FIRST_NAME, MIDDLE_INITIAL, LAST_NAME, PHONE_NUMBER, ADDRESS_LINE, CITY, STATE, and ZIP_CODE that looks like the one bellow.

PROJECT_MANAGER_ID	FIRST_NAME	MIDDLE_INIT	LAST_NAME	MANAGER_PHONE	MANAGER_ADDRESS_LINE1	CITY	STATE	ZIP_CODE	PROJECT_BID_PRICE
1	William	K	Moor	904-445-2719	126 Morton Rd.	Stetson	FL	30155	56850000.00
2	Holly	B	Grant	904-338-3416	3334 Lee Rd.	Galnesville	FL	37123	16833460.00
3	Jane	D	Grant	615-898-9909	218 Clark Blvd.	Nashville	TN	36362	12500000.00
4	George	F	Dorts	615-227-1245	124 River Dr.	Franklin	TN	29185	32512420.00

4. What data redundancies do you detect? How could those redundancies lead to anomalies?
    a. Project managers are in that table multiple times, so there could be issues with the phone number, or address being wrong on one of those records. So those project managers should only appear once (like the table above).

5. Identify and discuss the serious data redundancy problems exhibited by the file structure shown in Figure P1.5.
    a. There are different job charges per hour for the same job code. There also are multiple instances of the same EMP_NAME.