The ABC Car Service & Repair Centers are owned by the Silent Car Dealership; ABC services and repairs only silent cars. Three ABC centers provide service and repair for the entire state.   
  
Each of the three centers is independently managed and operated by a shop manager, a receptionist, and at least eight mechanics. Each center maintains a fully stocked parts inventory.   
  
Each center also maintains a manual file system in which each car's maintenance history is kept: repairs made, parts used, costs, service dates, owner, and so on. Files are also kept to track inventory, purchasing, billing, employees' hours, and payroll. You have been contacted by one of the center's managers to design and implement a computerized database system. Given the preceding information, complete A through F below. Once you have completed answering the questions, save your file with your last name in the file name.

1. Indicate the most appropriate sequence of activities by labeling each of the following steps in the correct order. (e.g., if you think that “Load the database” is the appropriate first step, label it “1.”)

\_\_\_\_\_\_7\_\_\_\_\_ Normalize the conceptual model.

\_\_\_\_\_1\_\_\_\_\_\_ Obtain a general description of company operations.

\_\_\_\_\_10\_\_\_\_\_\_ Load the database.

\_\_\_\_\_5\_\_\_\_\_\_ Create a description of each system process.

\_\_\_\_\_11\_\_\_\_\_\_ Test the system.

\_\_\_\_\_\_4\_\_\_\_\_ Draw a data flow diagram and system flowcharts.

\_\_\_\_\_6\_\_\_\_\_\_ Create a conceptual model using ER diagrams.

\_\_\_\_\_\_9\_\_\_\_\_ Create the application programs.

\_\_\_\_\_3\_\_\_\_\_\_ Interview the mechanics.

\_\_\_\_\_\_8\_\_\_\_\_ Create the file (table) structures.

\_\_\_\_\_2\_\_\_\_\_\_ Interview the shop manager.

1. Describe the various modules that you believe the system should include.

A Payroll module to keep employee payroll information. A Work module that keeps track of a cars maintenance history. A Customer module to keep customer information like balance, billing address, etc. and an Inventory module that keeps quantities for parts.

1. How will a data dictionary help you develop the system? Give examples.

By defining the datatypes used to store data you can streamline the database creation process especially in a relational database. The way a data dictionary does this is by having a pre-determined data type and constraint for each attribute which allows for easy referencing and consistency in the database.

1. What general (system) recommendations might you make to the shop manager? What benefits would be derived from such an integrated system? Include several general recommendations.

A major benefit would be easy access to data on inventory, customers, vehicles, and expenses as well as having the records being accessed be significantly more efficiently stored and accessed.

1. What is the best approach to conceptual database design? Why?

The best approach for making this design would be a centralized approach. You shouldn’t need anymore than a small centralized group to fully flesh out the system. Make sure to leave it as a primarily modular system to allow for growth and change.

1. Name and describe at least four reports the system should have. Explain their use. Who will use those reports?

Customer activity report which basically just shows customer traffic in a designated time period. People with authority for designating work hours for employees would find this helpful for scheduling the proper amount of employees for the predicted traffic.

Inventory report that brings back current part quantities and reservations. Managers and Logistics personnel will find this useful for balancing stock between multiple locations.

Expense report that displays total amount spent on labor, materials, and property for the pay period. Executives will find this beneficial for figuring out their companies growth and overall revenue as well as ways to cut cost.

Active Work report that shows the work on vehicles that is currently in progress. Lower level managers will find this useful to keeping efficiency at its peak by focusing on projects that are currently pending.