**Project Chapter 2 - Applying Planning Techniques to The Friendly’s Car Dealership Project**

**2.1 Designing the Data Dictionary for The Friendly’s Car Dealership**

The following chapter contains the user-oriented data dictionary, consisting of an alphabetical list of every data item referenced in any input document, report or transaction, and an informal definition for each term. The user-oriented data dictionary for The Art Gallery is as follows:

**bankAddress** The mailing address of a bank listed for credit application in order to finance a vehicle of the car dealership.

**bankAccountNum** The customer account number of a bank listed for credit application in order to finance a vehicle of the car dealership.

**bankCity** The city of a bank listed for credit application in order to finance a vehicle of the car dealership.

**bankManager** The manager of customer account number of a bank listed for credit application in order to finance a vehicle of the car dealership.

**bankPhone** The telephone number of a bank listed for credit application in order to finance a vehicle of the car dealership.

**bankReference** The name of a bank listed for credit application in order to finance a vehicle of the car dealership.

**bankStreet** The street and number of a bank listed for credit application in order to finance a vehicle of the car dealership.

**bankZip** The postal zip code of a bank listed for credit application in order to finance a vehicle of the car dealership.

**buyerAddress** The mailing address of a buyer of a vehicle of the car dealership.

**buyerCity** The city of the mailing address of a buyer of a vehicle of the car dealership.

**buyerDateOfBirth** The date of birth of a buyer of a vehicle of the car dealership.

**buyerDriversLicenseNum** The driver’s license number of a buyer of a vehicle of the car dealership.

**buyerEmail** The email of a buyer of a vehicle of the car dealership.

**buyerEmployerCity** The city of the mailing address of the employer of a buyer of a vehicle of the car dealership.

**buyerEmployerState** The state of the mailing address of the employer of a buyer of a vehicle of the car dealership.

**buyerEmployerStreet** The street and number of the mailing address of the employer of a buyer of a vehicle of the car dealership.

**buyerEmployerZip** The postal zip code of the mailing address of the employer of a buyer of a vehicle of the car dealership.

**buyerFirstName** The first name of a buyer of a vehicle of the car dealership.

**buyerLastName** The last name of a buyer of a vehicle of the car dealership.

**buyerMonthlyIncome** The monthly income of a buyer of a vehicle of the car dealership who wants financing.

**buyerPhone** The complete telephone number of a buyer of a vehicle of the car dealership.

**buyerPosition** The position of a buyer of a vehicle of the car dealership who wants financing.

**buyerProfEmployer** The name of employer of a buyer of a vehicle of the car dealership who wants financing.

**buyerSex** The sex of a buyer of a vehicle of the car dealership.

**buyerSocialSecurityNumber** The social security number of a buyer of a vehicle of the car dealership.

**buyerState** The state of the mailing address of a buyer of a vehicle of the car dealership.

**buyerStreet** The house number and street of the mailing address of a buyer of a vehicle of the car dealership.

**buyerYearsThere** The number of year in the company name of a buyer of a vehicle of the car dealership who wants financing.

**buyerZip** The postal zip code of the buyer of a vehicle of the car dealership.

**creditApplicationDate** The date of a credit application form was filled up by a customer.

**customerAddress** The mailing address of a potential customer of the car dealership.

**customerCity** The city of the mailing address of a potential customer of the car dealership.

**customerDateFilledIn** The date a customer information form was filled in.

**customerDateOfBirth** The date of birth of a potential customer of the car dealership.

**customerEmail** The email of a potential customer of the car dealership.

**customerFirstName** The first name of a potential customer of the car dealership.

**customerLastName** The last name of a potential customer of the car dealership.

**customerPhone** The complete telephone number of a potential customer of the car dealership.

**customerReference** The name of a customer that referenced a potential customer of the car dealership.

**customerSalesperson** The name of a salesperson who greeted a potential customer of the car dealership.

**customerSex** The sex of a potential customer of the car dealership.

**customerState** The state of the mailing address of a potential customer of the car dealership.

**customerStreet** The house number and street of the mailing address of a potential customer of the car dealership.

**customerZip** The postal zip code of the mailing address of a potential customer of the car dealership.

**inventoryReportByMonth** The inventory of the car dealership for a period of month.

**inventoryReportByYear** The inventory of car dealership for a period of year.

**inventoryReportNewByMonth** The inventory of new cars of the car dealership for a period of month.

**inventoryReportNewByYear** The inventory of new cars car dealership for a period of year.

**inventoryReportUsedByMonth** The inventory of used cars of the car dealership for a period of month.

**inventoryReportUsedByYear** The inventory of used cars of car dealership for a period of year.

**licenseApplicationDate** The date of application for a license plate to a vehicle sold by car dealership.

**preferredCarMake** The preferred car make chosen as a preference by a potential customer of the car dealership.

**preferredCarModel** The preferred car model chosen as a preference by a potential customer of the car dealership.

**preferredCarColor** The preferred car color chosen as a preference by a potential customer of the car dealership.

**preferredCarNewOrUsed** The preferred car status of new or used chosen as a preference by a potential customer of the car dealership.

**purchasesLastMonth** The total dollar amount of vehicles sales during the entire previous month.

**purchasesLastMonthByMake** The total dollar amount of vehicles sales by make during the entire previous month.

**purchasesLastMonthByNew** The total dollar amount of new vehicles sales by make during the entire previous month.

**purchasesLastMonthByUsed** The total dollar amount of used vehicles sales by make during the entire previous month.

**purchasesLastYear** The total dollar amount of vehicles sales during the entire previous year.

**purchasesLastYearByMake** The total dollar amount of vehicles sales by make during the entire previous year.

**purchasesLastYearByNew** The total dollar amount of new vehicles sales by make during the entire previous year.

**purchasesLastYearByUsed** The total dollar amount of used vehicles sales by make during the entire previous year.

**referralCustomerAddress** The mailing address of a referral customer of the car dealership.

**referralCustomerCity** The city of the mailing address of a referral customer of the car dealership.

**referralCustomerDateReceived** The date a customer referral form was received.

**referralCustomerEmail** The email of a referral customer of the car dealership.

**referralCustomerFirstName** The first name of a referral customer of the car dealership.

**referralCustomerLastName** The last name of a referral customer of the car dealership.

**referralCustomerPhone** The complete telephone number of a referral customer of the car dealership.

**referralCustomerSalesperson** The name of a salesperson who received a customer referral form of the car dealership.

**referralCustomerState** The state of the mailing address of a referral customer of the car dealership.

**referralCustomerStreet** The house number and street of the mailing address of a referral customer of the car dealership.

**referralCustomerZip** The postal zip code of the mailing address of a referral customer of the car dealership.

**saleDate** The date a vehicle was sold by the car dealership.

**saleFinanceInform** The information of financing payment for a sale of a vehicle.

**saleInvoiceNumber** The number printed on the invoice for a sale of a vehicle.

**saleLicenseFee** The dollar amount of sales license fee for the sale of a vehicle.

**saleLoanAmount** The dollar amount of loan conceded to a finance for the sale of a vehicle.

**saleLoanPayment** The method of payment for a loan conceded to a finance for the sale of a vehicle.

**saleLoanRate** The rate of a loan conceded to a finance for the sale of a vehicle.

**saleLoanTotalAmount** The total dollar amount to be paid to a finance for the sale of a vehicle.

**salePaymentForm** The form of payment for a sale of a vehicle.

**salePrice** The price at which a vehicle was sold by the car dealership.

**salePriceTotal** The total dollar amount of a sale of a vehicle, including price, tax and license fee.

**saleSalespersonCommission** The dollar amount of commission for a salesperson for the sale of a vehicle.

**saleSalespersonName** The first and last name of the salesperson who sold a vehicle.

**saleTax** The dollar amount of sales tax for the sale of a vehicle.

**saleTradeinPrice** The dollar amount of a trade-in used vehicle for the sale of a new vehicle.

**saleVehicleInsuranceCompany** The company of insurance of a vehicle sold by car dealership.

**saleVehicleInsuranceExpDate** The expiration date if a policy of a vehicle sold by car dealership.

**saleVehicleInsuranceIssDate** The issue date if a policy of a vehicle sold by car dealership.

**saleVehicleInsurancePolicy** The number of insurance policy of a vehicle sold by car dealership.

**saleVehicleLicensePlate** The license plate of a vehicle sold by car dealership.

**saleVehicleWarranty** The warranty of a vehicle sold by car dealership.

**salespersonAddress** The mailing address of a salesperson of the car dealership.

**salespersonCity** The city of the mailing address of a salesperson of the car dealership.

**salespersonCommissionForMonth** The total dollar amount of commission earned by a salesperson for a specific month.

**salespersonCommissionForYear** The total dollar amount of commission earned by a salesperson for a specific year.

**salespersonDateofAdmission** The date of admission of a salesperson of the car dealership.

**salespersonDateOfBirth** The date of birth of a salesperson of the car dealership.

**salespersonEmail** The email of a salesperson of the car dealership.

**salespersonFirstName** The first name of a salesperson of the car dealership.

**salespersonLastName** The last name of a salesperson of the car dealership.

**salespersonPhone** The complete telephone number of a salesperson of the car dealership.

**salespersonSocialSecurityNumber** The social security number of a salesperson of the car dealership.

**salespersonSex** The sex of a salesperson of the car dealership.

**salespersonState** The state of the mailing address of a salesperson of the car dealership.

**salespersonStreet** The house number and street of the mailing address of a salesperson of the car dealership.

**salespersonTotalSalesForMonth** The total dollar amount of sales, not including tax, made by a salesperson during a specific month.

**salespersonTotalSalesForYear** The total dollar amount of sales, not including tax, made by a salesperson during a specific year.

**salespersonZip** The postal zip code of the mailing address of a salesperson of the car dealership.

**sellerAddress** The mailing address of the seller of a vehicle of the car dealership.

**sellerCity** The city of the mailing address of the seller of a vehicle of the car dealership.

**sellerDateOfBirth** The date of birth of a seller of a vehicle of the car dealership.

**sellerEmail** The email of a seller of a vehicle of the car dealership.

**sellerFirstName** The given first name that the seller of a vehicle of the car dealership.

**sellerLastName** The last (family) name of the seller of a vehicle of the car dealership.

**sellerPhone** The complete telephone number of the seller of a vehicle of the car dealership.

**sellerSex** The sex of a buyer of a vehicle of the car dealership.

**sellerSocialSecurityNumber** The social security number of the seller of a vehicle of the car dealership.

**sellerState** The state of the mailing address of the seller of a vehicle of the car dealership.

**sellerStreet** The house number and street of the mailing address of the seller of a vehicle of the car dealership.

**sellerZip** The postal zip code of the mailing address of the seller of a vehicle of the car dealership.

**vehicleCapacity** The capacity of a vehicle of the car dealership.

**vehicleColor** The color of a vehicle of the car dealership.

**vehicleCostOfAcquisition** The cost of acquisition of a vehicle of the car dealership.

**vehicleDateOfAcquisition** The date of acquisition of a vehicle of the car dealership.

**vehicleDateOfDelivery** The date of delivery of a vehicle of the car dealership.

**vehicleDateOfManufacture** The date of manufacture of a vehicle of the car dealership.

**vehicleMake** The make of a vehicle of the car dealership.

**vehicleMileage** The mileage of a vehicle of the car dealership.

**vehicleMileageAtDelivery** The mileage at delivery of a vehicle of the car dealership.

**vehicleModel** The model of a vehicle of the car dealership.

**vehicleNewOrUsed** The status of new or used of a vehicle of the car dealership.

**vehicleNumOfCylinders** The number of cylinders of a vehicle of the car dealership.

**vehicleNumOfDoors** The number of doors of a vehicle of the car dealership.

**vehicleOptional** The optional of a vehicle of the car dealership.

**vehiclePlaceOfManufacture** The place of manufacture of a vehicle of the car dealership.

**vehiclePrice** The sales price of a vehicle of the car dealership.

**vehicleVIN** The VIN of a vehicle of the car dealership.

**vehicleWeight** The weight of a vehicle of the car dealership.

**vehicleYear** The year of a vehicle of the car dealership.

**Step 2.2 - Modify the List of Assumptions as needed**

The list of assumptions in the Friendly’s Car Dealership database is mentioned below. It’s the same as in Step 1.4. Also a few more assumptions are added. It includes the following:

1. A customer can be an individual, a business, an organization, a group, or other such entity.

2. Names of customers are not unique, but names of salespeople are unique.

3. The same customer may purchase several cars, possibly from different salespeople.

4. Some customers, such as religious organizations, are tax exempt, so no tax is charged on their car purchases.

5. All addresses consist of street, city, state, and zip code.

6. All telephone numbers consist of area code and number.

7. The used cars for sale in the dealership are those that are traded in by customers buying new cars.

8. When a car is sold, it may or may not be financed.

9. Options are features that a new car has when it is delivered from the manufacturer, such as sun roof, air conditioning, and so on. A car may have several optional features.

10. The cost of options is included in the manufacturer’s list price.

11. Customization refers to items that are added at the dealership at the time of sale, such as an alarm system, undercoating, and so on. A car may be given several custom items.

12. Each custom item has an associated price.

13. The book value of a used car is determined by a standard publication such as the Kelley Blue Book, available to the dealership. The actual cost may differ from the book value.

14. When a trade-in vehicle is accepted, its VIN is immediately entered into the inventory of used cars. Other information about the car is entered later.

15. We are assuming that the dealer can obtain and issue registration numbers and license plates as needed. (We note that this process may be more complex in real life.)

16. The exact mileage at the time of sale must be recorded on the bill of sale, for both new and used cars.

17. The salesperson is evaluated monthly in order to determine if they are returning expectations of the dealership.

18. A vehicle can be sold for a price less than the price sticker but Jim must approve it.

19. Payment for all sales is made by check, credit card, cash, bank transfer, or through financing by the dealership or private bank.

**Step 2.3 - Write out a cross-reference table, showing what data items appear on what forms, reports, or transactions**

The cross-reference table for Friendly’s Car Dealership appears in the spreadsheet file called *FigureS2.1CRT-FriendlyCarDealership.xlsx* file stored in this directory. A portion of the table is shown below but not entirely because of its size as it is shown in Figure S.2.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Document or Form on Which Item Appears** | | | | | | | | | | | | | | | | | | |
|  |  |  | CustomerInfo | CustomerRef | SalespersonInfo | VehicleInfo | SalesInfo | MailingInfo | LicenseApp | CustomerCredApp | SalesPerf | SalesPerPerf | SalesPerfMake | SalesPerfUsed | SalesPerfNew | Inventory | InvUsed | InvNew |
| **Item** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| bankAddress |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| bankAccountNum |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| bankCity |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| bankManager |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| bankPhone |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| bankReference |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| bankStreet |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| bankZip |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerAddress |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerCity |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerDateOfBirth |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerDriversLicenseNum |  |  |  |  |  |  |  |  | X | X |  |  |  |  |  |  |  |  |
| buyerEmail |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerEmployerCity |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerEmployerState |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerEmployerStreet |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerEmployerZip |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerFirstName |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerLastName |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerMonthlyIncome |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerPhone |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerPosition |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerProfEmployer |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerSex |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerSocialSecurityNumber |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerState |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerStreet |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| buyerYearsThere |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| buyerZip |  |  |  |  |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| creditApplicationDate |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| customerAddress |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerCity |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerDateFilledIn |  |  | X | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| customerDateOfBirth |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerEmail |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerFirstName |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerLastName |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerPhone |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerReference |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| customerSalesperson |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| customerSex |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerState |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerStreet |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| customerZip |  |  | X | X |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| inventoryReportByMonth |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |
| inventoryReportByYear |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |
| inventoryReportNewByMonth |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |
| inventoryReportNewByYear |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |
| inventoryReportUsedByMonth |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |
| inventoryReportUsedByYear |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |
| licenseApplicationDate |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| preferredCarMake |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| preferredCarModel |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| preferredCarColor |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| preferredCarNewOrUsed |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| purchasesLastMonth |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |
| purchasesLastMonthByMake |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |
| purchasesLastMonthByNew |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |
| purchasesLastMonthByUsed |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |
| purchasesLastYear |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |
| purchasesLastYearByMake |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |
| purchasesLastYearByNew |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |
| purchasesLastYearByUsed |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |
| referralCustomerAddress |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerCity |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerDateReceived |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerEmail |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerFirstName |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerLastName |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerPhone |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerSalesperson |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerState |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerStreet |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| referralCustomerZip |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| saleDate |  |  |  |  |  |  | X |  |  |  | X | X | X | X | X |  |  |  |
| saleFinanceInform |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| saleInvoiceNumber |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| saleLicenseFee |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| saleLoanAmount |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| saleLoanRate |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| saleLoanTotalAmount |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| salePaymentForm |  |  |  |  |  |  | X |  |  | X |  |  |  |  |  |  |  |  |
| salePrice |  |  |  |  |  |  | X |  | X |  | X | X | X | X | X |  |  |  |
| salePriceTotal |  |  |  |  |  |  | X |  |  | X |  |  |  |  |  |  |  |  |
| saleSalespersonCommission |  |  |  |  |  |  | X |  |  |  | X | X | X | X | X |  |  |  |
| saleSalespersonName |  |  |  |  |  |  | X |  |  |  | X | X | X | X | X |  |  |  |
| saleTax |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| saleTradeinPrice |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| saleVehicleInsuranceCompany |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| saleVehicleInsuranceExpDate |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| saleVehicleInsuranceIssDate |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| saleVehicleInsurancePolicy |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| saleVehicleLicensePlate |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| saleVehicleWarranty |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| salespersonAddress |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonCity |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonCommissionForMonth |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonCommissionForYear |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonDateOfAdmission |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonDateOfBirth |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonEmail |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonFirstName |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonLastName |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonPhone |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonSocialSecurityNumber |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonSex |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonState |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonStreet |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| salespersonTotalSalesForMonth |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |
| salespersonTotalSalesForYear |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |
| salespersonZip |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| sellerAddress |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerCity |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerDateOfBirth |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerEmail |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerFirstName |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerLastName |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerPhone |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerSex |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerSocialSecurityNumber |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerState |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerStreet |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| sellerZip |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |
| vehicleCapacity |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleColor |  |  |  |  |  | X | X |  | X | X | X | X | X | X | X | X | X | X |
| vehicleCostOfAcquisition |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleDateOfAcquisition |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleDateOfDelivery |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleDateOfManufacture |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleMake |  |  |  |  |  | X | X |  | X | X | X | X | X | X | X | X | X | X |
| vehicleMileage |  |  |  |  |  | X | X |  | X | X |  |  |  |  |  | X | X | X |
| vehicleMileageAtDelivery |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleModel |  |  |  |  |  | X | X |  | X | X | X | X | X | X | X | X | X | X |
| vehicleNewOrUsed |  |  |  |  |  | X |  |  |  |  | X | X | X | X | X | X | X | X |
| vehicleNumOfCylinders |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleNumOfDoors |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleOptional |  |  |  |  |  | X | X |  | X | X |  |  |  |  |  |  |  |  |
| vehiclePlaceOfManufacture |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehiclePrice |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  | X | X | X |
| vehicleVIN |  |  |  |  |  | X | X |  | X | X | X | X | X | X | X | X | X | X |
| vehicleWeight |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicleYear |  |  |  |  |  | X | X |  | X | X | X | X | X | X | X | X | X | X |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Figure S.2.1**  Cross-Reference Table for Friendly's Car Dealership | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Step 2.4 - Create a project management chart using either Gantt or PERT format:**

The chart below shows a detailed description on the tasks and deadlines of each group member.