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IS 475-1001

12/01/21

<div align="center">Project Report</div>

# I.    Business Problems

After careful consideration, the firm decided that one of the most significant business difficulties the company is experiencing is organizational uncertainty and a lack of adequate inventory management. Furthermore, clients are not obtaining rapid and effective service in the current business operations, which has reduced customer satisfaction and business revenues as well due to declining customer supply.
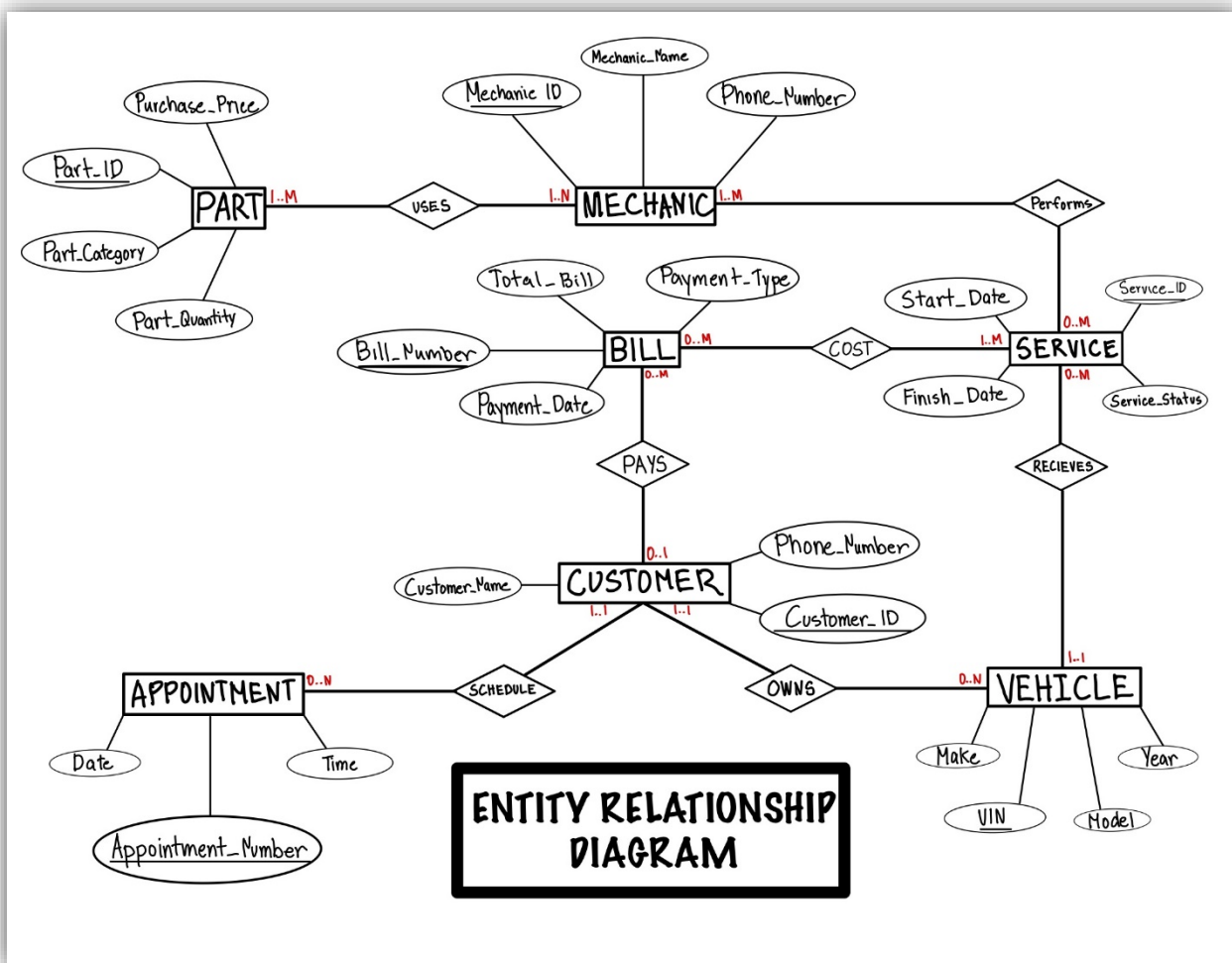
Following the examination of last year's business income statement, balance sheet, and cash flow, we feel the source of our business problems is confusion inside the routine business activities. First, we discovered that most of our customers' appointments are either delayed or clash with another customer's appointment due to miscommunications or other underlying issues. Following that, the mechanics inside the organization are unable to perform in the most efficient and effective manner. This might be because the parts needed for their service are out of stock due to inadequate inventory management. The parts that were utilized were not documented; therefore, the company does not know what components need to be bought due to the increased demand. These issues have an impact on both customers and the business since the services requested by the client are not being provided on time. This causes client discontent, which together leads to fewer customers and lower total business income. Due to the lack of a comprehensive database within the organization, the firm cannot efficiently and effectively input needed information such as customer and business data. Overall, this can impede the firm from studying patterns that it is currently experiencing or may encounter in the future, which is critical in assisting the organization in adapting and evolving for future endeavors.

# II.    Business Rules

     *a.* A customer can have as many as zero vehicles or many vehicles; however, only one vehicle will be assigned to the customer with the service.

     *b.* A customer can schedule as many as zero appointments or many appointments, but again, that specific date and time will only be assigned to that customer.

     *c.* A vehicle brought in for service can receive zero repairs if no repairs or services are necessary, or the vehicle may be serviced many times.

     *d.* A customer may pay no bills if no service or repair was done on their vehicle, or the customer may pay multiple bills if many repairs and services were made on the vehicle.

e. A mechanic may service as many as zero vehicles if no service is needed, or a mechanic can perform many different repairs. The service or repair is specifically assigned to one mechanic; however, this does not mean other mechanics cannot help with the repair. The responsibility is solely on the mechanic assigned to the service.

f. A mechanic may use as many as zero parts for the service if no parts are needed, but they can use as many parts required to complete the service.
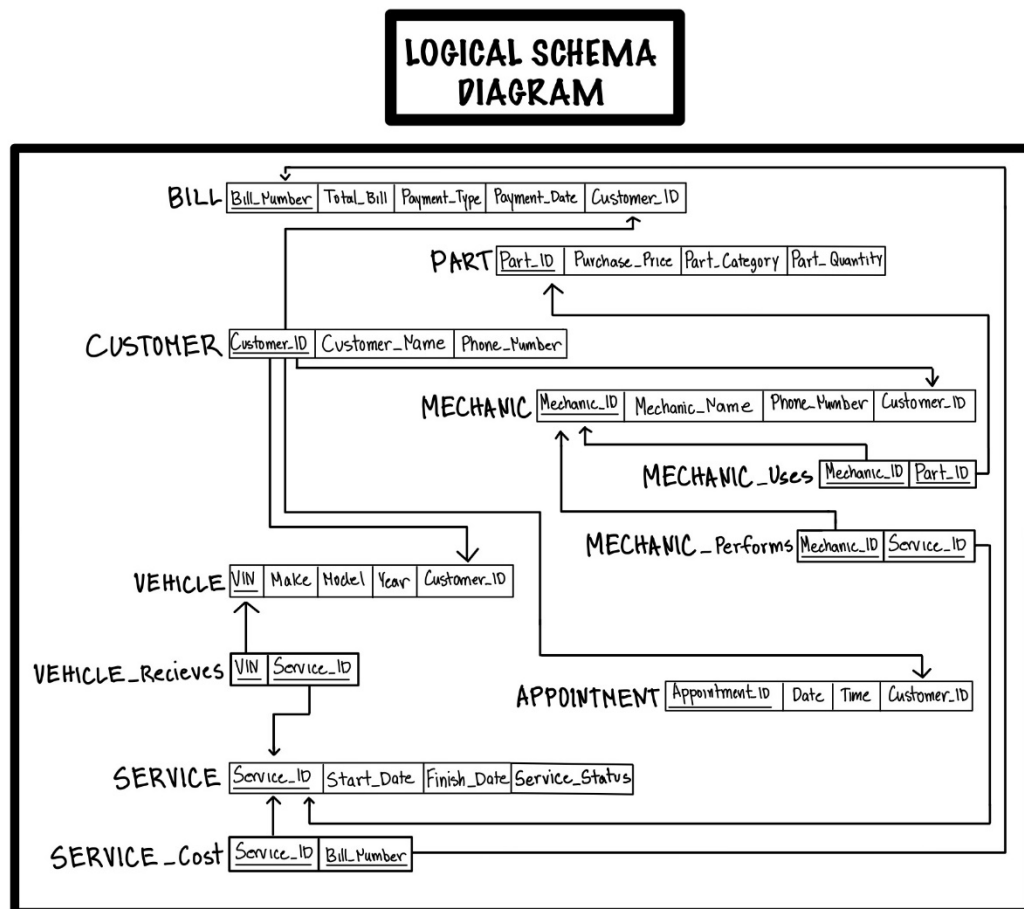
## III. Conceptual Design



ENTITY RELATIONSHIP DIAGRAM

- **Customer**: A customer will be required to provide their full name, phone number, and they will be assigned a unique customer identification number.
- **Appointment**: A customer is given a unique appointment number, date, and time when they book an appointment for vehicle service.

- **Vehicle**: Required to record the make, model, year, and unique VIN of a customer's vehicle(s).
- **Service**: The service for a specific vehicle will have a service id, the start of the service, date the service is finished, and the service status.
- **Mechanic**: Required to provide their full name, phone number, and they will be assigned a unique mechanic identification number.
- **Part**: Required to record the type of part used, the unique part identification number, what category of the part was used, and the purchase price for the part used in the service.
- **Bill**: Will record the payment type, the payment date, unique bill number, and total bill.

# IV.  *Logical Design*

## V. *Table Structure*

### Table: Customer

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Customer_ID | Customer ID | Char | 15 | | Y | |
| Customer_Name | First Name/Last Name | Varchar | 20 | NN | | |
| Telephone_Number | Customer Phone Number | Char | 13 | | | |

```
CREATE TABLE Customer (
        Customer_ID char(15) PRIMARY KEY,
        Customer_Name varchar (20) NOT NULL,
        Telephone_Number char(13)
);
```

The customer table allows the business to store the customer's name which cannot be empty, their phone number, and customers will be assigned their own customer ID.

### Table: Appointment

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Appt_Number | Appointment Number | Char | 10 | | Y | |
| Customer_ID | Customer ID | Char | 15 | | | Customer(Customer_ID) |
| App_Time | Appointment Time | Varchar | 20 | NN | | |
| App_Date | Appointment Date | Date | | NN | | |

The appointment table allows the business to store the customers appointment date and time. Each appointment will also have a designated appointment number.

```
CREATE TABLE appointment(
        Appt_Number char(10) PRIMARY KEY,
        Customer_ID char(15),
        Appt_Date date NOT NULL,
        Appt_Time varchar(20) NOT NULL,
        FOREIGN KEY (customer_id) REFERENCES customer(customer_id)
);
```

### Table: Vehicle

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| VIN | Vehicle Vin Number | Char | 17 | | Y | |
| Customer_ID | Customer ID | Char | 15 | | | Customer(Customer_ID) |
| Model | Vehicle Model | Varchar | 20 | NN | | |
| Year | Vehicle Year | Char | 5 | NN | | |
| Make | Vehicle Make | Varchar | 20 | NN | | |

```
CREATE TABLE Vehicle(
        VIN char(17) PRIMARY KEY,
        Customer_ID char(15),
        Make varchar(20) NOT NULL,
        Model varchar(20) NOT NULL,
        Year char(5),
        FOREIGN KEY (customer_id) REFERENCES customer(Customer_ID)
);
```

The vehicle table allows the business to store a customer's vehicle information such as the make, model, year, as well as the VIN numbers each vehicle has.

## Table: Vehicle_Receives

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| VIN | Vehicle Vin Number | Char | 17 | | | Vehicle(Vin) |
| Service_ID | Service ID | Varchar | 15 | | | Service(Service_ID) |

```
CREATE TABLE vehicle_receives(
        VIN char(17),
        Service_ID varchar(15),
        FOREIGN KEY (vin) REFERENCES vehicle(vin),
        FOREIGN KEY (service_ID) REFERENCES service(service_ID)
);
```

.

## Table: Bill

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Bill_Number | Bill Number | Varchar | 20 | | Y | |
| Customer_ID | Customer ID | Char | 15 | | | Customer(Customer_ID) |
| Payment_Type | Payment Type Used | Varchar | 15 | NN | | |
| Total_Bill | Total Bill | Decimal | 7,2 | NN | | |
| Payment_Date | Payment Bill Paid | Date | | NN | | |

The bill table allows the business to store billing information such as the payment date, the type of payment, the total bill, and the bill number for the customer.

```
CREATE TABLE bill(
        Bill_Number varchar(20) PRIMARY KEY,
        Customer_ID char(15),
        Payment_Date date NOT NULL,
        Payment_Type varchar(15) NOT NULL,
        Total_Bill decimal(7,2) NOT NULL,
        FOREIGN KEY (customer_id) REFERENCES customer(Customer_ID)
);
```

## Table: Service

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Service_ID | Service ID | Varchar | 15 | | Y | |
| Mechanic_ID | Mechanic ID | Varchar | 15 | | | Mechanic(Mechanic_ID) |
| VIN | Vehicle Vin Number | Char | 17 | | | Vehicle(VIN) |
| Start_Date | Service Start Date | Date | | NN | | |
| Finish_Date | Service Finish Date | Date | | | | |
| Service_Status | Status of Service | Varchar | 15 | NN | | |

```
CREATE TABLE IF NOT EXISTS service(
        Service_ID varchar(15) PRIMARY KEY,
        Mechanic_ID varchar(15),
        VIN char(17),
        Start_Date date NOT NULL,
        Finish_Date date,
        Service_Status varchar (15) NOT NULL DEFAULT 'incomeplete',
        FOREIGN KEY (mechanic_id) references mechanic(mechanic_id),
        FOREIGN KEY (vin) references vehicle(vin)
);
```

The service table allows the business to store the start and finish date of the service on a certain vehicle, the service status, and the service id. A particular mechanic is assigned to each vehicle for service.

## Table: Service_Cost

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Service_ID | Service ID | Varchar | 17 | | | Service(Service_ID) |
| Bill_Number | Customer Bill Number | Varchar | 20 | | | Bill(Bill_Number) |

```
CREATE TABLE service_cost(
        Service_ID varchar(15),
        Bill_Number varchar(20),
        FOREIGN KEY (service_id) REFERENCES service(service_id),
        FOREIGN KEY (bill_number) REFERENCES bill(bill_number)
);
```

## Table: Mechanic

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Customer_ID | Customer ID | Char | 15 | | | Customer(Customer_ID) |
| Mechanic_ID | Mechanic ID | Varchar | 15 | | Y | |
| Mechanic_Name | Mechanics Name | Varchar | 20 | NN | | |
| Phone_Number | Mechanics Phone Number | Char | 13 | NN | | |

The mechanic table allows the business to store the mechanics full name, their phone number, and the mechanics id. Each mechanic is assigned to a customer's vehicle.

```
CREATE TABLE mechanic (
        Customer_ID char(15),
        Mechanic_ID varchar(15) PRIMARY KEY,
        Mechanic_Name varchar(20) NOT NULL,
        Phone_Number char(13) NOT NULL,
        FOREIGN KEY (customer_id) REFERENCES customer(Customer_ID)
);
```

## Table: Mechanic_Uses

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Mechanic_ID | Mechanic ID | Varchar | 15 | | | Mechanic(Mechanic_ID) |
| Part_ID | Parts ID | Varchar | 15 | | | Part(Part_ID) |

```
CREATE TABLE mechanic_uses (
        Mechanic_ID varchar(15),
         Part_ID varchar(15),
        FOREIGN KEY (mechanic_id) references mechanic(mechanic_id),
        FOREIGN KEY (part_id) references part(part_id)
);
```

## Table: Mechanic_Performs

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Mechanic_ID | Mechanic ID | Varchar | 15 | | | Mechanic(Mechanic_ID) |
| Service_ID | Service ID | Varchar | 15 | | | Service(Service_ID) |

```
CREATE TABLE mechanic_performs(
        Mechanic_ID varchar(15),
        Service_ID varchar(15),
        FOREIGN KEY (mechanic_id) references mechanic(mechanic_id),
        FOREIGN KEY (service_id) references service(service_id)
);
```

## Table: Part

| Column | Description | Data Type | Length | Null | PK | FK |
|---|---|---|---|---|---|---|
| Part_ID | Part ID | Varchar | 15 | | Y | |
| Mechanic_ID | Mechanic ID | Varchar | 15 | | | Mechanic(Mechanic_ID) |
| Part_Category | The Parts Category | Varchar | 25 | NN | | |
| Part_Quantity | Quantity of Parts Bought | Varchar | 10 | NN | | |
| Purchase_Price | Price Parts Were Bought | Decimal | 7,2 | | | |

```
CREATE TABLE part(
        Part_ID varchar(15) PRIMARY KEY,
        Mechanic_ID varchar(15),
        Part_Category varchar(25) NOT NULL,
        Part_Quantity varchar(10) NOT NULL,
        Purchase_Price decimal(7,2),
        FOREIGN KEY (mechanic_id) references mechanic(mechanic_id)
);
```

The part table allows the business to store the type of general part used/needed for the service, the quantity, the purchase price for the parts, and the part id. The mechanics are the ones to determine what parts are needed to complete their service.

# VII.   Queries

*Data Tables with 50 Records*

**Customer Table**

| Customer_ID | Customer_Name | Telephone_Number |
|---|---|---|
| C-01 | Nanine Coenraets | (699) 3284252 |
| C-02 | Shantee Glynne | (763) 3162634 |
| C-03 | Nevin Cudbird | (664) 5402420 |
| C-04 | Ceciley Lanceley | (160) 2435327 |
| C-05 | Rollie Roskams | (506) 1493502 |
| C-06 | Currie Bugbee | NULL |
| C-07 | Colly Devitt | (125) 6761053 |
| C-08 | Zachariah Vankeev | (944) 7952010 |
| C-09 | Gustie Imbrey | (739) 1650288 |
| C-10 | Annemarie Hearons | (916) 7929168 |
| C-11 | Hedvig Mathison | (389) 6684803 |
| C-12 | Eduardo Spaducci | (400) 6040298 |
| C-13 | Crawford Thorold | (952) 4442341 |
| C-14 | Gertrudis Buckner | (892) 4766599 |
| C-15 | Humfrey O'Hickey | (794) 7628848 |
| C-16 | Jourdan Wescott | (697) 4159094 |
| C-17 | Ruth Domanek | (993) 7283035 |
| C-18 | Julissa Klimentov | (115) 2144328 |
| C-19 | Solly Rousell | (902) 4708587 |
| C-20 | Bendicty Neesham | (603) 6039443 |
| C-21 | Broddie Westman | (678) 3713279 |
| C-22 | Rodolphe Lashbrook | (270) 1243189 |
| C-23 | Reggis Glanvill | (918) 7516640 |
| C-24 | Zarla Phebey | (172) 9696078 |
| C-25 | Kizzie Wooddisse | (578) 8599274 |
| C-26 | Cahra Avrahamov | (840) 4519950 |
| C-27 | Bogart Northeast | (844) 7118974 |
| C-28 | Derry Pinnijar | (367) 3793505 |
| C-29 | Ashleigh Wortt | (388) 5051959 |
| C-30 | Roby Pavlenkov | (517) 6680585 |
| C-31 | Gaby Aim | (512) 1158937 |
| C-32 | Britte Grout | (327) 6112310 |
| C-33 | Patricio Dispencer | (548) 1354186 |
| C-34 | Lulu McPhilemy | (945) 3625899 |
| C-35 | June Roxbrough | (988) 3724252 |
| C-36 | Robena Gerlts | (263) 4537200 |
| C-37 | Randy Wykes | (832) 2475524 |
| C-38 | Cariotta Fleeming | (911) 4105619 |
| C-39 | Berke Skurm | (770) 6615595 |
| C-40 | Arney Grzesiewicz | (299) 6350412 |
| C-41 | Leicester Alvin | (479) 5852377 |
| C-42 | Vidovik Casone | (300) 8812537 |
| C-43 | Devinne Gowler | NULL |
| C-44 | Katrinka Kenway | (856) 3769725 |
| C-45 | Conny Giacomuzzo | (763) 8342338 |
| C-46 | Early Tidbold | (661) 3181209 |
| C-47 | Rogerio Batha | (594) 6499436 |
| C-48 | Orly Creeber | (279) 2273969 |
| C-49 | Lawry Goodbody | (587) 8400596 |
| C-50 | Tobias Marryatt | (913) 4533087 |

**Appointment**

| Appt_Number | Customer_ID | Appt_Date | Appt_Time |
|---|---|---|---|
| A-01 | C-01 | 2021-06-15 | 12:21 PM |
| A-02 | C-02 | 2021-04-28 | 10:57 AM |
| A-03 | C-03 | 2021-06-30 | 3:28 PM |
| A-04 | C-04 | 2021-02-13 | 2:03 PM |
| A-05 | C-05 | 2021-02-22 | 11:03 AM |
| A-06 | C-06 | 2021-09-15 | 3:21 PM |
| A-07 | C-07 | 2021-02-26 | 10:44 AM |
| A-08 | C-08 | 2021-06-11 | 12:30 PM |
| A-09 | C-09 | 2021-11-07 | 2:14 PM |
| A-10 | C-10 | 2021-10-12 | 12:57 PM |
| A-11 | C-11 | 2021-10-16 | 4:42 PM |
| A-12 | C-12 | 2021-10-06 | 1:30 PM |
| A-13 | C-13 | 2021-11-28 | 1:28 PM |
| A-14 | C-14 | 2021-10-03 | 1:32 PM |
| A-15 | C-15 | 2021-04-13 | 3:13 PM |
| A-16 | C-16 | 2021-01-25 | 10:12 AM |
| A-17 | C-17 | 2021-02-24 | 4:33 PM |
| A-18 | C-18 | 2021-04-24 | 2:27 PM |
| A-19 | C-19 | 2021-05-12 | 2:22 PM |
| A-20 | C-20 | 2021-08-18 | 4:21 PM |
| A-21 | C-21 | 2021-04-24 | 1:59 PM |
| A-22 | C-22 | 2021-01-25 | 4:42 PM |
| A-23 | C-23 | 2021-09-02 | 12:05 PM |
| A-24 | C-24 | 2021-07-17 | 11:11 AM |
| A-25 | C-25 | 2021-10-18 | 11:30 AM |
| A-26 | C-26 | 2021-10-04 | 10:12 AM |
| A-27 | C-27 | 2021-11-20 | 12:56 PM |
| A-28 | C-28 | 2021-07-23 | 12:38 PM |
| A-29 | C-29 | 2021-11-25 | 12:09 PM |
| A-30 | C-30 | 2021-09-18 | 1:14 PM |
| A-31 | C-31 | 2021-10-23 | 5:06 PM |
| A-32 | C-32 | 2021-06-06 | 2:29 PM |
| A-33 | C-33 | 2021-10-06 | 4:22 PM |
| A-34 | C-34 | 2021-03-17 | 5:29 PM |
| A-35 | C-35 | 2021-08-23 | 2:42 PM |
| A-36 | C-36 | 2021-11-12 | 4:28 PM |
| A-37 | C-37 | 2021-01-16 | 9:30 AM |
| A-38 | C-38 | 2021-10-24 | 10:39 AM |
| A-39 | C-39 | 2021-05-06 | 5:24 PM |
| A-40 | C-40 | 2021-03-12 | 4:35 PM |
| A-41 | C-41 | 2021-08-01 | 10:23 AM |
| A-42 | C-42 | 2021-03-26 | 11:06 AM |
| A-43 | C-43 | 2021-04-24 | 3:21 PM |
| A-44 | C-44 | 2021-04-09 | 9:55 AM |
| A-45 | C-45 | 2021-01-10 | 1:29 PM |
| A-46 | C-46 | 2021-11-05 | 1:49 PM |
| A-47 | C-47 | 2021-03-02 | 12:36 PM |
| A-48 | C-48 | 2021-11-09 | 2:15 PM |
| A-49 | C-49 | 2021-03-16 | 3:14 PM |
| A-50 | C-50 | 2021-08-22 | 11:59 AM |

**Vehicle Table**

| VIN | Customer_ID | Make | Model | Year |
|---|---|---|---|---|
| WAUVC68E42A107501 | C-01 | Mercede... | SLR McLaren | 2008 |
| 1GYS4CEF6BR511619 | C-02 | Mercede... | C-Class | 1997 |
| 1G6DC5EY0B0788692 | C-03 | BMW | 750 | 2006 |
| 3D7LP2ET1AG409537 | C-04 | Buick | Roadmaster | 1995 |
| 1FTSW2B51AE060852 | C-05 | Infiniti | QX56 | 2007 |
| WAUGL68E95A637492 | C-06 | BMW | M5 | 2000 |
| 3D73M4EL7AG269742 | C-07 | Pontiac | Bonneville | 1995 |
| 1N6AD0CU0CN046195 | C-08 | Lincoln | Blackwood | 2003 |
| JN1CV6EK5BM624676 | C-09 | Oldsmobile | 98 | 1992 |
| WBAGL63584D028463 | C-10 | Dodge | Ram 3500 Club | 1996 |
| 5GADV23L36D759491 | C-11 | Ford | Escort | 1990 |
| JM1BL1H43A1257081 | C-12 | Hyundai | Elantra | 2013 |
| SCFFDCCD1AG171400 | C-13 | Jeep | Wrangler | 2006 |
| WP0AA2A96ES584006 | C-14 | Chevrolet | Camaro | 1975 |
| KMHHT6KD3EU102529 | C-15 | Subaru | Tribeca | 2010 |
| WBABS53471E812234 | C-16 | Mercury | Lynx | 1987 |
| 5NPDH4AE7CH330687 | C-17 | Toyota | Corolla | 1995 |
| 3VWKX7AJ1AM661259 | C-18 | Suzuki | X-90 | 1998 |
| 1FAHP2DW0AG257716 | C-19 | Mazda | Navajo | 1991 |
| 2C3CDXBG2EH966569 | C-20 | Toyota | Camry | 2001 |
| 1G6AB5SAXE0703763 | C-21 | Acura | CL | 2001 |
| 3FA6P0SU3FR598685 | C-22 | Audi | A8 | 2011 |
| 2T1BURHE9EC507932 | C-23 | Chevrolet | Silverado 3500 | 2007 |
| 1GYS3PKJ2FR233584 | C-24 | Toyota | T100 | 1998 |
| 1G6AK5S31D0247846 | C-25 | Nissan | Maxima | 1993 |
| 1N6AF0KY5EN169914 | C-26 | Mitsubishi | GTO | 1993 |
| 5J6TF2H59EL253132 | C-27 | Saab | 9-3 | 2007 |
| WDDGF5EB1AA785926 | C-28 | Hyundai | Elantra | 1998 |
| VNKKTUD39FA642450 | C-29 | Audi | TT | 2001 |
| 1GYS3BEF4CR652106 | C-30 | Chevrolet | Suburban 2500 | 1995 |
| 4T1BD1FK3DU703999 | C-31 | Ford | Explorer | 2003 |
| 2G61LS531F9133450 | C-32 | Oldsmobile | 88 | 1999 |
| SALFP2BN3BH556844 | C-33 | Chrysler | 300M | 2000 |
| 1GYUCHEF2AR127960 | C-34 | Chevrolet | 1500 | 1996 |
| WBSPM9C54AE332793 | C-35 | Toyota | Solara | 2004 |
| WBAVB73568V221887 | C-36 | Oldsmobile | Silhouette | 1999 |
| WDDGF5EB0AF166768 | C-37 | Audi | TT | 2001 |
| WVGFF9BP8BD152008 | C-38 | Kia | Rio | 2003 |
| WBA3V7C58FP073712 | C-39 | Chevrolet | Monte Carlo | 1998 |
| WAUEFAFL0FN178933 | C-40 | Pontiac | Grand Prix | 1994 |
| WAUVC58E63A098666 | C-41 | Ford | Bronco II | 1986 |
| JTHFF2C24D2799002 | C-42 | Mazda | 626 | 1994 |
| 1GYS3DEF1ER988116 | C-43 | Mercury | Mystique | 1999 |
| WAUCFAFR3EA282799 | C-44 | Mitsubishi | Galant | 1984 |
| 5FRYD4H60FB092372 | C-45 | Honda | Accord Crosst... | 2010 |
| JH4CU4F41BC696693 | C-46 | Isuzu | Trooper | 2000 |
| 1C4RDJAG1EC717428 | C-47 | Acura | Integra | 2000 |
| 2D4RN4DG0BR493424 | C-48 | BMW | X5 | 2008 |
| 1C4RDJEG7DC388632 | C-49 | Mazda | Mazda3 | 2009 |
| 1G6KE57Y93U706080 | C-50 | Ford | Crown Victoria | 1997 |

-The eleven tables displayed above have each been loaded with 50 records.

-These tables enable the firm to keep track of each client, their matching vehicle(s), their appointment with the company, the service, the mechanic assigned to a customer's vehicle, the parts used by the technician, and the bill the customer will pay for the service.

-The null values in the service table simply shows that the vehicle service has not yet been completed and therefore there are no values assigned to the finish date.

-The null values in the part table are an example of not properly recording how much the business has spent on those parts that was purchased. This can make it difficult for the company to know whether they are undercharging or overcharging on their vehicle services.

**Bill Table**

| Bill_Number | Customer_ID | Payment_Date | Payment_Type | Total_Bill |
|---|---|---|---|---|
| B-0001 | C-01 | 2021-06-15 | visa | 313.72 |
| B-0002 | C-02 | 2021-04-28 | mastercard | 3997.54 |
| B-0003 | C-03 | 2021-06-30 | visa | 1066.69 |
| B-0004 | C-04 | 2021-02-13 | bankcard | 3639.37 |
| B-0005 | C-05 | 2021-02-22 | visa | 927.42 |
| B-0006 | C-06 | 2021-09-15 | mastercard | 336.69 |
| B-0007 | C-07 | 2021-02-26 | americanexpress | 193.06 |
| B-0008 | C-08 | 2021-06-11 | bankcard | 3179.74 |
| B-0009 | C-09 | 2021-11-07 | americanexpress | 594.82 |
| B-0010 | C-10 | 2021-10-12 | bankcard | 3003.75 |
| B-0011 | C-11 | 2021-10-16 | mastercard | 1444.12 |
| B-0012 | C-12 | 2021-10-06 | jcb | 735.85 |
| B-0013 | C-13 | 2021-11-28 | visa | 335.52 |
| B-0014 | C-14 | 2021-10-03 | bankcard | 39.19 |
| B-0015 | C-15 | 2021-04-13 | mastercard | 359.54 |
| B-0016 | C-16 | 2021-01-25 | jcb | 1008.27 |
| B-0017 | C-17 | 2021-02-24 | jcb | 522.00 |
| B-0018 | C-18 | 2021-04-24 | visa | 728.32 |
| B-0019 | C-19 | 2021-05-12 | americanexpress | 3815.31 |
| B-0020 | C-20 | 2021-08-18 | americanexpress | 132.33 |
| B-0021 | C-21 | 2021-04-24 | bankcard | 1142.34 |
| B-0022 | C-22 | 2021-01-25 | jcb | 1389.89 |
| B-0023 | C-23 | 2021-09-02 | bankcard | 599.68 |
| B-0024 | C-24 | 2021-07-17 | jcb | 222.92 |
| B-0025 | C-25 | 2021-10-18 | mastercard | 2589.28 |
| B-0026 | C-26 | 2021-10-04 | bankcard | 2371.48 |
| B-0027 | C-27 | 2021-11-20 | jcb | 40.41 |
| B-0028 | C-28 | 2021-07-23 | jcb | 382.81 |
| B-0029 | C-29 | 2021-11-25 | americanexpress | 350.85 |
| B-0030 | C-30 | 2021-09-18 | americanexpress | 838.94 |
| B-0031 | C-31 | 2021-10-23 | americanexpress | 2853.30 |
| B-0032 | C-32 | 2021-06-06 | bankcard | 3772.38 |
| B-0033 | C-33 | 2021-10-06 | mastercard | 64.27 |
| B-0034 | C-34 | 2021-03-17 | bankcard | 3756.34 |
| B-0035 | C-35 | 2021-08-23 | mastercard | 738.97 |
| B-0036 | C-36 | 2021-11-12 | bankcard | 130.31 |
| B-0037 | C-37 | 2021-01-16 | americanexpress | 3091.99 |
| B-0038 | C-38 | 2021-10-24 | visa | 954.88 |
| B-0039 | C-39 | 2021-05-06 | americanexpress | 2192.68 |
| B-0040 | C-40 | 2021-03-12 | americanexpress | 368.53 |
| B-0041 | C-41 | 2021-08-01 | visa | 99.67 |
| B-0042 | C-42 | 2021-03-26 | visa | 3210.61 |
| B-0043 | C-43 | 2021-04-24 | bankcard | 921.60 |
| B-0044 | C-44 | 2021-04-09 | americanexpress | 961.11 |
| B-0045 | C-45 | 2021-01-10 | jcb | 1996.38 |
| B-0046 | C-46 | 2021-11-05 | americanexpress | 659.93 |
| B-0047 | C-47 | 2021-03-02 | mastercard | 78.74 |
| B-0048 | C-48 | 2021-11-09 | jcb | 352.64 |
| B-0049 | C-49 | 2021-03-16 | visa | 1056.83 |
| B-0050 | C-50 | 2021-08-22 | bankcard | 210.22 |

**Mechanic Table**

| Customer_ID | Mechanic_ID | Mechanic_Name | Phone_Number |
|---|---|---|---|
| C-01 | M-001 | Iosep Titchmarsh | (191) 6330240 |
| C-02 | M-002 | Ivie Goodrich | (501) 8640713 |
| C-03 | M-003 | Marley Gabey | (184) 8469584 |
| C-04 | M-004 | Sarge Blowin | (108) 5019874 |
| C-05 | M-005 | Ginnie Paradin | (605) 2159905 |
| C-06 | M-006 | Krystalle Shale | (314) 4622514 |
| C-07 | M-007 | Neil Redsell | (103) 6067554 |
| C-08 | M-008 | Cybil Ferrier | (678) 1152259 |
| C-09 | M-009 | Jo-ann Swinyard | (390) 8086496 |
| C-10 | M-010 | Tibold Knotton | (687) 6704021 |
| C-11 | M-011 | Josy Haslam | (215) 1145018 |
| C-12 | M-012 | Edwin Gerrad | (354) 3049683 |
| C-13 | M-013 | Alameda Benoix | (707) 7842215 |
| C-14 | M-014 | Beckie Rains | (132) 9314106 |
| C-15 | M-015 | Lizabeth Pickton | (862) 8780383 |
| C-16 | M-016 | Wood Haliday | (868) 5315837 |
| C-17 | M-017 | Rosaline Simka | (533) 4717422 |
| C-18 | M-018 | Staci McGrae | (530) 8142947 |
| C-19 | M-019 | Meghann Gaize | (696) 6098340 |
| C-20 | M-020 | Larry Gridley | (437) 7837064 |
| C-21 | M-021 | Wendy Lively | (227) 8600153 |
| C-22 | M-022 | Cody Kmicicki | (729) 9005474 |
| C-23 | M-023 | Willi Hadkins | (824) 7439455 |
| C-24 | M-024 | Ottilie Aldrich | (366) 5382836 |
| C-25 | M-025 | Belinda Virr | (705) 6835795 |
| C-26 | M-026 | Shannon Craker | (961) 6565237 |
| C-27 | M-027 | Kandace Ord | (986) 9196335 |
| C-28 | M-028 | Gibb Couchman | (311) 7002018 |
| C-29 | M-029 | Hastings Bolzmann | (895) 5408182 |
| C-30 | M-030 | Madelene Hesey | (973) 8755695 |
| C-31 | M-031 | Ezra Herion | (467) 2962517 |
| C-32 | M-032 | Cammy Andreas... | (811) 3420851 |
| C-33 | M-033 | Angelia Samsin | (597) 4546805 |
| C-34 | M-034 | Lena Gianasi | (429) 3564136 |
| C-35 | M-035 | Lydia Vegas | (233) 8163357 |
| C-36 | M-036 | Cammy Leyninye | (803) 1189454 |
| C-37 | M-037 | Trent Crinage | (832) 9749056 |
| C-38 | M-038 | Prent Brannan | (588) 9626937 |
| C-39 | M-039 | Bronson Yakush... | (707) 1910607 |
| C-40 | M-040 | Agata Brunotti | (377) 6712267 |
| C-41 | M-041 | Arlen Gasparro | (796) 8662693 |
| C-42 | M-042 | Vaclav Bodleigh | (198) 7713426 |
| C-43 | M-043 | Colet Rohlfs | (243) 7265226 |
| C-44 | M-044 | Gaylene Brosius | (554) 1022016 |
| C-45 | M-045 | Cos Pykerman | (196) 7634288 |
| C-46 | M-046 | Salli Lytle | (381) 5713819 |
| C-47 | M-047 | Adelice Jeppe | (607) 4365206 |
| C-48 | M-048 | Desirae Bunston | (394) 5263664 |
| C-49 | M-049 | Bing Landal | (617) 7102652 |
| C-50 | M-050 | Dasya Sharrocks | (659) 4382849 |

**Service Table**

| Service_ID | Start_Date | Finish_Date | Service_Status |
|---|---|---|---|
| S-01 | 2021-06-15 | NULL | Incomplete |
| S-02 | 2021-04-28 | 2021-04-28 | Complete |
| S-03 | 2021-06-30 | 2021-06-30 | Complete |
| S-04 | 2021-02-13 | 2021-02-15 | Complete |
| S-05 | 2021-02-22 | NULL | Incomplete |
| S-06 | 2021-09-15 | NULL | Incomplete |
| S-07 | 2021-02-26 | 2021-02-28 | Complete |
| S-08 | 2021-06-11 | NULL | Incomplete |
| S-09 | 2021-11-07 | 2021-11-18 | Complete |
| S-10 | 2021-10-12 | NULL | Incomplete |
| S-11 | 2021-10-16 | 2021-10-18 | Complete |
| S-12 | 2021-10-06 | NULL | Incomplete |
| S-13 | 2021-11-28 | NULL | Incomplete |
| S-14 | 2021-10-03 | 2021-10-10 | Complete |
| S-15 | 2021-04-13 | 2021-04-30 | Complete |
| S-16 | 2021-01-25 | NULL | Incomplete |
| S-17 | 2021-02-24 | 2021-02-25 | Complete |
| S-18 | 2021-04-24 | 2021-04-29 | Complete |
| S-19 | 2021-05-12 | 2021-05-13 | Complete |
| S-20 | 2021-08-18 | NULL | Incomplete |
| S-21 | 2021-04-24 | 2021-04-30 | Complete |
| S-22 | 2021-01-25 | 2021-01-28 | Complete |
| S-23 | 2021-09-02 | 2021-09-03 | Complete |
| S-24 | 2021-07-17 | NULL | Incomplete |
| S-25 | 2021-10-18 | 2021-10-22 | Complete |
| S-26 | 2021-10-04 | 2021-10-09 | Complete |
| S-27 | 2021-11-20 | NULL | Incomplete |
| S-28 | 2021-07-23 | NULL | Incomplete |
| S-29 | 2021-11-25 | 2021-11-29 | Complete |
| S-30 | 2021-09-18 | NULL | Incomplete |
| S-31 | 2021-10-23 | 2021-10-24 | Complete |
| S-32 | 2021-06-06 | 2021-06-23 | Complete |
| S-33 | 2021-08-06 | 2021-08-12 | Complete |
| S-34 | 2021-03-17 | NULL | Incomplete |
| S-35 | 2021-11-23 | 2021-11-24 | Complete |
| S-36 | 2021-11-12 | 2021-11-16 | Complete |
| S-37 | 2021-03-16 | 2021-03-18 | Complete |
| S-38 | 2021-10-24 | 2021-10-29 | Complete |
| S-39 | 2021-05-06 | 2021-05-07 | Complete |
| S-40 | 2021-03-12 | NULL | Incomplete |
| S-41 | 2021-08-01 | NULL | Incomplete |
| S-42 | 2021-03-26 | 2021-03-29 | Complete |
| S-43 | 2021-04-24 | NULL | Incomplete |
| S-44 | 2021-04-09 | 2021-04-17 | Complete |
| S-45 | 2021-01-10 | 2021-01-12 | Complete |
| S-46 | 2021-11-05 | 2021-11-28 | Complete |
| S-47 | 2021-03-02 | NULL | Incomplete |
| S-48 | 2021-11-09 | 2021-11-15 | Complete |
| S-49 | 2021-03-16 | 2021-03-25 | Complete |
| S-50 | 2021-08-22 | NULL | Incomplete |

**Part Table**

| Part_ID | Mechanic_ID | Part_Category | Part_Quantity | Purchase_Price |
|---|---|---|---|---|
| P-0001 | M-001 | engine | 1 | 179.87 |
| P-0002 | M-002 | fuel system | 3 | 454.02 |
| P-0003 | M-003 | exhaust system | 1 | 262.84 |
| P-0004 | M-004 | fuel system | 3 | 527.93 |
| P-0005 | M-005 | exhaust system | 2 | 315.57 |
| P-0006 | M-006 | engine | 1 | 103.96 |
| P-0007 | M-007 | engine | 2 | 434.43 |
| P-0008 | M-008 | fuel system | 3 | 662.72 |
| P-0009 | M-009 | exhaust system | 4 | 413.63 |
| P-0010 | M-010 | cooling system | 1 | 380.26 |
| P-0011 | M-011 | fuel system | 1 | 398.71 |
| P-0012 | M-012 | cooling system | 2 | 546.16 |
| P-0013 | M-013 | cooling system | 1 | 90.44 |
| P-0014 | M-014 | cooling system | 4 | 762.56 |
| P-0015 | M-015 | engine | 4 | 284.13 |
| P-0016 | M-016 | fuel system | 3 | 452.86 |
| P-0017 | M-017 | engine | 1 | 582.16 |
| P-0018 | M-018 | electrical system | 8 | 758.16 |
| P-0019 | M-019 | transmission | 4 | 325.24 |
| P-0020 | M-020 | fluids | 4 | 54.77 |
| P-0021 | M-021 | chassis | 1 | NULL |
| P-0022 | M-022 | transmission | 2 | 429.34 |
| P-0023 | M-023 | engine | 3 | 495.54 |
| P-0024 | M-024 | fuel system | 1 | 111.54 |
| P-0025 | M-025 | transmission | 1 | 383.73 |
| P-0026 | M-026 | chassis | 2 | 519.85 |
| P-0027 | M-027 | chassis | 3 | NULL |
| P-0028 | M-028 | chassis | 2 | 514.27 |
| P-0029 | M-029 | exhaust system | 2 | 320.24 |
| P-0030 | M-030 | chassis | 3 | 366.40 |
| P-0031 | M-031 | fluids | 4 | 95.95 |
| P-0032 | M-032 | exhaust system | 2 | 680.50 |
| P-0033 | M-033 | exhaust system | 1 | 107.32 |
| P-0034 | M-034 | fluids | 1 | 47.96 |
| P-0035 | M-035 | engine | 2 | 510.97 |
| P-0036 | M-036 | electrical system | 6 | 636.32 |
| P-0037 | M-037 | chassis | 1 | 163.84 |
| P-0038 | M-038 | engine | 4 | 772.25 |
| P-0039 | M-039 | chassis | 2 | 506.63 |
| P-0040 | M-040 | fuel system | 1 | 256.46 |
| P-0041 | M-041 | chassis | 2 | 517.62 |
| P-0042 | M-042 | chassis | 1 | NULL |
| P-0043 | M-043 | fuel system | 3 | 353.76 |
| P-0044 | M-044 | chassis | 1 | 310.38 |
| P-0045 | M-045 | cooling system | 2 | 442.48 |
| P-0046 | M-046 | fuel system | 1 | 528.52 |
| P-0047 | M-047 | electrical system | 7 | 659.34 |
| P-0048 | M-048 | transmission | 2 | 362.80 |
| P-0049 | M-049 | engine | 6 | 657.22 |
| P-0050 | M-050 | fluids | 1 | 36.17 |

**Vehicle Receives Table**

| VIN | Service_ID |
|---|---|
| WAUVC68E42A107501 | S-01 |
| 1GYS4CEF6BR511619 | S-02 |
| 1G6DC5EY0B0788692 | S-03 |
| 3D7LP2ET1AG409537 | S-04 |
| 1FTSW2B51AE060852 | S-05 |
| WAUGL68E95A637492 | S-06 |
| 3D73M4EL7AG269742 | S-07 |
| 1N6AD0CU0CN046195 | S-08 |
| JN1CV6EK5BM624676 | S-09 |
| WBAGL63584D028463 | S-10 |
| 5GADV23L36D759491 | S-11 |
| JM1BL1H43A1257081 | S-12 |
| SCFFDCCD1AG171400 | S-13 |
| WP0AA2A96ES584006 | S-14 |
| KMHHT6KD3EU102529 | S-15 |
| WBABS53471E812234 | S-16 |
| 5NPDH4AE7CH330687 | S-17 |
| 3VWKX7AJ1AM661259 | S-18 |
| 1FAHP2DW0AG257716 | S-19 |
| 2C3CDXBG2EH966569 | S-20 |
| 1G6AB5SAXE0703763 | S-21 |
| 3FA6P0SU3FR598685 | S-22 |
| 2T1BURHE9EC507932 | S-23 |
| 1GYS3PKJ2FR233584 | S-24 |
| 1G6AK5S31D0247846 | S-25 |
| 1N6AF0KY5EN169914 | S-26 |
| 5J6TF2H59EL253132 | S-27 |
| WDDGF5EB1AA785926 | S-28 |
| VNKKTUD39FA642450 | S-29 |
| 1GYS3BEF4CR652106 | S-30 |
| 4T1BD1FK3DU703999 | S-31 |
| 2G61L5S31F9133450 | S-32 |
| SALFP2BN3BH556844 | S-33 |
| 1GYUCHEF2AR127960 | S-34 |
| WBSPM9C54AE332793 | S-35 |
| WBAVB73568V221887 | S-36 |
| WDDGF5EB0AF166768 | S-37 |
| WVGFF9BP8BD152008 | S-38 |
| WBA3V7C58FP073712 | S-39 |
| WAUEFAFL0FN178933 | S-40 |
| WAUVC58E63A098666 | S-41 |
| JTHFF2C24D2799002 | S-42 |
| 1GYS3DEF1ER988116 | S-43 |
| WAUCFAFR3EA282799 | S-44 |
| 5FRYD4H60FB092372 | S-45 |
| JH4CU4F41BC696693 | S-46 |
| 1C4RDJAG1EC717428 | S-47 |
| 2D4RN4DG0BR493424 | S-48 |
| 1C4RDJEG7DC388632 | S-49 |
| 1G6KE57Y93U706080 | S-50 |

**Service Cost Table**

| Service_ID | Bill_Number |
|---|---|
| S-01 | B-0001 |
| S-02 | B-0002 |
| S-03 | B-0003 |
| S-04 | B-0004 |
| S-05 | B-0005 |
| S-06 | B-0006 |
| S-07 | B-0007 |
| S-08 | B-0008 |
| S-09 | B-0009 |
| S-10 | B-0010 |
| S-11 | B-0011 |
| S-12 | B-0012 |
| S-13 | B-0013 |
| S-14 | B-0014 |
| S-15 | B-0015 |
| S-16 | B-0016 |
| S-17 | B-0017 |
| S-18 | B-0018 |
| S-19 | B-0019 |
| S-20 | B-0020 |
| S-21 | B-0021 |
| S-22 | B-0022 |
| S-23 | B-0023 |
| S-24 | B-0024 |
| S-25 | B-0025 |
| S-26 | B-0026 |
| S-27 | B-0027 |
| S-28 | B-0028 |
| S-29 | B-0029 |
| S-30 | B-0030 |
| S-31 | B-0031 |
| S-32 | B-0032 |
| S-33 | B-0033 |
| S-34 | B-0034 |
| S-35 | B-0035 |
| S-36 | B-0036 |
| S-37 | B-0037 |
| S-38 | B-0038 |
| S-39 | B-0039 |
| S-40 | B-0040 |
| S-41 | B-0041 |
| S-42 | B-0042 |
| S-43 | B-0043 |
| S-44 | B-0044 |
| S-45 | B-0045 |
| S-46 | B-0046 |
| S-47 | B-0047 |
| S-48 | B-0048 |
| S-49 | B-0049 |
| S-50 | B-0050 |

**Mechanic Uses Table**

| Mechanic_ID | Part_ID |
|---|---|
| M-001 | P-0001 |
| M-002 | P-0002 |
| M-003 | P-0003 |
| M-004 | P-0004 |
| M-005 | P-0005 |
| M-006 | P-0006 |
| M-007 | P-0007 |
| M-008 | P-0008 |
| M-009 | P-0009 |
| M-010 | P-0010 |
| M-011 | P-0011 |
| M-012 | P-0012 |
| M-013 | P-0013 |
| M-014 | P-0014 |
| M-015 | P-0015 |
| M-016 | P-0016 |
| M-017 | P-0017 |
| M-018 | P-0018 |
| M-019 | P-0019 |
| M-020 | P-0020 |
| M-021 | P-0021 |
| M-022 | P-0022 |
| M-023 | P-0023 |
| M-024 | P-0024 |
| M-025 | P-0025 |
| M-026 | P-0026 |
| M-027 | P-0027 |
| M-028 | P-0028 |
| M-029 | P-0029 |
| M-030 | P-0030 |
| M-031 | P-0031 |
| M-032 | P-0032 |
| M-033 | P-0033 |
| M-034 | P-0034 |
| M-035 | P-0035 |
| M-036 | P-0036 |
| M-037 | P-0037 |
| M-038 | P-0038 |
| M-039 | P-0039 |
| M-040 | P-0040 |
| M-041 | P-0041 |
| M-042 | P-0042 |
| M-043 | P-0043 |
| M-044 | P-0044 |
| M-045 | P-0045 |
| M-046 | P-0046 |
| M-047 | P-0047 |
| M-048 | P-0048 |
| M-049 | P-0049 |
| M-050 | P-0050 |

**Mechanic Performs Table**

| Mechanic_ID | Service_ID |
|---|---|
| M-001 | S-01 |
| M-002 | S-02 |
| M-003 | S-03 |
| M-004 | S-04 |
| M-005 | S-05 |
| M-006 | S-06 |
| M-007 | S-07 |
| M-008 | S-08 |
| M-009 | S-09 |
| M-010 | S-10 |
| M-011 | S-11 |
| M-012 | S-12 |
| M-013 | S-13 |
| M-014 | S-14 |
| M-015 | S-15 |
| M-016 | S-16 |
| M-017 | S-17 |
| M-018 | S-18 |
| M-019 | S-19 |
| M-020 | S-20 |
| M-021 | S-21 |
| M-022 | S-22 |
| M-023 | S-23 |
| M-024 | S-24 |
| M-025 | S-25 |
| M-026 | S-26 |
| M-027 | S-27 |
| M-028 | S-28 |
| M-029 | S-29 |
| M-030 | S-30 |
| M-031 | S-31 |
| M-032 | S-32 |
| M-033 | S-33 |
| M-034 | S-34 |
| M-035 | S-35 |
| M-036 | S-36 |
| M-037 | S-37 |
| M-038 | S-38 |
| M-039 | S-39 |
| M-040 | S-40 |
| M-041 | S-41 |
| M-042 | S-42 |
| M-043 | S-43 |
| M-044 | S-44 |
| M-045 | S-45 |
| M-046 | S-46 |
| M-047 | S-47 |
| M-048 | S-48 |
| M-049 | S-49 |
| M-050 | S-50 |

*SQL Commands*

Within the provided screenshots are the queries designed to help address the business questions and problems. In the queries are SQL commands that could help try and prevent business confusion currently happening within the regular business operations. I will go into more detail regarding how each query and its result can address the current business problems.

```sql
SELECT mechanic_name "Mechanic" , Part_Category as "Type of Part Ordered" , sum(part_quantity) as " Total Number of Parts Ordered",
                                                     sum(purchase_price) as "Cost of Parts Ordered"
    FROM mechanic
    INNER JOIN mechanic_uses
        ON mechanic.mechanic_id = mechanic_uses.mechanic_id
    INNER JOIN part
        ON mechanic_uses.part_id = part.part_id
    GROUP BY mechanic_name
    ORDER BY sum(Part_Quantity)desc, Part_Category asc;
```

| Mechanic | Type of Part Ordered | Total Number of Parts Ordered | Cost of Parts Ordered |
|---|---|---|---|
| Staci McGrae | electrical system | 8 | 458.16 |
| Adelice Jeppe | electrical system | 7 | 50.34 |
| Cammy Leyninye | electrical system | 6 | 85.32 |
| Bing Landal | engine | 6 | 657.22 |
| Beckie Rains | cooling system | 4 | 35.56 |
| Lizabeth Pickton | engine | 4 | 284.13 |
| Prent Brannan | engine | 4 | 772.25 |
| Jo-ann Swinyard | exhaust system | 4 | 413.63 |
| Ezra Herion | fluids | 4 | 285.95 |
| Larry Gridley | fluids | 4 | 54.77 |
| Meghann Gaize | transmission | 4 | 725.24 |
| Madelene Hesey | chassis | 3 | 366.40 |
| Kandace Ord | chassis | 3 | NULL |
| Willi Hadkins | engine | 3 | 495.54 |
| Ivie Goodrich | fuel system | 3 | 454.02 |
| Sarge Blowin | fuel system | 3 | 927.93 |
| Wood Haliday | fuel system | 3 | 452.86 |
| Cybil Ferrier | fuel system | 3 | 962.72 |
| Colet Rohlfs | fuel system | 3 | 353.76 |
| Salli Lytle | fuel system | 3 | 528.52 |
| Shannon Craker | chassis | 2 | 919.85 |

```
SELECT part_category as "Part Category", avg(purchase_price) as "Average Price Paid for Part(s)"
    FROM part
    GROUP BY part_category
    ORDER BY avg(purchase_price) desc;
```

| Part Category | Average Price Paid for Part(s) |
|---|---|
| transmission | 572.277500 |
| chassis | 501.284286 |
| cooling system | 498.980000 |
| fuel system | 494.057778 |
| exhaust system | 468.850000 |
| engine | 368.947778 |
| electrical system | 197.940000 |
| fluids | 120.962500 |

2

```
SELECT part_category, avg(purchase_price), avg(part_quantity)
    FROM part
    GROUP BY part_category
    ORDER BY avg(Purchase_Price) desc;
```

| part_category | avg(purchase_price) | avg(part_quantity) |
|---|---|---|
| transmission | 572.277500 | 2.25 |
| chassis | 501.284286 | 1.8 |
| cooling system | 498.980000 | 2 |
| fuel system | 494.057778 | 2.3333333333333335 |
| exhaust system | 468.850000 | 2 |
| engine | 368.947778 | 2.6666666666666665 |
| electrical system | 197.940000 | 7 |
| fluids | 120.962500 | 2.5 |

3

```
SELECT Part_Category, COUNT(part_category) as "Most Used and Purchased Part Category"
    FROM part
    GROUP BY part_category
    ORDER BY COUNT(part_category) desc;
```

| Part_Category | Most Used and Purchased Part Category |
|---|---|
| chassis | 10 |
| engine | 9 |
| fuel system | 9 |
| exhaust system | 6 |
| cooling system | 5 |
| transmission | 4 |
| fluids | 4 |
| electrical system | 3 |

4

*-The queries provided above are examples of what type of database the business can utilize to eliminate any confusion regarding proper inventory management.*

1) In query 1, it displays the mechanic who used the needed parts to complete their required task. Not only that but it also displays what part category was used, as well as the total parts that were ordered and how much the utilized parts cost the business.
2) In query 2, it simply shows the average price parts are paid by the business. This can allow the business to analyze a trend and determine what part category costs the business the most.
3) In query 3, it again shows the average price parts are paid by the business. Now this shows the average quantity of parts that are purchased as well.
4) In query 4, it shows what type of parts are being utilized and purchased the most. This again can analyze and determine whether there is a trend in the following years.

```sql
SELECT Mechanic_Name, customer_name, start_date, service_status
    FROM mechanic
    INNER JOIN mechanic_performs
        ON mechanic.Mechanic_ID = mechanic_performs.Mechanic_ID
    INNER JOIN customer
        ON customer.Customer_ID = mechanic.Customer_ID
    INNER JOIN service
        ON mechanic_performs.service_ID = service.service_id
    WHERE Service_Status = 'incomeplete'
    ORDER BY start_date asc;
```

| Mechanic_Name | customer_name | start_date | service_status |
| --- | --- | --- | --- |
| Wood Haliday | Jourdan Wescott | 2021-01-25 | Incomeplete |
| Ginnie Paradin | Rollie Roskams | 2021-02-22 | Incomeplete |
| Adelice Jeppe | Rogerio Batha | 2021-03-02 | Incomeplete |
| Agata Brunotti | Arney Grzesiewicz | 2021-03-12 | Incomeplete |
| Lena Gianasi | Lulu McPhilemy | 2021-03-17 | Incomeplete |
| Colet Rohlfs | Devinne Gowler | 2021-04-24 | Incomeplete |
| Cybil Ferrier | Zachariah Vankeev | 2021-06-11 | Incomeplete |
| Iosep Titchmarsh | Nanine Coenraets | 2021-06-15 | Incomeplete |
| Ottilie Aldrich | Zarla Phebey | 2021-07-17 | Incomeplete |
| Gibb Couchman | Derry Pinnijar | 2021-07-23 | Incomeplete |
| Arlen Gasparro | Leicester Alvin | 2021-08-01 | Incomeplete |
| Larry Gridley | Bendicty Neesham | 2021-08-18 | Incomeplete |
| Dasya Sharrocks | Tobias Marryatt | 2021-08-22 | Incomeplete |
| Krystalle Shale | Currie Bugbee | 2021-09-15 | Incomeplete |
| Madelene Hesey | Roby Pavlenkov | 2021-09-18 | Incomeplete |
| Edwin Gerrad | Eduardo Spaducci | 2021-10-06 | Incomeplete |
| Tibold Knotton | Annemarie Hearons | 2021-10-12 | Incomeplete |
| Kandace Ord | Bogart Northeast | 2021-11-20 | Incomeplete |
| Alameda Benoix | Crawford Thorold | 2021-11-28 | Incomeplete |

5

```sql
SELECT avg(datediff(finish_Date, start_date)) as "Average Day(s) To Complete a Vehicle Service"
    FROM vehicle
    INNER JOIN vehicle_receives
        ON vehicle.vin = vehicle_receives.vin
    INNER JOIN service
        ON vehicle_receives.service_id = service.service_id
    WHERE service_status = 'complete'
    ORDER BY avg(datediff(finish_Date, start_date)) desc;
```

| Average Day(s) To Complete a Vehicle Service |
| --- |
| 5.1290 |

6

```sql
SELECT mechanic_name as "Mechanic", part_category as "Part Category Used", part_quantity as "Parts Used", make as "Vehicle Make" , customer_name as "Customer Name",  total_bill as "Total Customer Bill"
    FROM mechanic
    INNER JOIN mechanic_uses
        ON mechanic.mechanic_id = mechanic_uses.mechanic_id
    INNER JOIN part
        ON mechanic_uses.part_id = part.part_id
    INNER JOIN customer
        ON customer.customer_id = mechanic.customer_id
    INNER JOIN vehicle
        ON customer.customer_id = vehicle.customer_id
    INNER JOIN bill
        ON customer.customer_id = bill.customer_id
    ORDER BY total_bill desc;
```

| Mechanic | Part Category Used | Parts Used | Vehicle Make | Customer Name | Total Customer Bill |
|---|---|---|---|---|---|
| Ivie Goodrich | fuel system | 3 | Mercedes-Benz | Shantee Glynne | 3997.54 |
| Meghann Gaize | transmission | 4 | Mazda | Solly Rousell | 3815.31 |
| Cammy Andreasson | exhaust system | 2 | Oldsmobile | Britte Grout | 3772.38 |
| Lena Gianasi | fluids | 1 | Chevrolet | Lulu McPhilemy | 3756.34 |
| Sarge Blowin | fuel system | 3 | Buick | Ceciley Lanceley | 3639.37 |
| Vaclav Bodleigh | chassis | 1 | Mazda | Vidovik Casone | 3210.61 |
| Cybil Ferrier | fuel system | 3 | Lincoln | Zachariah Vankeev | 3179.74 |
| Trent Crinage | chassis | 1 | Audi | Randy Wykes | 3091.99 |
| Tibold Knotton | cooling system | 1 | Dodge | Annemarie Hearons | 3003.75 |
| Ezra Herion | fluids | 4 | Ford | Gaby Aim | 2853.30 |
| Belinda Virr | transmission | 1 | Nissan | Kizzie Wooddisse | 2589.28 |
| Shannon Craker | chassis | 2 | Mitsubishi | Cahra Avrahamov | 2371.48 |
| Bronson Yakushkev | chassis | 2 | Chevrolet | Berke Skurm | 2192.68 |
| Cos Pykerman | cooling system | 2 | Honda | Conny Giacomuzzo | 1996.38 |
| Josy Haslam | fuel system | 1 | Ford | Hedvig Mathison | 1444.12 |
| Cody Kmicicki | transmission | 2 | Audi | Rodolphe Lashbrook | 1389.89 |
| Wendy Lively | chassis | 1 | Acura | Broddie Westman | 1142.34 |
| Marley Gabey | exhaust system | 1 | BMW | Nevin Cudbird | 1066.69 |
| Bing Landal | engine | 6 | Mazda | Lawry Goodbody | 1056.83 |
| Wood Haliday | fuel system | 3 | Mercury | Jourdan Wescott | 1008.27 |
| Gaylene Brosius | chassis | 1 | Mitsubishi | Katrinka Kenway | 961.11 |
| Prent Brannan | engine | 4 | Kia | Cariotta Fleeming | 954.88 |
| Ginnie Paradin | exhaust system | 2 | Infiniti | Rollie Roskams | 927.42 |
| Colet Rohlfs | fuel system | 3 | Mercury | Devinne Gowler | 921.60 |
| Madelene Hesey | chassis | 3 | Chevrolet | Roby Pavlenkov | 838.94 |
| Lydia Vegas | engine | 2 | Toyota | June Roxbrough | 738.97 |
| Edwin Gerrad | cooling system | 2 | Hyundai | Eduardo Spaducci | 735.85 |
| Staci McGrae | electrical system | 8 | Suzuki | Julissa Klimentov | 728.32 |
| Salli Lytle | fuel system | 3 | Isuzu | Early Tidbold | 659.93 |
| Willi Hadkins | engine | 3 | Chevrolet | Reggis Glanvill | 599.68 |
| Jo-ann Swinyard | exhaust system | 4 | Oldsmobile | Gustie Imbrey | 594.82 |
| Rosaline Simka | engine | 1 | Toyota | Ruth Domanek | 522.00 |
| Gibb Couchman | chassis | 2 | Hyundai | Derry Pinnijar | 382.81 |
| Agata Brunotti | fuel system | 1 | Pontiac | Arney Grzesiewicz | 368.53 |
| Lizabeth Pickton | engine | 4 | Subaru | Humfrey O'Hickey | 359.54 |
| Desirae Bunston | transmission | 2 | BMW | Orly Creeber | 352.64 |
| Hastings Bolzmann | exhaust system | 2 | Audi | Ashleigh Wortt | 350.85 |
| Krystalle Shale | engine | 1 | BMW | Currie Bugbee | 336.69 |
| Alameda Benoix | cooling system | 1 | Jeep | Crawford Thorold | 335.52 |
| Iosep Titchmarsh | engine | 1 | Mercedes-Benz | Nanine Coenraets | 313.72 |
| Ottilie Aldrich | fuel system | 1 | Toyota | Zarla Phebey | 222.92 |
| Dasya Sharrocks | fluids | 1 | Ford | Tobias Marryatt | 210.22 |
| Neil Redsell | engine | 2 | Pontiac | Colly Devitt | 193.06 |
| Larry Gridley | fluids | 4 | Toyota | Bendicty Neesham | 132.33 |
| Cammy Leyninye | electrical system | 6 | Oldsmobile | Robena Gerlts | 130.31 |
| Arlen Gasparro | chassis | 2 | Ford | Leicester Alvin | 99.67 |
| Adelice Jeppe | electrical system | 7 | Acura | Rogerio Batha | 78.74 |
| Angelia Samsin | exhaust system | 1 | Chrysler | Patricio Dispencer | 64.27 |
| Kandace Ord | chassis | 3 | Saab | Bogart Northeast | 40.41 |
| Beckie Rains | cooling system | 4 | Chevrolet | Gertrudis Buckner | 39.19 |

```sql
SELECT purchase_price as "Price Paid for Part(s)", total_bill as "Price Customer Paid for Service",(total_bill-purchase_price) as "Revenue - Expenses (*Wages Not Accounted For*)"
    FROM mechanic
    INNER JOIN mechanic_uses
        ON mechanic.mechanic_id = mechanic_uses.mechanic_id
    INNER JOIN part
        ON mechanic_uses.part_id = part.part_id
    INNER JOIN customer
        ON customer.customer_id = mechanic.customer_id
    INNER JOIN vehicle
        ON customer.customer_id = vehicle.customer_id
    INNER JOIN bill
        ON customer.customer_id = bill.customer_id
    ORDER BY (Total_Bill-Purchase_Price)desc;
```

| Price Paid for Part(s) | Price Customer Paid for Service | Revenue - Expenses (*Wages Not Accounted For*) |
| --- | --- | --- |
| 47.96 | 3756.34 | 3708.38 |
| 454.02 | 3997.54 | 3543.52 |
| 680.50 | 3772.38 | 3091.88 |
| 725.24 | 3815.31 | 3090.07 |
| 927.93 | 3639.37 | 2711.44 |
| 285.95 | 2853.30 | 2567.35 |
| 962.72 | 3179.74 | 2217.02 |
| 950.84 | 3091.99 | 2141.15 |
| 883.73 | 2589.28 | 1705.55 |
| 506.63 | 2192.68 | 1686.05 |
| 1380.26 | 3003.75 | 1623.49 |
| 442.48 | 1996.38 | 1553.90 |
| 919.85 | 2371.48 | 1451.63 |
| 398.71 | 1444.12 | 1045.41 |
| 429.34 | 1389.89 | 960.55 |
| 353.76 | 921.60 | 567.84 |
| 452.86 | 1008.27 | 555.41 |
| 366.40 | 838.94 | 472.54 |
| 662.84 | 1066.69 | 403.85 |
| 657.22 | 1056.83 | 399.61 |
| 601.38 | 961.11 | 359.73 |
| 458.16 | 728.32 | 270.16 |
| 114.27 | 382.81 | 268.54 |
| 90.44 | 335.52 | 245.08 |
| 282.16 | 522.00 | 239.84 |
| 103.96 | 336.69 | 232.73 |
| 510.97 | 738.97 | 228.00 |
| 715.57 | 927.42 | 211.85 |
| 546.16 | 735.85 | 189.69 |
| 772.25 | 954.88 | 182.63 |
| 413.63 | 594.82 | 181.19 |
| 34.43 | 193.06 | 158.63 |
| 179.87 | 313.72 | 133.85 |
| 528.52 | 659.93 | 131.41 |
| 95.17 | 210.22 | 115.05 |
| 256.46 | 368.53 | 112.07 |
| 111.54 | 222.92 | 111.38 |
| 495.54 | 599.68 | 104.14 |
| 250.80 | 352.64 | 101.84 |
| 54.77 | 132.33 | 77.56 |
| 284.13 | 359.54 | 75.41 |
| 49.62 | 99.67 | 50.05 |
| 85.32 | 130.31 | 44.99 |
| 20.32 | 64.27 | 43.95 |
| 320.24 | 350.85 | 30.61 |
| 50.34 | 78.74 | 28.40 |
| 35.56 | 39.19 | 3.63 |
| NULL | 1142.34 | NULL |
| NULL | 40.41 | NULL |
| NULL | 3210.61 | NULL |

```sql
SELECT make, avg(datediff(finish_Date, start_date)) as "Average Day(s) To Complete a Vehicle Service"
    FROM service
    INNER JOIN vehicle_receives
        ON service.service_id = vehicle_receives.service_id
    INNER JOIN vehicle
        ON vehicle_receives.vin = vehicle.vin
    WHERE service_status = 'complete'
    GROUP BY make
    ORDER BY avg(datediff(finish_Date, start_date)) desc;
```

| make | Average Day(s) To Complete a Vehicle Service |
|------|-----------------------------------------------|
| Isuzu | 23.0000 |
| Subaru | 17.0000 |
| Oldsmobile | 10.6667 |
| Mitsubishi | 6.5000 |
| Acura | 6.0000 |
| Chrysler | 6.0000 |
| Suzuki | 5.0000 |
| Kia | 5.0000 |
| Mazda | 4.3333 |
| Nissan | 4.0000 |
| BMW | 3.0000 |
| Chevrolet | 3.0000 |
| Audi | 3.0000 |
| Buick | 2.0000 |
| Pontiac | 2.0000 |
| Honda | 2.0000 |
| Ford | 1.5000 |
| Toyota | 1.0000 |
| Mercedes... | 0.0000 |

9

```sql
SELECT make, count(*) as "Most Frequent Vehicle Make"
    FROM vehicle
    GROUP BY make
    ORDER BY count(*) desc;
```

| make | Most Frequent Vehicle Make |
|------|----------------------------|
| Chevrolet | 5 |
| Ford | 4 |
| Toyota | 4 |
| Mazda | 3 |
| BMW | 3 |
| Oldsmobile | 3 |
| Audi | 3 |
| Acura | 2 |
| Mercury | 2 |
| Mercedes-Benz | 2 |
| Mitsubishi | 2 |
| Pontiac | 2 |
| Hyundai | 2 |
| Infiniti | 1 |
| Nissan | 1 |
| Lincoln | 1 |
| Buick | 1 |
| Suzuki | 1 |
| Honda | 1 |
| Saab | 1 |
| Isuzu | 1 |
| Subaru | 1 |
| Chrysler | 1 |
| Jeep | 1 |
| Dodge | 1 |
| Kia | 1 |

10

```sql
SELECT make as "Manufacturer" , sum(total_bill) as "Total Bill Per Car Manufacturer Serviced"
    FROM customer
    INNER JOIN vehicle
        ON customer.customer_id = vehicle.customer_id
    LEFT OUTER JOIN bill
        ON customer.customer_id = bill.customer_id
    GROUP BY make
    ORDER BY sum(total_bill) desc;
```

| Manufacturer | Total Bill Per Car Manufacturer Serviced |
|---|---|
| Mazda | 8082.75 |
| Chevrolet | 7426.83 |
| Audi | 4832.73 |
| Ford | 4607.31 |
| Oldsmobile | 4497.51 |
| Mercedes-Benz | 4311.26 |
| Buick | 3639.37 |
| Mitsubishi | 3332.59 |
| Lincoln | 3179.74 |
| Dodge | 3003.75 |
| Nissan | 2589.28 |
| Honda | 1996.38 |
| Mercury | 1929.87 |
| BMW | 1756.02 |
| Toyota | 1616.22 |
| Acura | 1221.08 |
| Hyundai | 1118.66 |
| Kia | 954.88 |
| Infiniti | 927.42 |
| Suzuki | 728.32 |
| Isuzu | 659.93 |
| Pontiac | 561.59 |
| Subaru | 359.54 |
| Jeep | 335.52 |
| Chrysler | 64.27 |
| Saab | 40.41 |

11

```sql
SELECT part_category, sum(purchase_price)
    FROM part
    GROUP BY part_category
    ORDER BY sum(purchase_price) desc;
```

| part_category | Total Price Paid Per Category |
|---|---|
| fuel system | 4446.52 |
| chassis | 3508.99 |
| engine | 3320.53 |
| exhaust system | 2813.10 |
| cooling system | 2494.90 |
| transmission | 2289.11 |
| electrical system | 593.82 |
| fluids | 483.85 |

12

```sql
SELECT Mechanic_Name as "Mechanic", customer_name as "Customer" ,Service_Status, Start_date, Finish_Date, datediff(finish_Date, start_date) as "Days Needed To Complete Service"
    FROM mechanic
    INNER JOIN customer
        ON customer.customer_id = mechanic.customer_id
    INNER JOIN mechanic_performs
        ON mechanic.mechanic_id = mechanic_performs.mechanic_id
    INNER JOIN service
        ON mechanic_performs.service_id = service.service_id
    WHERE Service_Status = 'complete'
    ORDER BY start_date asc;
```

| Mechanic | Customer | service_status | start_date | Finish_Date | Days Needed To Complete Service |
|---|---|---|---|---|---|
| Cos Pykerman | Conny Giacomuzzo | Complete | 2021-01-10 | 2021-01-12 | 2 |
| Cody Kmicicki | Rodolphe Lashbrook | Complete | 2021-01-25 | 2021-01-28 | 3 |
| Sarge Blowin | Ceciley Lanceley | Complete | 2021-02-13 | 2021-02-15 | 2 |
| Rosaline Simka | Ruth Domanek | Complete | 2021-02-24 | 2021-02-25 | 1 |
| Neil Redsell | Colly Devitt | Complete | 2021-02-26 | 2021-02-28 | 2 |
| Trent Crinage | Randy Wykes | Complete | 2021-03-16 | 2021-03-18 | 2 |
| Bing Landal | Lawry Goodbody | Complete | 2021-03-16 | 2021-03-25 | 9 |
| Vaclav Bodleigh | Vidovik Casone | Complete | 2021-03-26 | 2021-03-29 | 3 |
| Gaylene Brosius | Katrinka Kenway | Complete | 2021-04-09 | 2021-04-17 | 8 |
| Lizabeth Pickton | Humfrey O'Hickey | Complete | 2021-04-13 | 2021-04-30 | 17 |
| Staci McGrae | Julissa Klimentov | Complete | 2021-04-24 | 2021-04-29 | 5 |
| Wendy Lively | Broddie Westman | Complete | 2021-04-24 | 2021-04-30 | 6 |
| Ivie Goodrich | Shantee Glynne | Complete | 2021-04-28 | 2021-04-28 | 0 |
| Bronson Yakus... | Berke Skurm | Complete | 2021-05-06 | 2021-05-07 | 1 |
| Meghann Gaize | Solly Rousell | Complete | 2021-05-12 | 2021-05-13 | 1 |
| Cammy Andrea... | Britte Grout | Complete | 2021-06-06 | 2021-06-23 | 17 |
| Marley Gabey | Nevin Cudbird | Complete | 2021-06-30 | 2021-06-30 | 0 |
| Angelia Samsin | Patricio Dispencer | Complete | 2021-08-06 | 2021-08-12 | 6 |
| Willi Hadkins | Reggis Glanvill | Complete | 2021-09-02 | 2021-09-03 | 1 |
| Beckie Rains | Gertrudis Buckner | Complete | 2021-10-03 | 2021-10-10 | 7 |
| Shannon Craker | Cahra Avrahamov | Complete | 2021-10-04 | 2021-10-09 | 5 |
| Josy Haslam | Hedvig Mathison | Complete | 2021-10-16 | 2021-10-18 | 2 |
| Belinda Virr | Kizzie Wooddisse | Complete | 2021-10-18 | 2021-10-22 | 4 |
| Ezra Herion | Gaby Aim | Complete | 2021-10-23 | 2021-10-24 | 1 |
| Prent Brannan | Cariotta Fleeming | Complete | 2021-10-24 | 2021-10-29 | 5 |
| Salli Lytle | Early Tidbold | Complete | 2021-11-05 | 2021-11-28 | 23 |
| Jo-ann Swinyard | Gustie Imbrey | Complete | 2021-11-07 | 2021-11-18 | 11 |
| Desirae Bunston | Orly Creeber | Complete | 2021-11-09 | 2021-11-15 | 6 |
| Cammy Leyninye | Robena Gerlts | Complete | 2021-11-12 | 2021-11-16 | 4 |
| Lydia Vegas | June Roxbrough | Complete | 2021-11-23 | 2021-11-24 | 1 |
| Hastings Bolzm... | Ashleigh Wortt | Complete | 2021-11-25 | 2021-11-29 | 4 |

13

```
SELECT payment_type, sum(total_bill) as "Total Amount From Payment Type", COUNT(Payment_Type) as "Number of Times Payment Type Used"

    FROM bill

    GROUP BY Payment_Type

    ORDER BY sum(total_bill) desc;
```

| payment_type | Total Amount From Payment Type | Number of Times Payment Type Used |
|---|---|---|
| bankcard | 20394.92 | 11 |
| americanexpress | 16052.85 | 12 |
| mastercard | 11980.63 | 9 |
| visa | 8693.66 | 9 |
| jcb | 6651.17 | 9 |

14

```
SELECT Appt_Date, Customer_Name, Telephone_Number, Make, Model, Year
    FROM customer
    INNER JOIN vehicle
        ON customer.Customer_ID = vehicle.customer_id
    LEFT OUTER JOIN appointment
        ON customer.customer_id = appointment.customer_id
    WHERE Appt_Date BETWEEN '2021-01-01' AND '2021-04-30'
    ORDER BY appt_date asc;
```

| Appt_Date | Customer_Name | Telephone_Number | Make | Model | Year |
|---|---|---|---|---|---|
| 2021-01-10 | Conny Giacomuzzo | (763) 8342338 | Honda | Accord Crosstour | 2010 |
| 2021-01-16 | Randy Wykes | (832) 2475524 | Audi | TT | 2001 |
| 2021-01-25 | Jourdan Wescott | (697) 4159094 | Mercury | Lynx | 1987 |
| 2021-01-25 | Rodolphe Lashbrook | (270) 1243189 | Audi | A8 | 2011 |
| 2021-02-13 | Ceciley Lanceley | (160) 2435327 | Buick | Roadmaster | 1995 |
| 2021-02-22 | Rollie Roskams | (506) 1493502 | Infiniti | QX56 | 2007 |
| 2021-02-24 | Ruth Domanek | (993) 7283035 | Toyota | Corolla | 1995 |
| 2021-02-26 | Colly Devitt | (125) 6761053 | Pontiac | Bonneville | 1995 |
| 2021-03-02 | Rogerio Batha | (594) 6499436 | Acura | Integra | 2000 |
| 2021-03-12 | Arney Grzesiewicz | (299) 6350412 | Pontiac | Grand Prix | 1994 |
| 2021-03-16 | Lawry Goodbody | (587) 8400596 | Mazda | Mazda3 | 2009 |
| 2021-03-17 | Lulu McPhilemy | (945) 3625899 | Chevrolet | 1500 | 1996 |
| 2021-03-26 | Vidovik Casone | (300) 8812537 | Mazda | 626 | 1994 |
| 2021-04-09 | Katrinka Kenway | (856) 3769725 | Mitsubishi | Galant | 1984 |
| 2021-04-13 | Humfrey O'Hickey | (794) 7628848 | Subaru | Tribeca | 2010 |
| 2021-04-24 | Julissa Klimentov | (115) 2144328 | Suzuki | X-90 | 1998 |
| 2021-04-24 | Broddie Westman | (678) 3713279 | Acura | CL | 2001 |
| 2021-04-24 | Devinne Gowler | NULL | Mercury | Mystique | 1999 |
| 2021-04-28 | Shantee Glynne | (763) 3162634 | Merced... | C-Class | 1997 |

15

*-The queries provided above from pages 11 through 17 are examples of how the business can utilize the database to try and analyze the data to look for any trends currently happening within the business. Locating and properly analyzing these trends can help the company adapt in hopes that it can provide a more efficient and cost-effective business service to its customers.*

5) In <u>query 5</u>, this example aims to show how mechanics are now provided information on what vehicles are still in need of service. This query's main goal is to eliminate any confusion or doubt. We do not want other mechanics that are assigned to another vehicle to work on a vehicle that is not assigned to them. The exception is if another mechanic currently does not have any appointments to service another vehicle. In this case, he will be allowed to help the mechanic assigned to the vehicle. The responsibility to complete the service will not fall on the mechanic trying to help, but rather the mechanic originally assigned to the vehicle.

6) In <u>query 6</u>,  this simply shows the average day it takes for the mechanics within the business complete a vehicle service. This data can help the management team decide whether the mechanics are performing at a proper and efficient pace.

7) In <u>query 7</u>, this data shows the mechanics that were assigned to a certain vehicle as well as the parts that they utilized to complete their service for a specific vehicle. This can help avoid confusion as it shows which mechanic has used part and where that part was used to complete a service for a customer.

8) In <u>query 8</u>, this data is simply aimed for the upper-level management team or business leaders. It shows the profit that the business made from a certain service. To do this, we simply subtract the price we paid for the parts from the bill that a customer paid. The result shows the difference from how much the company paid for the part and how much the company charged the customer. Note, this does not consider any wages that we owe the mechanics assigned to the job or other expenses the business may have incurred from the service.

9) In <u>query 9</u>, this data is aimed at analyzing the amount of time it takes to complete a service from a certain vehicle make. Some vehicles are more complexed than others so it can be important to know vehicle makes will need more attention and help servicing.

10) In <u>query 10</u>, This data can help the business determine the parts more frequently used and therefore need more stock of. This can help avoid stock shortages if the business always has parts that are always in need. If a certain vehicle make seems to appear more for a service, it might be wise to have more parts in stock for that certain vehicle make.

11) In <u>query 11</u>, this data can be used to analyze any potential trend. If a certain vehicle make always seems to have a higher bill compared to others, understanding why could help the business determine whether it is the parts that are expensive, or the labor that goes into the service.

12) In <u>query 12</u>, this data is used to determine what part category costs the business the most. If a trend is present, the business can try and work with other business who sell or manufacture those parts for a business deal that can potentially decrease the expense for the business while also increasing the revenue.

13) In <u>query 13</u>, this shows the mechanic that worked on a customer's vehicle and the number of days it took for them to complete the vehicle service. This can be used to determine if the days needed to complete the service is justifiable. If not, the management team can take further actions to find out why a mechanic needed more time to complete a service.

14) In <u>query 14</u>, this shows what payment type seems to be used most often. A business can try and make a business deal with the companies that are used the most within the business to offer customers an incentive to use a certain payment type for the business. This can be higher cash back percentages for the customers or the business can make their own card with the help of the credit card company to provide another type of incentive for the customers.

15) In <u>query 15</u>, this simply shows the appointment dates that a customer has with the business as well as their corresponding vehicle information. This can help the business prepare in advance to make sure that they at least have the very basic parts needed for the service.