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# Tiny College's Travel Far But Slowly Center

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# Abstract

Our approach addresses the necessity to track faculty members' usage of Tiny College cars for legally permitted travel. This covers all key information, such as vehicle maintenance and travel circumstances at the start and end of the trip. By building this database, Tiny College will be able to manage vehicle rental services more effectively. They can follow how their vehicle is used so they know what faculty used them it, when the vehicle was used, checked out, and reserved. As well as what mechanic fixed it, what parts were fixed on the vehicle and how long it took to fix the vehicle.



## Business Rule

- A vehicle can require Maintenance many times and each Maintenance procedure requires a new Log entry.
- A Parts Usage form must be completed every time a Maintenance Log is created.
- If a Part is required, it must be signed out by a Mechanic.
- If the Faculty takes a trip, this will generate many Check-Outs. They will have to fill out a Completion Form.
- Each Maintenance line must be signed off by a Mechanic and, if a Mechanic does any Maintenance work, that Mechanic is required to sign off on that work.
- In order to reserve a vehicle, the Department must fill out a Reservation form.

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# Entities, Attributes

**Bold** indicate Primary Keys,  
Underline indicates Foreign  
Key

- Faculty
  - **Fac\_ID**, Fac\_LName, Fac\_FName, Fac\_PhoneNum, Dept\_ID
- Reservation
  - **Reserv\_ID**, Reserv\_DepartDate, Veh\_Type, Reserv\_Destination, Fac\_ID, Fac\_LName, Fac\_FName
- Check Out
  - **Reserv\_ID**, CheckOut\_Date, CheckOut\_TFBSEmpSign, Veh\_ID
- Completion
  - Reserv\_ID, Comp\_OdometerStart, Comp\_OdometerEnd, Comp\_FuelGals, Comp\_CredCardRec, Fac\_ID, Veh\_ID, Veh\_Type
- Department
  - **Dept\_ID**, Dept\_Descript, Comp\_CredCardRec
- Vehicle
  - **Veh\_ID**, Veh\_Type, Veh\_Descript

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# Entities, Attributes

**Bold** indicate Primary Keys,  
Underline indicates Foreign  
Key

- Maintenance Log
  - **MainLog\_ID**, MainLog\_Descript, MainLog\_LogEntryDate, MainLog\_CompDate, MainLog\_Signature, Veh ID, Veh Type, Mech ID
- Maintenance Details
  - **Main\_ID**, MainLog ID, Mech ID, Main\_Signature
- Parts Inventory
  - **Part\_Type**, Part\_Type\_Descript, Part\_Type\_Quantity, Part\_Type\_Brand
- Parts Usage
  - MainLog ID, PartsUsed\_Name
- Mechanics
  - **Mech\_ID**, Mech\_LName, Mech\_FName

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## Relationships

- The Faculty can have one Department. Each Department can have more than one Faculty.
- Faculty can make many Reservations. Reservation Forms can be assigned to one Faculty
- Maintenance Details can be assigned to one Maintenance Log. A Maintenance Log can have many Details.
- A Maintenance Log can be assigned to only one Mechanic. A Mechanic can be assigned to more than one Maintenance Log.
- A Vehicle can require Maintenance many times. Maintenance requires a new Log entry.
- A Parts Used entry can be assigned to one Maintenance Log. A Maintenance Log can have many Parts Used.
- A Vehicle Type can have more than one Vehicle assigned to it. A Vehicle can have one Type.

# Data Directory

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TABLE NAME	ATTRIBUTE NAME	CONTENTS/DETAILS	TYPE	FORMAT	RANGE	REQUIRED	PRIMARY KEY (PK) OR FOREIGN KEY (FK)	FK REFERENCE TABLE
FACULTY	Fac_ID	Faculty ID	Numeric	###	(20,0)	y	PK	Fac_ID
	Fac_LName	Faculty Member First Name	VARCHAR	Xxxx	(100) <sup>l</sup>	y		
	Fac_FName	Faculty Member Last Name	VARCHAR	Xxxx	(100) <sup>l</sup>	y		
	Fac_PhoneNum	Faculty Member Phone Number	VARCHAR	###-###-	(100) <sup>l</sup>	y		
	Dept_ID	Faculty Member ID	Numeric	##	(20,0)	y	FK	Dept_ID
RESERVATION	Reserv_ID	Reservation ID	Numeric	###	(20,0)	y	PK	Reserv_ID
	Reserv_DepartDate	Reservation Departure Date	DATE	##-##-####		y		
	Veh_Type	Vehicle Type	VARCHAR	##	(255) <sup>l</sup>	y	FK	Veh_Type
	Reserv_Destination	Revercation Destination	VARCHAR	Xxxxxxxxxx	(255) <sup>l</sup>	y		
	Fac_ID	Faculty ID	Numeric	##	(20,0)	y	FK	Fac_ID
	Fac_LName	Faculty Member First Name	VARCHAR	Xxxxxxxxxx	(100) <sup>l</sup>	y	FK	Fac_LName
	Fac_FName	Faculty Member Last Name	Numeric	Xxxxxxxxxx	(100) <sup>l</sup>	y	FK	Fac_FName

# Data Dictionary

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CHECK OUT	Reserv_ID	Reservation ID	Numeric	###	(20,0)	y	PK	Reserve_ID
	CheckOut_Date	Car Check Out Date	DATE	##-##-####		y		
		Employee Signature						
	CheckOut_TFBSEmpSign	Upon Check Out	VARCHAR	Xxxxxxxxxx	(50)'	y		
COMPLETION	Veh_ID	Vehicle ID	Numeric	##	(20,0)	y	FK	Veh_ID
	Reserv_ID	Reservation ID	Numeric	###	(20,0)	y	PK	Reserv_ID
	Comp_OdometerStart	Odometer Start Milage	Numeric	#####	(20,0)	y		
	Comp_OdometerEnd	Odometer End Milage	Numeric	#####	(20,0)	y		
	Comp_FuelGals	Odometer Fuel Gallons	Numeric	##	(20,0)	y		
DEPARTMENT				#####				
	Comp_CredCardRec	Company Credit Card	Numeric	#####	(20,0)	y		
	Dept_ID	Department ID	Numeric	#	(20,0)	y	PK	Dept_ID
	Dept_Descript	Department Description	VARCHAR	Xxxxxxxxxx	(50)'	y		
VEHICLE				#####				
	Comp_CredCardRec	Company Credit Card	VARCHAR	#####	(50)'	y	FK	Comp_CredC ardRec
	Veh_ID	Vehicle ID (VIN)	Numeric	##	(20,0)	y	PK	Veh_ID
	Veh_Type	Vehicle Type	VARCHAR	Xxxxxxxxxx	(50)'	y		
	Veh_Descript	Vehicle Description	VARCHAR	###-Xxxx	(50)'	y		
	Veh_MillageRecords	Millage Records	VARCHAR	#####	(50)'	y		

# Data Directory

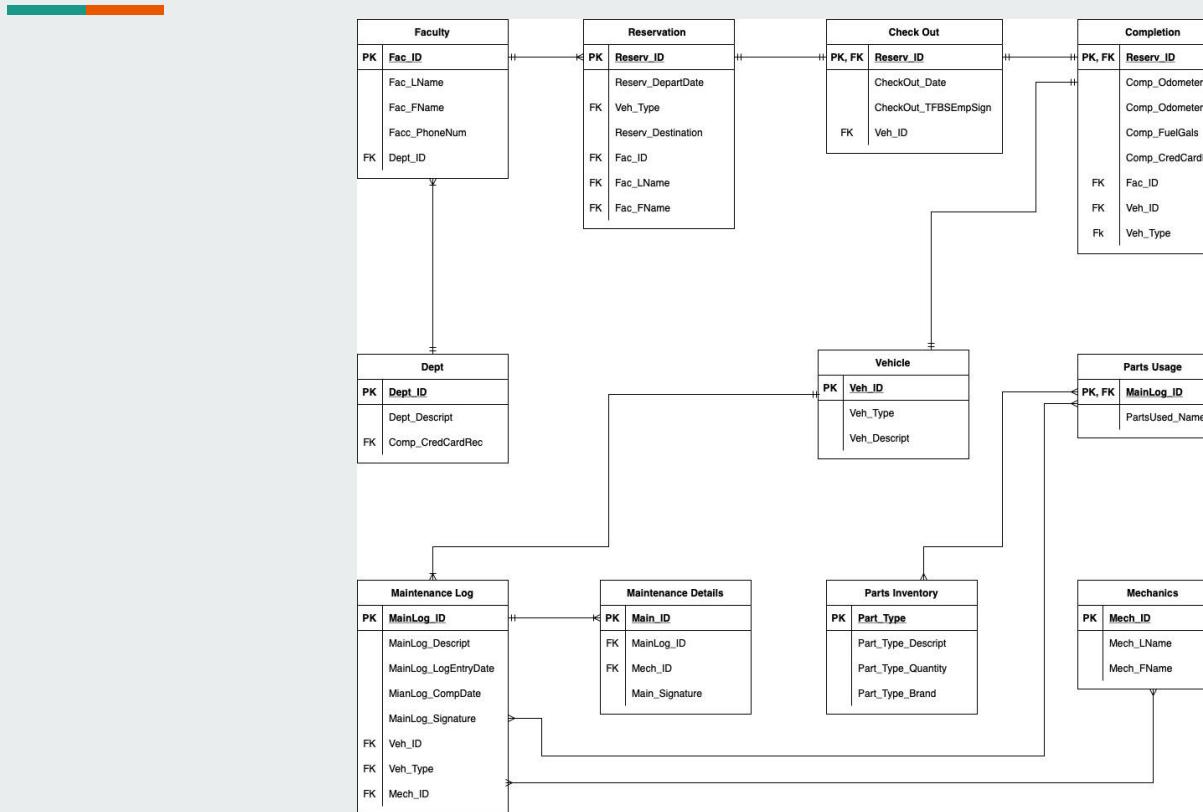
MAITENANCE LOG							
MainLog_ID	Maintanence Log ID	Numeric	##	(20,0)	y	PK	MainLog_ID
MainLog_Descript	Maintanence Log Description	VARCHAR	Xxxxxx XXXX	(50)'	y		
MainLog_LogEntryDate	Maintanence Log Entry Date	DATE	##-##-####		y		
MainLog_CompDate	Maintanence Log Completion Date	DATE	##-##-####		y		
MainLog_Signature	Maintanence Log Signature Service	VARCHAR	Xxxxxx				
Veh_ID	Vehicle ID	Numeric	##	(255)'	y	FK	Veh_ID
Veh_Type	Vehicle Type	VARCHAR	Xxxxxxx	(20,0)	y	FK	Veh_Type
Mech_ID	Mechanics ID	Numeric	#	(20,0)	y	FK	Mech_ID
MAITENANCE DETAILS							
Part_ID	Part ID	Numeric	##	(20,0)	y	PK	Part_ID
MainLog_ID	Maitanence Log ID	Numeric	##	(20,0)	y	FK	MainLog_ID
Mech_ID	Mechanics ID	Numeric	#	(255)'	y	FK	Mech_ID
Main_Signature	Maitanence Signature	VARCHAR	Xxxxxxx	(255)'	y		
Part_Used	Part Name	VARCHAR	Xxxxxxx	(20)'	y	PK	Part_Used
PARTS INVENTORY							
Part_Type	Part Type	VARCHAR	Xxxxx Xxxxxx	(20,0)	y	PK	Part_Type
Part_ID	Part ID	Numeric	##	(255)'	y		
Part_Type_Quantity	Part Quantity	Numeric	##	(20,0)	y		
Part_Type_Brand	Part Brand	VARCHAR	Xxxxxxx	(255)'	y		

# Data Directory

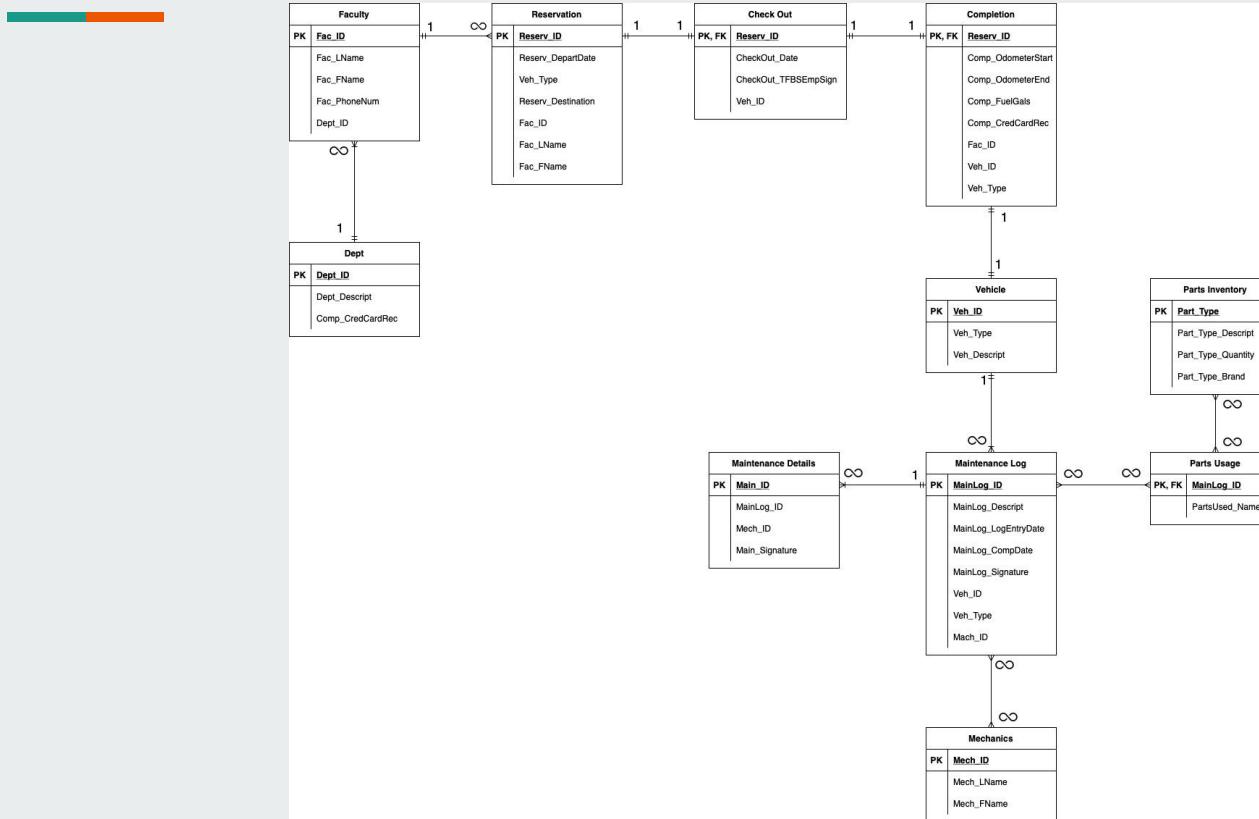
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PARTS USAGE	MainLog_ID	Maitanence Log ID	Numeric	#	(20,0)	y	PK,FK	MainLog_ID
	Mech_ID	Mechanics ID	Numeric	##	(20,0)	y		
				Xxxxxx				
	Mech_Signature	Mechanics Signature	VARCHAR	Xxxxxxx	(255)'	y		
MECHANICS	Mech_ID	Mechanics ID	Numeric	#	(20,0)	y	PK	Mech_ID
	Mech_LName	Mechanic Last Name	VARCHAR	Xxxxxxxxxx	(255)'	y		
	Mech_FName	Mechanic First Name	VARCHAR	Xxxxxxx	(255)'	y		

# Entity Relationship Model



# Relational Database Model



# Relational Database Model

Table Name: Faculty  
Primary Key: Fac\_ID  
Foreign Key: Dept\_ID

Fac_ID	Fac_LName	Fac_FName	Fac_PhoneNum	Dept_ID
1	Badrick	Cory	923-564-7756	3
7	Branwhite	Susana	660-113-4022	3
16	de Broke	Evie	494-633-4734	4

Table Name: Reservation  
Primary Key: Reserv\_ID  
Foreign Key: Veh\_Type, Fac\_ID, Fac\_LName, Fac\_FName

Reserv_ID	Reserv_DepartDate	Veh_Type	Reserv_Dest	Fac_ID	Fac_LName	Fac_FName
4	11/16/2021	Nissan	Lansing	47	Gennrich	Durant
5	8/27/2021	Chevrolet	Lansing	38	Jorio	Kayla
10	2/8/2022	GMC	Grand Blanc	94	Spinello	Marshall

Table Name: Check Out  
Primary Key: Reserv\_ID  
Foreign Key: Reserv\_ID, Veh\_ID

Reserv_ID	CheckOut_Date	CheckOut_TFBSEmpSign	Veh_ID
3	12/17/2021	Hatti Purton	7
6	11/2/2021	Sophi Brydson	8
8	7/10/2021	Jeanelle Balaizot	7

Table Name: Completion  
Primary Key: Reserv\_ID  
Foreign Key: Reserv\_ID, Fac\_ID, Veh\_ID, Veh\_Type

Reserv_ID	Comp_OdometerStart	Comp_OdometerEnd	Comp_FuelGal	Comp_CredCardRec	Fac_ID	Veh_ID	Veh_Type
4	256879	256933	2	1234567891234567	47	8	Nissan
5	204753	205061	11	1234567891234567	38	20	Chevrolet
6	256933	257281	12	7531135797536428	49	8	Nissan

# Relational Database Model

Table Name: Department

Primary Key: Dept\_ID

Foreign Key: Comp\_CredCardRec

Dept_ID	Dept_Descript	Comp_CredCardRec
1	Math	1234567891234567
2	Physics	2468864262481357
3	Engineering	7531135797536428

Table Name: Vehicle

Primary Key: Veh\_ID

Foreign Key: None

Veh_ID	Veh_Type	Veh_Descript	Veh_MileageRecords
5	GMC	1994 - Red	265925
9	Chevrolet	2021 - Blue	296027
10	Ford	1996 - Red	152269

Table Name: Maintenance Log

Primary Key: MainLog\_ID

Foreign Key: Veh\_ID, Veh\_Type, Mech\_ID

MainLog_ID	MainLog_Descript	MainLog_LogEntryDate	MainLog_CompDate	MainLog_Signature	Veh_Type	Veh_ID	Mech_ID
6	Coolant Refill	6/8/2022	6/15/2022	Simon Hastings	Chevrolet	20	4
8	Shock Replacement	10/1/2022	10/6/2022	Simon Hastings	Chevrolet	20	4
9	Battery Exchange	11/7/2022	11/8/2022	Kate Sharma	Ford	16	5

Table Name: Maintenance Details

Primary Key: Part\_ID

Foreign Key: MainLog\_ID, Mech\_ID

Part_ID	Part_Used	MainLog_ID	Mech_ID	Main_Signature
20	Radiator Cap	1	5	Kate Sharma
6	Motor Oil	2	2	James Darcy
15	Engine Belt	3	5	Kate Sharma

# Relational Database Model

Table Name: Parts Inventory  
Primary Key: Part\_Type  
Foreign Key: None

Part_ID	Part_Type	Part_Type_Quant	Part_Type_Brand
1	Tire	16	Michelin
2	Brake Pad	40	Duralast
3	Catalytic Convertor	0	OEM

Table Name: Mechanics  
Primary Key: Mech\_ID  
Foreign Key: None

Mech_ID	Mech_LName	Mech_FName
1	Snow	John
2	Darcy	James
3	Bridgerton	Anthony

Table Name: Parts Usage  
Primary Key: MainLog\_ID  
Foreign Key: MainLog\_ID

MainLog_ID	PartsUsed_Name
1	Radiator Cap
3	Engine Belt
5	Rotors

# Implementation - Trello

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Professional Environment Practice and expectation to know how to use. Examples:

- Atlassian
  - Jira
  - Trello



The screenshot shows a Trello board titled "CSI-3450 Final Project". The board is divided into several columns:

- Business Rules:**
  - Discuss: Go over book problem and discuss all possible business rules
  - Finalize Business Rules
  - Implement: Implement Business Rules in EDR, RD, and Table Set Up
- Attributes:**
  - Discuss Possible Attributes
  - Finalize Attributes Used for Each Table
  - Implement in the Code Set Up
  - CONTINUOUS: UPDATE ATTRIBUTE NAMES IN IMPLEMENTATION AS NEEDED
  - Implement: Implement Business Rules in EDR, RD, and Table Set Up
- Tables:**
  - Create tables
  - Implement Tables
  - Implement Foreign and Primary Keys
  - Create Tables through excel for efficiency, 2nd time
  - Follow flow of entity relationships
  - Implement: Implement Business Rules in EDR, RD, and Table Set Up
- Data Dictionary:**
  - Create Data Dictionary through Excel
  - + Add a card
- Queries:**
  - Complete Query 1
  - Complete Query 2
  - Complete Query 3
  - Complete Query 4
  - Complete Query 5
  - + Add a card

# Implementation - Mockaroo

Used to make data as realistic to customer provided data as possible, resource recommended through work

The screenshot shows the Mockaroo web application interface. At the top, there is a navigation bar with links for SCHEMAS, DATASETS, MOCK APIs, SCENARIOS, and PROJECTS. On the right side of the header are buttons for SIGN IN and UPGRADE NOW. Below the header, a banner promotes Tonic for generating fake data based on production data. The main content area displays a table of fields with their types and options:

Field Name	Type	Options
fac_id	Row Number	blank: 0 % $\Sigma$ X
first_name	First Name	blank: 0 % $\Sigma$ X
last_name	Last Name	blank: 0 % $\Sigma$ X
phone number	Phone	format: <code>###-###-####</code> blank: 0 % $\Sigma$ X
dept_id	Gender	blank: 0 % $\Sigma$ X

Below the table, there is a button labeled "ADD ANOTHER FIELD". At the bottom of the page, there are export options: "# Rows:" set to 1000, "Format:" set to CSV, "Line Ending:" set to Unix (LF), and checkboxes for "Include: header" (checked) and "BOM" (unchecked).

# Implementation - Excel

	A	B	C	D	E
	fac_id	fac_lname	fac_fnm	fac_phonenum	dept_id
1	1	Badrick	Cory	923-564-7756	3
2	2	Dolby	Westley	234-479-8878	5
3	3	Mithun	Fred	446-983-6944	3
4	4	Walesa	Jacques	617-206-8767	3
5	5	McMaster	Neil	657-154-9242	3
6	6	Pedycan	Tisha	409-268-9807	4
7	7	Branwhite	Susana	660-113-4022	3
8	8	Biasioni	Annelise	837-606-9488	2
9	9	Fincken	Teirulta	700-186-1953	2
10	10	Taudevin	Noni	512-602-6902	5
11	11	Cogle	Sander	441-422-0532	3
12	12	Mussettini	Antons	508-118-2169	4
13	13	Bridgwood	Chickie	327-453-9997	1
14	14	Fatscher	Cordelia	689-719-4711	2
15	15	Whatman	Minnie	705-632-6363	1
16	16	de Broke	Evie	494-633-4734	4
17	17	Kingerby	Rozanna	425-407-0817	2
18	18	Naish	Jere	741-536-7202	3
19	19	Abdee	Lotti	156-931-8203	5
20	20	Bohje	Nadia	551-678-1830	2
21	21	Ruffey	Merrick	271-548-3460	1
22	22	Parton	Hatti	751-291-4175	3
23	23	Orwin	Shepperd	515-918-0587	2
24	24	Audibert	Francoise	823-571-1308	4
25	25	Weetch	Eudora	386-224-3602	2
26	26	Ledster	Cirstoforo	904-188-7129	4
27	27	Arnely	Adrianna	694-488-4412	3

	part_id	part_type_brand	part_type	part_type	PARTS_INVENTORY
				_quant	
1	1	Michelin	Tire	16	INSERT INTO PARTS_INVENTORY VALUES(1,'Michelin','Tire',16);
2	2	Duralast	Break Pad	40	INSERT INTO PARTS_INVENTORY VALUES(2,'Duralast','Break Pad',40);
3	3	OEM	Cadalydic Convertor	0	INSERT INTO PARTS_INVENTORY VALUES(3,'OEM','Cadalydic Convertor',0);
4	4	Duralast	Rotors	16	INSERT INTO PARTS_INVENTORY VALUES(4,'Duralast','Rotors',16);
5	5	Speedway	Gas	50	INSERT INTO PARTS_INVENTORY VALUES(5,'Speedway','Gas',50);
6	6	Valvoline	Motor Oil	20	INSERT INTO PARTS_INVENTORY VALUES(6,'Valvoline','Motor Oil',20);
7	7	OEM	Lugnuts	60	INSERT INTO PARTS_INVENTORY VALUES(7,'OEM','Lugnuts',60);
8	8	Autozone	Spark Plugs	45	INSERT INTO PARTS_INVENTORY VALUES(8,'Autozone','Spark Plugs',45);
9	9	Valvoline	Wiper Blades	20	INSERT INTO PARTS_INVENTORY VALUES(9,'Valvoline','Wiper Blades',20);
10	10	Valvoline	Oil Filter	23	INSERT INTO PARTS_INVENTORY VALUES(10,'Valvoline','Oil Filter',23);
11	11	Clorox	Cleaner	14	INSERT INTO PARTS_INVENTORY VALUES(11,'Clorox','Cleaner',14);
12	12	Valvoline	Wiper Fluid	15	INSERT INTO PARTS_INVENTORY VALUES(12,'Valvoline','Wiper Fluid',15);
13	13	Valvoline	Coolant	12	INSERT INTO PARTS_INVENTORY VALUES(13,'Valvoline','Coolant',12);
14	14	Valvoline	Break Fluid	12	INSERT INTO PARTS_INVENTORY VALUES(14,'Valvoline','Break Fluid',12);
15	15	OEM	Engine Belt	6	INSERT INTO PARTS_INVENTORY VALUES(15,'OEM','Engine Belt',6);
16	16	OEM	Battery	8	INSERT INTO PARTS_INVENTORY VALUES(16,'OEM','Battery',8);
17	17	OEM	Gas Cap	9	INSERT INTO PARTS_INVENTORY VALUES(17,'OEM','Gas Cap',9);
18	18	Autozone	Freeze Plugs	7	INSERT INTO PARTS_INVENTORY VALUES(18,'Autozone','Freeze Plugs',7);
19	19	OEM	Shocks	12	INSERT INTO PARTS_INVENTORY VALUES(19,'OEM','Shocks',12);
20	20	OEM	Radiator Cap	10	INSERT INTO PARTS_INVENTORY VALUES(20,'OEM','Radiator Cap',10);
21					
22					
23					
24					
25					
26					

PARTS\_INVENTORY COMPLETION DEPARTMENT VEHICLE CHECKOUT RESERVATION FACULTY Sheet5

Ready Accessibility: Investigate

# Implementation - MySQL

FINAL\_PROJ v6 - Notepad

```
File Edit Format View Help
CREATE TABLE FACULTY (
    fac_id      NUMERIC(20,0) NOT NULL,
    fac_lname   VARCHAR(100)  NULL,
    fac_fname    VARCHAR(100)  NULL,
    fac_phonenum VARCHAR(100)  NULL,
    dept_id     NUMERIC(20,0) NOT NULL,
);
CREATE TABLE RESERVATION (
    reserv_id    NUMERIC(20,0) NOT NULL,
    reserv_departuredate Date NULL,
    veh_type     VARCHAR(255) NOT NULL,
    reserve_destination VARCHAR(255) NULL,
    fac_id       NUMERIC(20,0) NOT NULL,
    fac_lname   VARCHAR(100)  NOT NULL,
    fac_fname    VARCHAR(100)  NOT NULL,
);
CREATE TABLE CHECKOUT (
    reserv_id    NUMERIC(20,0) NOT NULL,
    checkout_date Date NULL,
    checkout_TFBSEmpSign VARCHAR(50) NULL,
    veh_id       NUMERIC(20,0) NOT NULL,
);
CREATE TABLE COMPLETION (
    reserv_id    NUMERIC(20,0) NOT NULL,
    comp_odometerstart NUMERIC(20,0) NULL,
    comp_odometerend NUMERIC(7,0)  NULL,
    comp_fuelgals NUMERIC(20,0) NULL,
    comp_credcardrec NUMERIC(20,0) NULL
);
CREATE TABLE DEPARTMENT (
    dept_id      NUMERIC(20,0) NOT NULL,
    dept_descript VARCHAR(50)  NULL,
    comp_credcardrec VARCHAR(50) NOT NULL
);
```

FINAL\_PROJ v6 - Notepad

```
File Edit Format View Help
CREATE TABLE VEHICLE (
    veh_id      NUMERIC(20,0) NOT NULL,
    veh_type    VARCHAR(50)  NULL,
    veh_descript VARCHAR(50)  NULL,
    veh_miliagerecords VARCHAR(50) NULL
);
CREATE TABLE MAINTENANCE_LOG (
    mainlog_id   NUMERIC(20,0) NOT NULL,
    mainlog_descript VARCHAR(50)  NULL,
    mainlog_logentrydate Date NULL,
    mainlog_comptdate Date NULL,
    mainlog_signature VARCHAR(255) NULL,
    veh_type     VARCHAR(255) NOT NULL,
    veh_id       NUMERIC(20,0) NOT NULL,
    mech_id     NUMERIC(20,0) NOT NULL
);
CREATE TABLE MAINTENANCE_DETAILS (
    part_id     NUMERIC(20,0) NOT NULL,
    part_used   VARCHAR(20)  NULL,
    mainlog_id   NUMERIC(20,0) NOT NULL,
    mech_id     NUMERIC(20,0) NOT NULL,
    main_signature VARCHAR(255) NULL
);
CREATE TABLE PARTS_INVENTORY (
    part_id     NUMERIC(20,0) NOT NULL,
    part_type_brand VARCHAR(255) NULL,
    part_type    VARCHAR(255)  NULL,
    part_type_quant NUMERIC(20,0) NULL
);
CREATE TABLE PARTS_USAGE (
    mech_id     NUMERIC(20,0) NOT NULL,
    mech_signature VARCHAR(255) NULL,
    mainlog_id   NUMERIC(20,0) NOT NULL
);
```

FINAL\_PROJ v6 - Notepad

```
File Edit Format View Help
CREATE TABLE MECHANICS (
    mech_id     NUMERIC(20,0) NOT NULL,
    mech_lname  VARCHAR(255)  NULL,
    mech_fname   VARCHAR(255) NULL
);
--Insert data
--FACULTY
INSERT INTO FACULTY VALUES(1,'Badrick','Cory','923-564-7756',3);
INSERT INTO FACULTY VALUES(2,'Dolby','Westley','234-479-8878',5);
INSERT INTO FACULTY VALUES(3,'Mithun','Fred','446-983-6944',3);
INSERT INTO FACULTY VALUES(4,'Walesa','Jacques','617-206-8767',3);
INSERT INTO FACULTY VALUES(5,'McMaster','Neil','657-150-9242',3);
INSERT INTO FACULTY VALUES(6,'Pedycan','Tisha','409-268-9807',4);
INSERT INTO FACULTY VALUES(7,'Branwhite','Susana','660-113-4022',3);
INSERT INTO FACULTY VALUES(8,'Biasioni','Annelise','837-666-9488',2);
INSERT INTO FACULTY VALUES(9,'Fincken','Teirtza','700-186-1953',2);
INSERT INTO FACULTY VALUES(10,'Taudevin','Noni','512-602-6902',5);
INSERT INTO FACULTY VALUES(11,'Cogle','Sander','441-422-0532',3);
INSERT INTO FACULTY VALUES(12,'Mussettini','Antons','508-118-2169',4);
INSERT INTO FACULTY VALUES(13,'Burdwood','Chickie','327-453-9997',1);
INSERT INTO FACULTY VALUES(14,'Fatschen','Cordella','689-719-4711',2);
INSERT INTO FACULTY VALUES(15,'Whatman','Minnie','705-632-6363',1);
INSERT INTO FACULTY VALUES(16,'de Broke','Evie','494-633-4734',4);
INSERT INTO FACULTY VALUES(17,'Kingerby','Rozanna','425-407-0817',2);
INSERT INTO FACULTY VALUES(18,'Naish','Jere','741-536-7202',3);
INSERT INTO FACULTY VALUES(19,'Abdee','Lotti','156-931-8203',5);
INSERT INTO FACULTY VALUES(20,'Bohje','Nadia','551-678-1830',2);
INSERT INTO FACULTY VALUES(21,'Ruffey','Merrick','271-548-3460',1);
INSERT INTO FACULTY VALUES(22,'Burton','Hatti','751-291-4175',3);
INSERT INTO FACULTY VALUES(23,'Orwin','Shepperd','515-918-0587',2);
INSERT INTO FACULTY VALUES(24,'Audibert','Francoise','823-571-1308',4);
INSERT INTO FACULTY VALUES(25,'Wetech','Eudora','386-224-3602',2);
INSERT INTO FACULTY VALUES(26,'Ledster','Cirstoforo','904-188-7129',4);
INSERT INTO FACULTY VALUES(27,'Arnely','Adrianna','694-488-4412',3);
INSERT INTO FACULTY VALUES(28,'Nials','Ellie','172-975-0191',2);
INSERT INTO FACULTY VALUES(29,'Sapsford','Byram','438-562-9598',1);
INSERT INTO FACULTY VALUES(30,'Ayliffe','Lexine','610-489-3285',4);
INSERT INTO FACULTY VALUES(31,'Santer','Corina','134-213-6589',4);
INSERT INTO FACULTY VALUES(32,'Nassy','Cherise','378-168-9731',3);
INSERT INTO FACULTY VALUES(33,'Courtillif','Loydie','269-295-9383',1);
```

\*Table Creation

# Implementation - MySQL

FINAL\_PROJ - Microsoft SQL Server Management Studio

File Edit View Query Project Debug Tools Window Help

New Query Execute Debug

master Default

CREATE\_POPULATE\_V...8.master (sa (52))

```
CREATE TABLE FACULTY (
    fac_id NUMERIC(20,0) NOT NULL,
    fac_lname VARCHAR(100) NULL,
    fac_fname VARCHAR(100) NULL,
    fac_phonenum VARCHAR(100) NULL,
    dept_id NUMERIC(20,0) NOT NULL,
);
```

```
CREATE TABLE RESERVATION (
    reserv_id NUMERIC(20,0) NOT NULL,
    reserv_departuredate Date NULL,
    veh_type VARCHAR(255) NOT NULL,
    reserve_destination VARCHAR(255) NULL,
    fac_id NUMERIC(20,0) NOT NULL,
    fac_lname VARCHAR(100) NOT NULL,
    fac_fname VARCHAR(100) NOT NULL,
);
```

```
CREATE TABLE CHECKOUT (
    reserv_id NUMERIC(20,0) NOT NULL,
    checkout_date Date NULL,
    checkout_TFBSEmpSign VARCHAR(50) NULL,
    veh_id NUMERIC(20,0) NOT NULL,
);
```

```
CREATE TABLE COMPLETION (
    reserv_id NUMERIC(20,0) NOT NULL,
    comp_odometerstart NUMERIC(20,0) NULL,
    comp_odometerend NUMERIC(7,0) NULL,
    comp_fuelgals NUMERIC(20,0) NULL,
    comp_credcardrec NUMERIC(20,0) NULL
);
```

```
CREATE TABLE DEPARTMENT (
```

Properties

Current connection parameters

- Elapsed time
- Finish time
- Name
- Rows returned
- Start time
- State

Connection

- Connection name

Connection Details

- Connection elapsed time
- Connection finish time
- Connection rows returned

100% < >

Co... DESKTOP-4I4BLM8 (12.0 RTM) | sa (52) | master | 00:00:00 | 0 rows

FINAL\_PROJ - Microsoft SQL Server Management Studio

File Edit View Query Project Debug Tools Window Help

New Query Execute Debug

master Default

DELETE.sql - DESKT...M8.master (sa (53))

```
Drop Table FACULTY ;
Drop Table RESERVATION ;
Drop Table CHECKOUT ;
Drop Table COMPLETION ;
Drop Table DEPARTMENT ;
Drop Table VEHICLE ;
Drop Table MAINTENANCE_LOG ;
Drop Table MAINTENANCE_DETAILS ;
Drop Table PARTS_INVENTORY ;
Drop Table PARTS_USAGE ;
Drop Table MECHANICS ;
```

Solution Explorer

Solution 'FINAL\_PROJ' (1 project)

- FINAL\_PROJ
- Connections
- Queries

- CREATE\_POPULATE\_V3.sql
- DELETE.sql
- QUERY\_FIVE.sql
- QUERY\_FOUR.sql
- QUERY\_ONE.sql
- QUERY\_THREE.sql
- QUERY\_TWO.sql
- TEST.sql
- Miscellaneous

Properties

Current connection parameters

- Elapsed time
- Finish time
- Name
- Rows returned
- Start time
- State

Connection

- Connection name

Connection Details

- Connection elapsed time
- Connection finish time
- Connection rows returned

100% < >

Name

\*Table Creation after the .txt file is implemented in Management Studio

6 versions of the .txt file were made

Delete Table- Allowed us to make changes us to refresh the table creation easily when we needed to make changes

# MySQL Query 1- Faculty Per Department

---

```
SELECT [dept_descript], COUNT(dept_descript) AS  
Faculty_Per_Department  
  
FROM [DEPARTMENT]  
  
JOIN [FACULTY] ON [FACULTY].[dept_id] =  
[DEPARTMENT].[dept_id]  
  
GROUP BY [dept_descript]  
  
ORDER BY [dept_descript];
```

	dept_descript	Faculty_Per_Department
1	Drama	17
2	Engineering	28
3	Engish	22
4	Math	13
5	Physics	20

/\* In this query we wanted to get the number of faculty per department. We joined FACULTY and DEPARTMENT through dept\_descript.

COUNT will not work without GROUP BY statement \*/

# MySQL Query 2- Who Went Where?

---

```
SELECT fac_fname, fac_lname, veh_type, reserve_destination  
FROM RESERVATION  
WHERE reserve_destination IN ('Grand Blanc', 'Southgate')  
ORDER BY reserve_destination, fac_fname, fac_lname;
```

/\* IN is treated as an logical statement, IN is a way to shorten up the code to look more Organized

Here we just wanted to see what people made a vehicle reservation with specific destinations \*/

	Results	Messages		
	fac_fname	fac_lname	veh_type	reserve_destination...
12	Rudolph	Murray	Nissan	Grand Blanc
13	Shepperd	Orwin	Nissan	Grand Blanc
14	Sherry	Emig	Ford	Grand Blanc
15	Teirtza	Fincken	Ford	Grand Blanc
16	Tisha	Pedycan	Ford	Grand Blanc
17	Valdemar	Elks	Ford	Grand Blanc
18	Westley	Dolby	Chevrolet	Grand Blanc
19	Annaliese	Clifford	Nissan	Southgate
20	Arvy	Wappling...	GMC	Southgate
21	Erik	Grimstead	Chevrolet	Southgate
22	Evie	de Broke	FORD	Southgate
23	Faustine	Dawberry	Ford	Southgate
24	Gasper	Heikkinen	GMC	Southgate
25	Jodie	Shorbrook	Ford	Southgate

# MySQL Query 3- Who and When?

```
SELECT [checkout_TFBSEmpSign], [CHECKOUT].[reserv_id], [veh_id],  
[checkout_date], reserv_departuredate
```

```
FROM [CHECKOUT]
```

```
JOIN [RESERVATION] ON [RESERVATION].[reserv_id] =  
[CHECKOUT].[reserv_id]
```

```
WHERE [checkout_date] >= '4/16/2021' AND [checkout_date] <=  
'1/31/2022'
```

```
ORDER BY [checkout_date], [checkout_TFBSEmpSign],  
[CHECKOUT].[reserv_id];
```

```
/* We wanted to grab all the checkout (purchase) and reservation dates in a  
specified amount of time and who made the requests
```

We had to join RESERVATION and CHECKOUT through reserv\_id

We then order it sequentially for both dates

Yielded 155 rows/results total \*/

	checkout_TFBSEmpS...	reserv...	veh...	checkout_date	reserv_departuredate
1	Dew Glowinski	18	2	2021-04-16	2021-04-21
2	Fred Mithun	106	8	2021-04-19	2021-04-20
3	Tisha Pedycan	183	16	2021-04-21	2021-04-21
4	Nelson Sigert	40	4	2021-04-27	2021-04-28
5	Ronni Plowright	165	8	2021-04-28	2021-05-01
6	Aviva Francesco	196	7	2021-04-30	2021-05-05
7	Gerti Bayly	182	5	2021-05-04	2021-05-05
8	Rozanna Kingerby	145	3	2021-05-05	2021-05-12
9	Cordelia Fatscher	61	6	2021-05-07	2021-05-08
10	Gasper Heikkinen	136	3	2021-05-08	2021-05-15
11	Jere Naish	42	12	2021-05-09	2021-05-13
12	Cherise Nassy	2	11	2021-05-10	2021-05-14
13	Whitaker Philipart	98	17	2021-05-11	2021-05-12
14	Westley Dolby	128	4	2021-05-12	2021-05-16

# MySQL Query 4- Vehicle History Reports

---

```
Select [MAINTENANCE_LOG].[mainlog_id] AS Maintenance_Log_ID, [mainlog_descript] AS Descript,  
[mainlog_logentrydate] AS Entry_Date, [mainlog_comptime] AS Complete_Date,  
  
[mainlog_signature] AS Mech_Sig, [MAINTENANCE_LOG].[veh_type] AS Car, [MAINTENANCE_LOG].[veh_id] AS  
Car_ID,  
  
[MAINTENANCE_LOG].[mech_id], [PARTS_INVENTORY].[part_id], [veh_descript] AS Year_Color,  
[veh_miliagerecords], [part_type_brand] AS Part_Brand, [part_type_quant] AS Part_Quantity  
  
From MAINTENANCE_LOG  
  
Join MAINTENANCE_DETAILS on MAINTENANCE_DETAILS.mainlog_id = MAINTENANCE_LOG.mainlog_id  
  
JOIN VEHICLE on VEHICLE.veh_id = MAINTENANCE_Log.veh_id  
  
join PARTS_INVENTORY on PARTS_INVENTORY.part_id = MAINTENANCE_DETAILS.part_id  
  
/* Here we wanted to present the combined data from MAINTENANCE_LOG, VEHICLE,  
MAINTENANCE_DETAILS, and PARTS_INVENTORY and simplify attribute names for customer*/
```

# MySQL Query 4- Vehicle History Reports

Maintenance_Log_ID	Descript	Entry_Date	Complete_D...	Mech_Sig	Car	Car_ID	mech...	part...	Year_Color	veh_miliagereco...	Part_Bra...	Part_Quan...
10	Break Pad Change	2022-11-22	2022-11-27	John Snow	Ford	10	1	2	1996 - Red	152269	Duralast	40
7	Rotor Change	2022-08-10	2022-08-14	Kate Sharma	Chevrolet	17	5	4	2020 - Blue	297504	Duralast	16
4	Fuel Change	2022-03-18	2022-03-24	James Darcy	Nissan	14	2	5	1994 - Blue	208098	Speedway	50
2	Oil Change	2022-01-25	2022-01-26	James Darcy	Nissan	14	2	6	1994 - Blue	208098	Valvoline	20
5	Whiper Blade Change	2022-05-07	2022-05-13	John Snow	Nissan	18	1	9	2000 - Black	226978	Valvoline	20
6	Coolant Refill	2022-06-08	2022-06-15	Simon Hastings	Chevrolet	20	4	13	2005 - Red	205591	Valvoline	12
3	Engine Belt Replacement	2022-03-13	2022-03-14	Kate Sharma	Chevrolet	2	5	15	1999 - Gray	180403	OEM	6
8	Shock Replacement	2022-10-01	2022-10-06	Simon Hastings	Chevrolet	20	4	16	2005 - Red	205591	OEM	8
7	Rotor Change	2022-08-10	2022-08-14	Kate Sharma	Chevrolet	17	5	19	2020 - Blue	297504	OEM	12
1	Radiator Cap Change	2021-09-17	2021-09-18	Kate Sharma	Nissan	18	5	20	2000 - Black	226978	OEM	10

# MySQL Query 5 Vehicles, Vehicles, Vehicles!

```
SELECT [VEHICLE].[veh_type], [veh_descript], [checkout_TFBSEmpSign],  
COUNT([checkout_TFBSEmpSign]) AS Total_Reservations  
FROM [CHECKOUT]  
  
JOIN [RESERVATION] ON [RESERVATION].[reserv_id] =  
[CHECKOUT].[reserv_id]  
  
JOIN [VEHICLE] ON [VEHICLE].[veh_id] = [CHECKOUT].[veh_id]  
  
GROUP BY [VEHICLE].[veh_type], [veh_descript], [checkout_TFBSEmpSign]  
  
Order By [VEHICLE].[veh_type], [veh_descript], Total_Reservations desc;  
  
/* We joined Reservation, Vehicle, and Checkout to form a report that  
explains who checked out what vehicle(s),
```

their description, and how many times each person reserved said vehicle

Yielded 190 rows\*/

	veh_type	veh_descri...	checkout_TFBSEmpS...	Total_Reservati...
1	Chevrolet	1999 - Gray	Ilyssa Persey	2
2	Chevrolet	1999 - Gray	Lotti Abdee	1
3	Chevrolet	1999 - Gray	Marjory Fellgate	1
4	Chevrolet	1999 - Gray	Perkin Greaves	1
5	Chevrolet	1999 - Gray	Tabbie Locks	1
6	Chevrolet	1999 - Gray	Valdemar Elks	1
7	Chevrolet	1999 - Gray	Westley Dolby	1
8	Chevrolet	1999 - Gray	Bee Poile	1
9	Chevrolet	1999 - Gray	Byram Sapsford	1
10	Chevrolet	1999 - Gray	Cherise Nassy	1
11	Chevrolet	1999 - Gray	Dew Glowinski	1
12	Chevrolet	1999 - Gray	Emelia Beedom	1
13	Chevrolet	1999 - Gray	Faustine Dawbery	1
14	Chevrolet	1999 - Gray	Haleigh Isbell	1

# MySQL Query 6- Simple and Educational

---

```
SELECT *, (Year(GETDATE()) - CAST(SUBSTRING(veh_descript, 1, 4) AS int))  
AS veh_age_years
```

```
FROM [VEHICLE]
```

```
Order by veh_age_years desc;
```

/\* CASTING: Taking characters in the string and turning them into integers,  
in this case to the first 4 values

SUBSTRING: grabbing the first 4 characters in the string

GETDATE: getting current system date

We are adding a column and calculating the year by breaking down  
veh\_descript separating the year out

Not much code, complicated query \*/

	veh...	veh_type	veh_descript	veh_miliagereco...	veh_age_ye...
1	1	Ford	1993 - Black	233304	29
2	5	GMC	1994 - Red	265925	28
3	14	Nissan	1994 - Blue	208098	28
4	15	GMC	1994 - Red	235921	28
5	19	Ford	1994 - Gray	289403	28
6	10	Ford	1996 - Red	152269	26
7	8	Nissan	1997 - Blue	257976	25
8	2	Chevrolet	1999 - Gray	180403	23
9	3	VW	2000 - Black	299957	22
10	13	VW	2000 - Gray	261026	22
11	18	Nissan	2000 - Black	226978	22
12	12	Chevrolet	2001 - Red	187985	21
13	6	FORD	2004 - Gray	247584	18
14	20	Chevrolet	2005 - Red	205591	17
15	16	Ford	2012 - Red	296196	10
16	7	Nissan	2015 - Red	191516	7
17	4	GMC	2019 - Blue	249931	3
18	17	Chevrolet	2020 - Blue	297504	2
19	9	Chevrolet	2021 - Blue	296027	1
20	11	GMC	2022 - Black	211927	0

---

## Challenges We Faced



- Managing our time, trying to find time to time to meet each other and work
- Mac vs. PC
- Problems with MySQL on Mac OS
- Date formatting
- Redoing the database code and queries/MYSQL
  - MySQL Code- Inefficient
  - Queries- They weren't challenging enough for the code we had designed at first so we redid these too



## Our Successes



Where there are challenges, there are successes!

- Restarting table code allowed us to apply professional techniques expected in a workplace environment!
- New tools to make this as realistic professional experience as possible!
- Microsoft Excel practice!
- Lessons learned from mistakes!
- Take our time the 2nd times around and yielded awesome results!
- Do research, and learn!
- Professional Presentation?!

**Ask Us Questions! Thank You!**