Project Overview:
For this final project, we propose the creation of a Customers database super class, a Vehicle database class, and a RepairMaintenanceOptions database subclass.

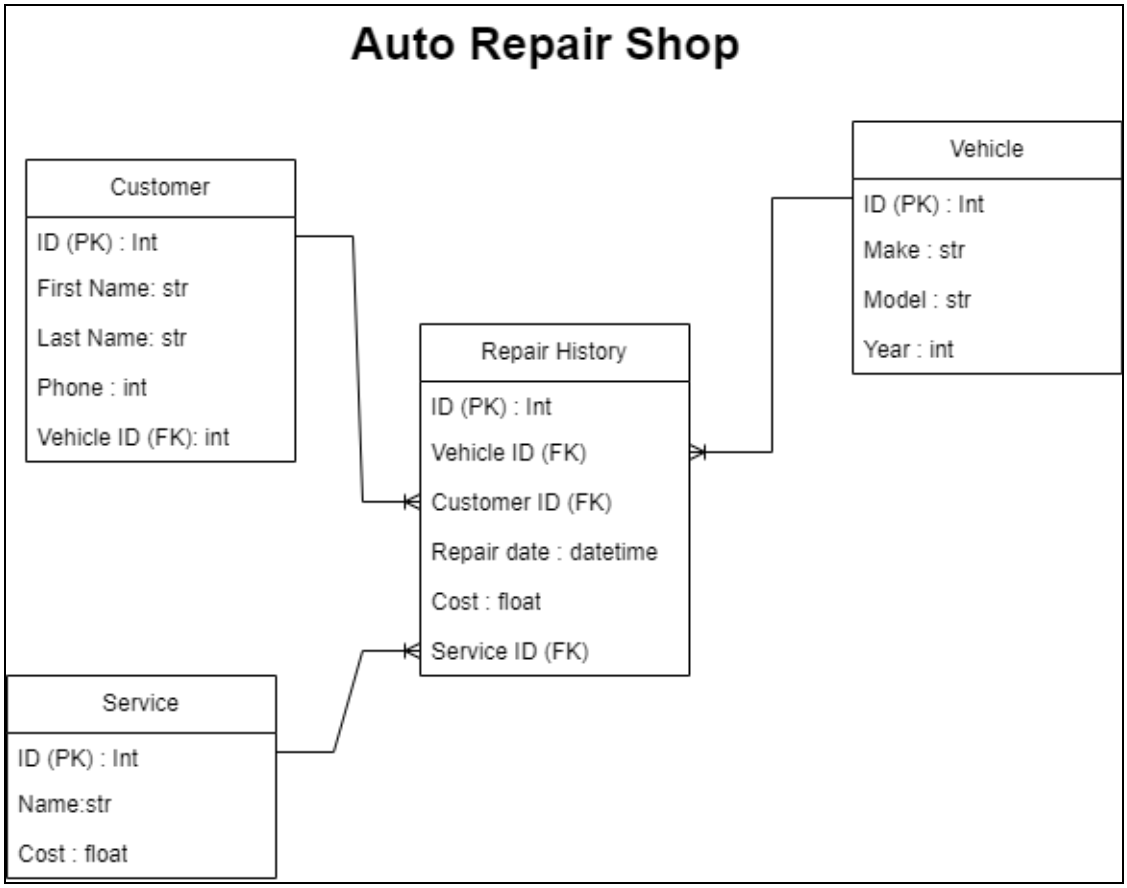
The customer class holds all existing customers, their vehicle type and identification number, the amount of money that they have spent along with their maintenance and repair history, their phone number, and customer identification number.

The Vehicle database class will contain all the vehicles operated on by the business.

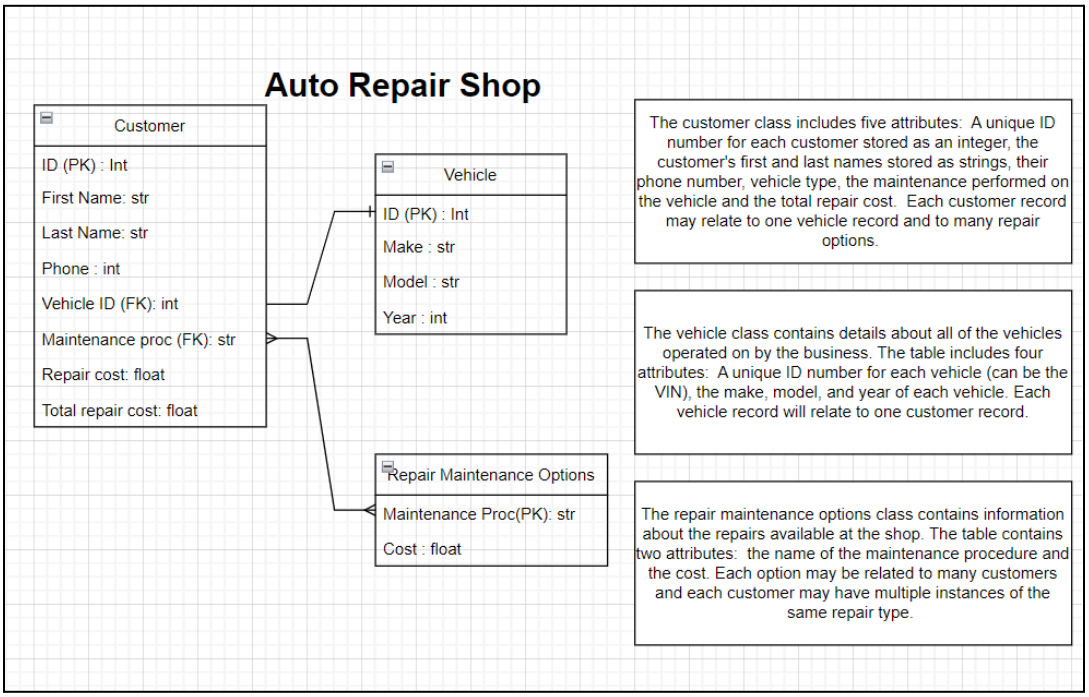
The RepairMaintenanceOptions database subclass will contain the different maintenance procedures and repair service per vehicle supplied by the business.

There will be one window UI that supports searching existing customers with their name or phone number, adding new customers, printing customer information, vehicle options, and maintenance options, as well as exporting information to a text file.

ERD (proposed):



ERD (final):



How it works: (This will have generic information and explanations.)

Back end:
The database behind the application comprises three tables.

The **Customer Management** table, which stores the following customer attributes:

Attribute	Datatype	Function
ID (Primary Key)	Integer	Identification number for customer; assigned by user
Name	String	Stores user name; can be just first or last name or both
Phone_Number	Integer; with constraints	Stores customer phone number; user is required to enter the dashes when entering the phone number
Vehicles (FK)	Integer	This field is linked to the vehicles table and stores the ID number of the vehicle entered for the customer
Spent (FK)	Float	Stores the total spent by the customer on all repairs selected in the Add Service tab.

The **Repairs** table which stores the following attributes for available services:

Attribute	Datatype	Function
ID (Primary Key)	Integer	Identification number for service type
Name	String	Stores the name of the available service
Description	String	Currently blank
Cost (FK)	Float	Stores the current cost for each repair

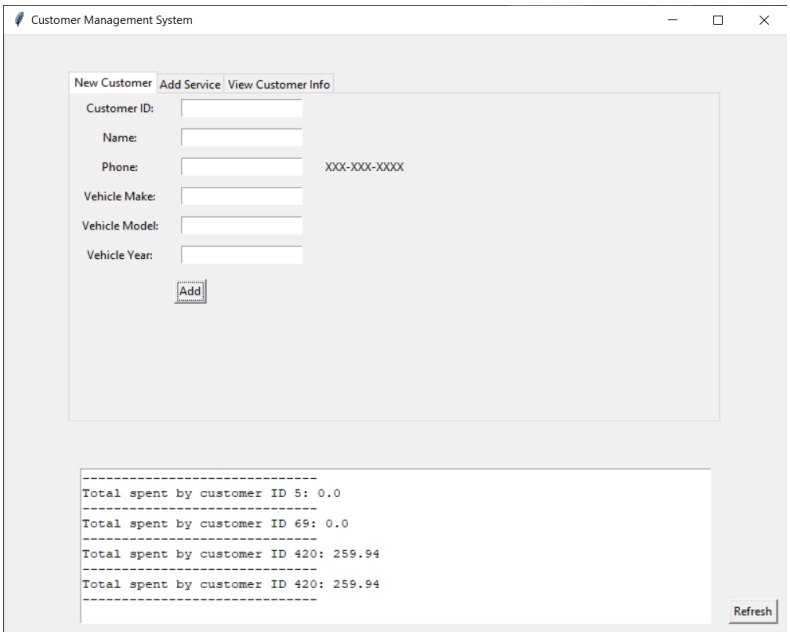
NOTE: This table currently has a bug that duplicates the entire table when the refresh button is clicked in the GUI. It should only contain 38 rows.

The **Vehicles** table which stores the following attributes for customer vehicles:

Attribute	Datatype	Function
ID (Primary Key)	Integer	Identification number for vehicle; auto generated when a customer's vehicle is entered in the New Customer tab
Make	String	Stores the make of the vehicle entered in the Make field on the New Customer tab
Model	String	Stores the model of the vehicle entered in the Model field on the New Customer tab; will accept models with letters and numbers
Year	Integer	Stores the year of the vehicle entered in the Year field on the New Customer tab
Maintenance (FK)	Integer	Stores a list of the IDs of all services performed on the vehicle

Front end:
When the application is launched, the GUI will open. At the top of the screen there will be three tabs that allow users to either enter or retrieve data.

New Customer:
This tab allows users to enter new customer information.
To create a new customer record:



Assign the customer a random ID number and enter that number into the **Customer ID** field.

Enter the customer's name into the **Name** field. This field will accept just a single name (first or last, not defined) or a person's full name with spaces and capitalization.

Enter the customer's phone number into the **Phone** field. This field accepts a 10 digit number in xxx-xxx-xxxx format.

Enter the name of the vehicle manufacturer into the **Vehicle Make** field.

Enter the name of the vehicle model into the **Vehicle Model** field. This field accepts both letters and numbers.

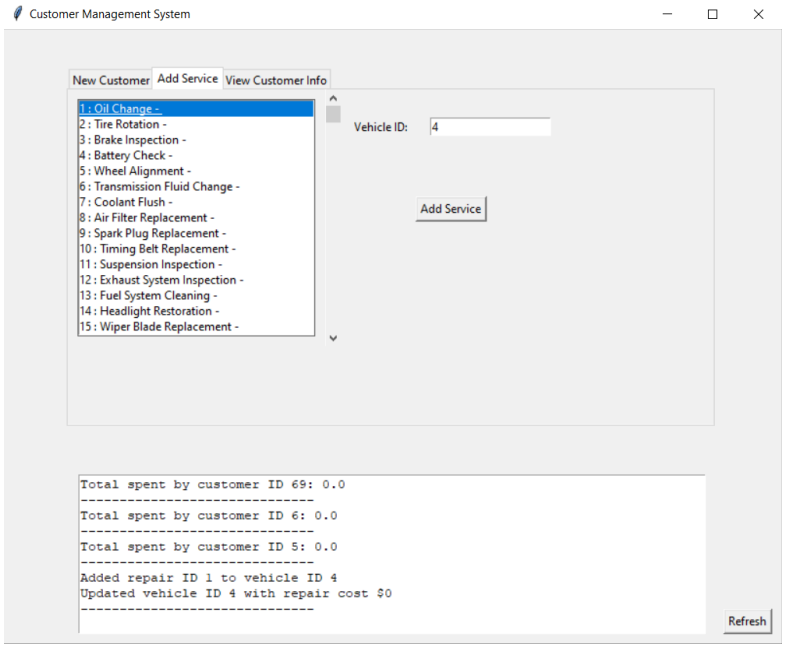
Enter the year the customer's vehicle was manufactured into the **Vehicle Year** field.

Click the Add button to create the new customer record in the Customer Management table in the database.
A record will also be created in the Vehicles table for the customer's vehicle. The record will be auto assigned an ID in that table. ***NOTE: The vehicle ID number WILL NOT match the customer's ID number, so you will need to note the vehicle ID to enter service correctly.***

NOTE: To check that the customer record has been correctly added, click the View Customer Info. tab. The new record should appear in the list. Click on the customer's name to check that their vehicle has also been added.

Add Service

This tab allows you to enter service details for a customer's vehicle.
On the left side of this tab is a list of all available services. To enter a service:



Type the vehicle ID number into the **Vehicle ID** field.

To add a service to a vehicle, highlight the service in the list and then click the **Add Service** button.

Scroll down to the bottom of the display field to check that the repair was added to the correct vehicle. The updated repair cost should display (this is currently not working).

View Customer Information

To review details related to a customer and their vehicle, click the View Customer Info tab.
Select a customer in the customer list to see which vehicle is associated with that customer.
Click on the vehicle to see the service(s) associated with a customer's vehicle.
The total spent by the selected customer for the services on the selected vehicle will appear in the display at the bottom of the form.