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Abstract Code

Login

Abstract Code

- User enters *username* (‘$username’) and *password* (‘$password’) input fields
- When ***Log In*** button is clicked:
-

```
SELECT username, user_type FROM app_user WHERE username=
'$username' AND password='$password';
```

  - If no User record is found:
    - Go back to **Login** form, with error message:
      - **Error: “No matching user/password”**
  - Else
    - Store login information with session variable ‘$user’ with attributes ‘$user.username’ and ‘$user.user_type’ that also used in rest of application for determining if the user is a InventoryClerk, SalesPerson, Owner, or Manager
    - Go to **Search Screen**

Parts Order

Abstract Code

- If ‘$user’ not defined or ‘$user.user_type’ not in ('owner’, ‘inventory_clerk’)
  - Redirect user to **Search Screen**
- Else:
  - Store VIN of vehicle for which we are adding parts order as ‘$vehicle.vin’, display on form as non-editable
  - Display text search field for Vendor Name with ***Search*** button where name is saved as variable ‘$vendor_name’

```
SELECT name, phone_number, street, city, state, postal_code FROM
vendor WHERE name = '$vendor_name';
```

    - If matching record found:
      - Show Name, Phone Number, Street, City, State Postal Code of matching vendor.
      - Provide button to ***Associate Vendor*** with PartsOrder

- If click ***Associate Vendor***, return to PartsOrder with vendor shown as non-editable
- Save vendor name as '$vendor_name'

- Else, provide ***Add Vendor*** button
  - Show editable fields with "*Name*", "Street Address*",* "City", "State", "*Postal Code*", "*Phone Number*" fields and ***Save*** button. They can click ***Save*** multiple times until all data validation passes.
  - Vendor is created in database upon clicking ***Save***

```
INSERT INTO vendor (name, phone_number, street, city,
state, postal_code) VALUES ('$vendor_name',
'$phone_number', '$street_address', '$city', '$state',
'$postal_code') RETURNING name;
```

- Once pass all data validation, show vendor *Name* shown as non-editable, save as variable '$vendor_name'

- Display ***Add Part*** button.
  - Upon click of ***Add Part*** display input fields for *"Part Number"*, *"Price (per unit)"*, *"Quantity"*.
  - The ***Add Part*** button can be clicked multiple times to add several parts
  - Save locally as array of tuples with values [('$part_number', '$unit_price', '$quantity')]
- Display ***Submit*** Button
  - Before beginning database transaction:
    - Validate there must be at least 1 part in the Parts Order
    - Validate '$vendor_name' is set
    - Validate '$vehicle.vin' is set
  - In a transaction:
    - Set '$parts_order_number' equal to result of query:

```
INSERT INTO parts_order (vin, ordinal, vendor_name) SELECT
'$vehicle.vin', COUNT(*) + 1, '$vendor_name' from
parts_order WHERE vin='$vehicle.vin' RETURNING
parts_order_number;
```

    - For as many tuples of parts as there are, insert them as follows

```
INSERT INTO part (part_number, unit_price, description,
quantity, parts_order_number) VALUES ('$part_number',
'$unit_price', '$description', '$quantity',
'$parts_order_number');
```

    - After parts have been added, update related vehicles '$total_parts_price'

```
UPDATE vehicle v
SET
    total_parts_price = (
```

```
        SELECT COALESCE(SUM(p.quantity * p.unit_price), 0)
        FROM part AS p
        INNER JOIN
            parts_order AS po
            ON p.parts_order_number = po.parts_order_number
        WHERE po.vin = '$vehicle.vin'
    )
WHERE v.vin = '$vehicle.vin';
```

- Parts saved in Transaction with rest of Parts Order

Vehicle Detail

Abstract Code

- Store '$vin' of vehicle that was clicked on for the detail view
- Always show public view whether '$user' is defined or not:
    - Read Vehicle from database, store result as '$vehicle'

```
SELECT
    v.vin,
    v.vehicle_type,
    v.manufacturer,
    v.model,
    v.description,
    v.model_year,
    v.fuel_type,
    v.horsepower,
    v.purchase_price,
    v.total_parts_price,
    v.customer_seller,
    v.customer_buyer,
    v.inventory_clerk,
    v.salesperson,
    v.sale_date,
    STRING_AGG(vc.color, ', ') AS colors,
    ROUND(
        (1.25 * v.purchase_price) + (1.1 * v.total_parts_price), 2
    ) AS sale_price
FROM vehicle AS v
LEFT JOIN vehicle_color AS vc ON v.vin = vc.vin
WHERE v.vin = '$vin'
GROUP BY
    v.vin,
    v.vehicle_type,
    v.manufacturer,
    v.model,
    v.model_year,
    v.fuel_type,
    v.horsepower,
    v.purchase_price,
```

```
    v.total_parts_price,
    v.customer_seller,
    v.customer_buyer,
    v.inventory_clerk,
    v.salesperson,
    v.sale_date;
```

  - Display read-only fields:
    - *VIN* ('$vehicle.vin')
    - *Vehicle Type* ('$vehicle.vehicle_type')
    - *Manufacturer* ('$vehicle.manufacturer')
    - *Model* ('$vehicle.model')
    - *Year* ('$vehicle.model_year)
    - *Fuel Type* ('$vehicle.fuel_type')
    - *Color(s)* ('$vehicle.colors')
    - *Horsepower* ('$vehicle.horsepower')
    - *Sale Price* ('$vehicle.sale_price')
    - *Description* ('$vehicle.description') of the vehicle. If defined, otherwise, empty string.
- If '$user' is defined and '$user.user_type' is Owner, Manager, or Inventory Clerk
  - Display ***Purchased Price:*** '$vehicle.purchase_price'
  - Display ***Total Cost of Parts***: '$vehicle.total_parts_price'
- If '$user' is defined and '$user.user_type' is Owner, Manager
  - Additionally look up the Customer that sold the vehicle to the dealership '$vehicle.customer_seller' and store as '$seller'

```
SELECT
    cs.phone_number,
    CONCAT(cs.street, ', ', cs.city, ', ', cs.state, ', ', cs.postal_code)
AS address,
    TRIM(COALESCE(CONCAT(b.title, ' ', b.first_name, ' ', b.last_name, ' ',
i.first_name, ' ', i.last_name), '')) AS contact,
    COALESCE(b.business_name, NULL) AS business_name
FROM customer AS cs
LEFT JOIN individual AS i ON cs.tax_id = i.ssn
LEFT JOIN business AS b ON cs.tax_id = b.tin
WHERE cs.tax_id = '$vehicle.customer_seller';
```

    - Display ***Purchased From***:
      - ***Contact:*** '$seller.contact'
      - ***Phone Number*** '$seller.phone_number'
      - ***Address*** '$seller.address'
      - ***Email*** '$seller.email'
      - If '$seller.business_name' is not null:
        - Also display ***Business Name***: '$seller.business_name'

        - Display ***Purchased Date***: '$vehicle.purchase_date'
    - Additionally look up the EmployeeBuyer and store result as '$inventory_clerk:

```
SELECT
    CONCAT(
        eb.first_name, ' ', eb.last_name
    ) AS name
FROM app_user as eb
WHERE eb.username = '$vehicle.inventory_clerk';
```

        - display as "***Purchased By***: ('$purchaser.name').
    - Additionally display the *Purchase Date* of the vehicle ('$vehicle.purchase_date')
    - If the vehicle's sale date ('$vehicle.sale_date') is not null:
        - Additionally look up the VehicleSeller that sold the vehicle and store as '$salesperson':

```
SELECT
    CONCAT(
        eb.first_name, ' ', eb.last_name
    ) AS name
FROM app_user as eb
WHERE eb.username = '$vehicle.salesperson';
```

            - Display "***Sold By***: '$salesperson.name'.
            - Additionally look up the Customer bought the vehicle and store as '$customer_buyer'

```
SELECT
    cs.phone_number,
    CONCAT(cs.street, ', ', cs.city, ', ', cs.state, ', ',
cs.postal_code) AS address,
    TRIM(COALESCE(CONCAT(b.title, ' ', b.first_name, ' ',
b.last_name, ' ', i.first_name, ' ', i.last_name), '')) AS
contact,
    COALESCE(b.business_name, NULL) AS business_name
FROM customer AS cs
LEFT JOIN individual AS i ON cs.tax_id = i.ssn
LEFT JOIN business AS b ON cs.tax_id = b.tin
WHERE cs.tax_id = '$vehicle.customer_buyer';
```

            - Display ***Sold To***:
                - ***Contact:*** '$seller.contact'
                - ***Phone Number*** '$seller.phone_number'
                - ***Address*** '$seller.address'
                - ***Email*** '$seller.email'
                - If '$seller.business_name' is not null:
                    - Also display ***Business Name***: '$seller.business_name'
            - Display ***Sale Date***: '$vehicle.sale_date'
- If '$user' is defined and '$user.user_type' is Owner or InventoryClerk

- Get list of parts

```
SELECT
    p.part_number,
    p.description,
    p.quantity,
    p.unit_price,
    p.status,
    p.parts_order_number,
    po.vendor_name
FROM part AS p
INNER JOIN parts_order AS po ON p.parts_order_number = po.parts_order_number
WHERE po.vin = '$vin'
ORDER BY p.parts_order_number;
```

- Display list of Part(s). For each '$partorder' we previously mapped to their array of '$parts' we previously saved, display:
  - PartsOrder: '$partorder.PartsOrderNumber'
    - For each part in the mapped '$parts' array, display
      - Part Number: '$part.part_number'
      - Description: '$part.description'
      - Quantity: '$part.quantity'
      - Unit Price: '$part.unit_price'
      - Part Status: '$part.status'
      - Part Order Id: '$part.parts_order_number'
      - If '$vehicle.sale_date' is Null and '$part.status' is not "installed"
        - Display button ***Update Parts Status*** on each part which allows user to select from dropdown for the status for the selected Part
          - Display status as drop down
          - Display a "***Save***" button on row of part
          - A Part cannot be changed to a previous status in the ordered list "ordered", "received", "installed". Only display valid options. So a part in ordered will only show "received" or "installed" as options. A part in "received" will only show "installed".
          - Once a part is in the "Installed" state it cannot be updated so don't display drop down.
          - After passing these checks, update part status with:

```
UPDATE part
SET status = 'installed'
WHERE
```

```
    parts_order_number =
'$part.parts_order_number' AND part_number =
'$part.part_number';
```

- We should check Part Status again before saving and display an Error message if it has already been updated to a status that makes our update invalid.
    - **Error:** "Cannot Update Status"
- If '$vehicle.sale_date' is Null (vehicle is not sold)
    - Display button ***Add Parts Order*** which will take the user to the **Add Parts Order** form

- If '$user' is defined and '$user.user_type' is Owner or SalesPerson
    - Display button ***Sell Vehicle*** which will take user to the **Sell Vehicle** form

Add Vehicle

Abstract Code

- User clicked on ***Add Vehicle*** button from **Search Screen** page.
    - If '$user' is not defined or '$user.user_type' is not either Inventory Clerk or Owner
        - Return to **Search Screen** page
    - Else
        - Store '$user.username' as the '$EmployeeBuyer'
        - Display *search* field to look up for customers.
        - User enters *ssn* or *tin* in to *search* field to look up customers and it is stored as '$tax_id'
            - When the ***Search*** button is clicked.

```
SELECT tax_id FROM customer WHERE tax_id = '$tax_id';
```

            - If a value is found, it is stored as '$customer'.
            - Else:
                - "Customer not found" message displayed.
                - ***Add a New Customer*** button is displayed.
                - When the user click on ***Add a New Customer*** button it displays the **Add Customer** sub-form, which executes the Add Customer sub-task.
                - When user successfully add a new customer, continue with the customer's '$ssn' or '$tin' is stored as '$customer'
        - After saving customer identifier in '$customer'
        - Enable input for:

- *Vin* (‘$vin’)
- *Vehicle Type* (‘$ vehicle_type’)
    - Provide drop down of predefined values
- *Manufacturer* (‘$manufacturer’)
    - Provide drop down of predefined values
- Model (‘$model’)
- Year (‘$model_year’)
- Horsepower (‘$horsepower’)
- Fuel Type (‘$fuel_type’
    - Gas, Diesel, Natural Gas, Hybrid, Plugin Hybrid, Battery, or Fuel Cell
- Colors (‘$colors’),
    - Provide drop down multi-select and save as list of values
- Condition (‘$condition’):
    - Drop down of values:
        - Excellent, Very Good, Good, Fair
- Description (‘$description’) (optional, store as NULL if not provided),
- Purchase Price (‘$purchase_price’)

Color(s) must be at least one that in mentioned in appendix of project spec

- Manufacturer must be one that is mentioned in the appendix of project spec
- SaleDate is instantiated as NULL and not defined until vehicle is sold

▪ Before enabling Add Vehicle button, require all required fields to have input
▪ When user clicks on ***Add Vehicle*** button
- Attempt to add new vehicle to the database

```
INSERT INTO vehicle (
    vin,
    description,
    horsepower,
    model_year,
    model,
    manufacturer,
    vehicle_type,
    purchase_price,
    purchase_date,
    condition,
    fuel_type,
    inventory_clerk,
    customer_seller
)
VALUES (
    '$vin',
    '$description',
```

```
    '$horsepower',
    '$model_year',
    '$model',
    '$manufacturer',
    '$vehicle_type',
    '$purchase_price',
    CURRENT_DATE,
    '$condition',
    '$fuel_type',
    '$inventory_clerk',
    '$customer_seller'
)
RETURNING vin;
```

- If insert fails, display error
- Else, Store result as '$vin' and pass to Vehicle Detail page
- **Vehicle Detail** page is displayed

Add Customer (shared subtask)

Abstract Code

- User opens the sub-form **Add Customer** from either the **Add Vehicle Form** or the **Sell Vehicle Form** after checking that the customer doesn't exist.
- Instantiate local dictionary '$customer'
- User selects whether the customer is an individual or a business using a radio button.
- If customer type is 'individual':
  - Set '$customer_type' to 'i'
  - *SSN* ('$tax_id'): Ensure the format is 9 digits.
- If customer type is 'business'
  - Set 'customer_type' to 'b'
  - *TIN* ('$tax_id')
- For all customers, collect:
  - *First Name* ('$first_name')
  - *Last Name* ('$last_name')
  - *Street* ('$street')
  - *City* ('$city')
  - *State* ('$state')
  - *Postal Code* ('$postal_code')
  - *Phone Number* ($phone_number'): Ensure it matches a valid phone number pattern like 9292009789. Display text box and only accept 10 digits

- Optional: *Email* (‘$email’) (set to NULL if not provided)

- If customer type is 'b', also collect:
  - *Business Name* (‘$business_name’)
  - *Title* (‘$title’)
- User clicks the ***Submit*** button on the **Add Customer** form.
  - The following insertions will be made in a transaction, where we commit all changes or rollback if not all succeed/in the case of an error.

```
INSERT INTO customer (
    tax_id, customer_type, email, phone_number, street, city, state,
postal_code
) VALUES
(
    '$tax_id',
    '$customer_type',
    '$email',
    '$phone_number',
    '$street',
    '$city',
    '$state',
    '$postal_code'
) RETURNING *;
```

    - If customer_type = ‘i’

```
INSERT INTO individual (ssn, customer_type, first_name,
last_name) VALUES
('$tax_id', '$customer_type', '$first_name', '$last_name');
```

    - Else:

```
INSERT INTO business (
    tin, customer_type, business_name, title, first_name,
last_name
) VALUES
('$tax_id', '$customer_type', '$business_name',  '$title',
'$first_name', '$last_name');
```

- Feedback:
  - If successful:
    - Display a message: **"Customer added successfully."**
    - Return ‘$customer’ variable with value of ‘$tax_id’
  - If unsuccessful:
    - If validation error: Display an error message indicating the specific issue (e.g., **Error:** "Missing required fields" or **Error:** "Invalid SSN format").
    - If duplicate record: Display an error message:
      - **Error:** "Customer already exists."

- Keep sub-form open and editable

Sell Vehicle

Abstract Code

- User clicks on the ***Sell Vehicle*** button from the **Vehicle Detail** page.
-
  - If '$user' is not defined or '$user.user_type' is not either Salesperson or Owner
    - Redirect to the **Search Screen** page
  - Else
    - Store '$user.username' as the '$salesperson'
    - Store '$vehicle' along with all attributes from Vehicle Detail screen including '$vehicle.vin', '$vehicle.sale_price' (which was computed on **Search Screen**) for the vehicle that was selected from Search), '$vehicle.total_parts_price' '$vehicle.sale_date', '$vehicle.customer_buyer', '$vehicle.salesperson'
    - User enters *ssn* or *tin* in to *search* field to look up customers and it is stored as '$tax_id'
      - When the ***Search*** button is clicked.

```
SELECT tax_id FROM customer WHERE tax_id = '$tax_id';
```

        - If a value is found, it is stored as '$customer'.
        - Else:
          - "Customer not found" message displayed.
          - ***Add a New Customer*** button is displayed.
          - When the user click on ***Add a New Customer*** button it displays the **Add Customer** sub-form, which executes the Add Customer sub-task.
          - When user successfully add a new customer, continue with the customer's '$ssn' or '$tin' is stored as '$customer'
    - After the user clicks on the ***Confirm Sale*** button
      - Check if '$vehicle.sale_date' is null and '$vehicle.customer_buyer' attribute is null and '$vehicle.salesperson' is null
        - If all are still null

```
UPDATE vehicle
SET
    sale_date = CURRENT_DATE,
    customer_buyer = '$customer',
    salesperson = '$salesperson'
WHERE vehicle.vin = '$vin' AND sale_date IS NULL;
```

        - If succeeds, Display message "Success"
        - Else, return error from UPDATE query
    - Else
        - Display an error message "Error: Sorry, vehicle already sold!"
    - Return to **Search Screen**

View Sellers History

Abstract Code

- If '$user' is not defined or '$user.user_type' not either Owner or Manager:
    - Redirect to **Search Screen**. The user should not be able to see this screen.
- Else
    - Display Title *Sellers History Report*
    - Display a table with columns: *Name/Business, Total Vehicles Sold, Average Purchase Price, Total Parts Count, Average Parts Price/Vehicle*
    - Rows will be result of query:

```
SELECT
    COALESCE(
        b.business_name, CONCAT(i.first_name, ' ', i.last_name)
    ) AS namebusiness,
    COUNT(DISTINCT v.vin) AS vehiclecount,
    COALESCE(ROUND(AVG(v.purchase_price), 2), 0) AS averagepurchaseprice,
    COALESCE(SUM(p.quantity), 0) AS totalpartscount,
    COALESCE(
        ROUND(
            SUM(p.quantity * p.unit_price) / NULLIF(COUNT(DISTINCT v.vin),
0), 2
        ),
        0
    ) AS averagepartscostpervehiclepurchased,
    CASE
        WHEN
            ROUND(
                SUM(p.quantity * p.unit_price)
                / NULLIF(COUNT(DISTINCT v.vin), 0),
                2
            )
            > 500
            OR SUM(p.quantity) / NULLIF(COUNT(DISTINCT v.vin), 0) > 5
            THEN 'highlight'
        ELSE 'no-highlight'
    END AS highlight
FROM
    vehicle AS v
```

```
LEFT JOIN
    parts_order AS po ON v.vin = po.vin
LEFT JOIN
    part AS p ON po.parts_order_number = p.parts_order_number
INNER JOIN
    customer AS cs ON v.customer_seller = cs.tax_id
LEFT JOIN
    individual AS i ON cs.tax_id = i.ssn
LEFT JOIN
    business AS b ON cs.tax_id = b.tin
GROUP BY
    cs.tax_id, b.business_name, i.first_name, i.last_name
ORDER BY
    vehiclecount DESC, averagepurchaseprice ASC;
```

- If tuple final value is 'highlight', highlight the row in red

View Average Time in Inventory

Abstract Code

- If $user is not defined or '$user.user_type' is not in (Owner, Manager)
  - Redirect to **Search Screen**
- Else:
  - Display Title: "Average Time in Inventory Report"
  - Display a table with columns: *Vehicle Type, Average Days in Inventory*

```
SELECT
    vt.vehicle_type,
    COALESCE(
        AVG(
            DATE_PART(
                'day', v.sale_date::TIMESTAMP -
v.purchase_date::TIMESTAMP
            )
            + 1
        )::VARCHAR,
        'N/A'
    ) AS average_time_in_inventory
FROM (
    SELECT UNNEST(ARRAY[
        'Sedan',
        'Coupe',
        'Convertible',
        'CUV',
        'Truck',
        'Van',
        'Minivan',
        'SUV',
        'Other'
    ]) AS vehicle_type
```

```
) AS vt
LEFT JOIN
    vehicle AS v
    ON vt.vehicle_type = v.vehicle_type AND v.sale_date IS NOT
NULL
GROUP BY vt.vehicle_type
ORDER BY vt.vehicle_type;
```

View Price per Condition

Abstract Code

- If '$user' is not defined or '$user.user_type' is not in (Owner, Manager):
  - Redirect back to **Search Screen**
- Else:
  - Display Title: "Purchase Price Per Condition Report"
  - Display table with column headings: *Vehicle Type* and then columns for each condition: *'Excellent', 'Very Good', 'Good', 'Fair'*
  - Rows will be result of query:

```
SELECT
    vt.vehicle_type,
    COALESCE(
        SUM(
            CASE WHEN v.condition = 'Excellent' THEN v.purchase_price
ELSE 0 END
        ),
        0
    ) AS excellenttotalprice,
    COALESCE(
        SUM(
            CASE WHEN v.condition = 'Very Good' THEN v.purchase_price
ELSE 0 END
        ),
        0
    ) AS verygoodtotalprice,
    COALESCE(
        SUM(CASE WHEN v.condition = 'Good' THEN v.purchase_price ELSE
0 END), 0
    ) AS goodtotalprice,
    COALESCE(
        SUM(CASE WHEN v.condition = 'Fair' THEN v.purchase_price ELSE
0 END), 0
    ) AS fairtotalprice
FROM (
    SELECT UNNEST(ARRAY[
        'Sedan',
        'Coupe',
        'Convertible',
        'CUV',
        'Truck',
```

```
        'Van',
        'Minivan',
        'SUV',
        'Other'
    ]) AS vehicle_type
) AS vt
LEFT JOIN vehicle AS v ON vt.vehicle_type = v.vehicle_type
GROUP BY vt.vehicle_type
ORDER BY vt.vehicle_type DESC;
```

View Parts Statistics

Abstract Code

- If '$user' is not defined or '$user.user_type' is not in (Owner, Manager)
  - Redirect back to **Search Screen**
- Else:
  - Display Title: "Parts Stats Report"
  - Show table with columns *Vendor Name*, *Parts Count, Total Expense*
  - Rows will be result of query:

```
SELECT
    vendor.name,
    SUM(part.quantity) AS totalpartsquantity,
    SUM(part.quantity * part.unit_price) AS vendortotalexpense
FROM parts_order AS partsorder
INNER JOIN
    part AS part
    ON partsorder.parts_order_number = part.parts_order_number
INNER JOIN vendor AS vendor ON partsorder.vendor_name = vendor.name
GROUP BY vendor.name
ORDER BY vendortotalexpense DESC;
```

Monthly Sales Summary

Abstract Code

- **Summary** Page
  - Table with columns:
    - *Year, Month, Number Vehicles Sold, Gross Income, Net Income, Drilldown*
    - Rows will be result of following query with a link added as last item that will pass the year and month for that row to the Drilldown page

```
SELECT
    DATE_PART('year', v.sale_date) AS year_sold,
    DATE_PART('month', v.sale_date) AS month_sold,
    COUNT(DISTINCT v.vin) AS numbervehicles,
    SUM(
```

```
        ROUND((1.25 * v.purchase_price) + (1.1 * v.total_parts_price),
2)
    ) AS grossincome,
    (
        SUM(ROUND((1.25 * v.purchase_price) + (1.1 *
v.total_parts_price), 2))
        - SUM(v.total_parts_price)
    ) AS netincome
FROM vehicle AS v
WHERE v.sale_date IS NOT NULL
GROUP BY
    DATE_PART('year', v.sale_date),
    DATE_PART('month', v.sale_date)
HAVING
    SUM(ROUND((1.25 * v.purchase_price) + (1.1 * v.total_parts_price),
2)) > 0
ORDER BY year_sold DESC, month_sold DESC;
```

- **Drilldown** Page per Month
    - Application will save '$year_sold' and '$month_sold' data for the row clicked for the drilldown report

Monthly Sales Drilldown

Abstract Code

- Application will save '$year_sold' and '$month_sold' data for the row clicked for the drilldown report
    - Show a table with columns
        - *First Name, Last Name, Vehicles Sold, Total Sales*
        - Rows will be result of following query:

```
SELECT
    au.first_name,
    au.last_name,
    vehiclesold,
    totalsales
FROM
    (
        SELECT
            e.username,
            COUNT(DISTINCT v.vin) AS vehiclesold,
            SUM(
                ROUND(
                    (1.25 * v.purchase_price) + (1.1 *
v.total_parts_price), 2
                )
            ) AS totalsales
        FROM vehicle AS v
        INNER JOIN salesperson AS e ON v.salesperson = e.username
        WHERE
```

```
            EXTRACT(YEAR FROM v.sale_date) = '$year_sold'
            AND EXTRACT(MONTH FROM v.sale_date) = '$month_sold'
        GROUP BY e.username
    ) AS a
INNER JOIN app_user AS au ON a.username = au.username
GROUP BY au.first_name, au.last_name, vehiclesold, totalsales
ORDER BY vehiclesold DESC, totalsales DESC;
```

Search Vehicles

Abstract Code

- The following is displayed regardless of whether a logged in User or a public user views the **Search Screen**.
    - Display total number of cars available for sale (cars without pending parts)
        - To compute:

```
SELECT COUNT(*)
FROM vehicle AS v
LEFT JOIN (
    SELECT po.vin
    FROM parts_order AS po
    INNER JOIN part AS p ON po.parts_order_number =
p.parts_order_number
    WHERE p.status <> 'installed'
) AS po_not_installed ON v.vin = po_not_installed.vin
WHERE po_not_installed.vin IS NULL
AND v.sale_date IS NULL;
```

    - Display filter options, drop down with single selection
        - Drop down *Vehicle type*

```
SELECT DISTINCT v.vehicle_type FROM vehicle AS v;
```

        - Drop down *Manufacturer*

```
SELECT DISTINCT v.manufacturer FROM vehicle AS v;
```

        - Drop down for *Year*

```
SELECT DISTINCT v.model_year FROM vehicle AS v;
```

        - Drop Down *Fuel Type*

```
SELECT DISTINCT v.fuel_type FROM vehicle AS v;
```

        - Drop down for *Color*

```
SELECT DISTINCT v.color FROM vehicle AS v;
```

        - Text field for *Keyword*
    - Display a ***Search*** button
- If '$user' is not defined
    - Display **Login Page** link
- Else If '$user' is defined (Priviliged User)
    - Display Search by *VIN* input field.
        - When submitted, submit as all uppercase to match VIN in database
    - If '$user.user_type' is "InventoryClerk" or "Owner"
        - Display ***Add Vehicle*** button
        - When user clicks on ***Add Vehicle*** button, go to **Add Vehicle** page
    - If '$user.user_type' is "Manager" or "Owner" or "Inventory Clerk"
        - Display total number of cars with parts in pending
            - To compute:

```
WITH po_not_installed AS (
    SELECT po.vin
    FROM parts_order AS po
    INNER JOIN part AS p ON po.parts_order_number =
p.parts_order_number
    WHERE p.status <> 'installed'
)
SELECT COUNT(*)
FROM vehicle AS v
LEFT JOIN po_not_installed ON v.vin = po_not_installed.vin
WHERE
    po_not_installed.vin IS NOT NULL
    AND v.sale_date IS NULL;
```

    - If '$user.user_type' is 'Manager' or 'Owner'
        - Display *VIN* input field for search and store input as '$vin'
        - Set '$include_parts_not_ready' = TRUE
        - Display three radio buttons with the options of Search in
            - ***All***
                - If selected, set '$filter_type' = 'unsold'
            - ***Sold***
                - If selected, set '$filter_type' = 'unsold'
            - ***Unsold***
                - If selected, set '$filter_type' = 'unsold'
        - Display a list of links for the following reports:
            - **Seller History Report** link.
            - **Average Time in Inventory Report** link.

- **Price Per Condition Report** link.
- **Parts Statistics Report** link.
- **Monthly Sales Report** link.

- If '$user' is NOT defined (public)
  - Set '$filter_type' = 'unsold'
  - Set '$include_parts_not_ready' = FALSE
  - Set '$vin' to NULL
- If '$user' is defined AND '$user.user_type' is "sales_person"
  - Set '$filter_type' = 'unsold'
  - Set '$include_parts_not_ready' = FALSE
  - Display VIN input field for search and store input as '$vin'
- If '$user' is defined AND '$user.user_type' is in "inventory_clerk"
  - Set '$filter_type' = 'unsold'
  - Set '$include_parts_not_ready' = TRUE
  - Display VIN input field for search and store input as '$vin'

- When the ***Search*** button is clicked

```
SELECT
    vw.vin,
    vw.vehicle_type,
    vw.manufacturer,
    vw.model,
    vw.model_year,
    vw.fuel_type,
    vw.colors,
    vw.horsepower,
    vw.sale_price
FROM (
    SELECT
        v.vin,
        v.vehicle_type,
        v.manufacturer,
        v.model,
        v.description,
        v.model_year,
        v.fuel_type,
        v.horsepower,
        v.purchase_price,
        v.sale_date,
        STRING_AGG(vc.color, ', ') AS colors,
        ROUND(
            (1.25 * v.purchase_price) + (1.1 * v.total_parts_price), 2
        ) AS sale_price
    FROM vehicle AS v
    LEFT JOIN vehicle_color AS vc ON v.vin = vc.vin
    GROUP BY
        v.vin,
        v.vehicle_type,
        v.manufacturer,
        v.model,
        v.model_year,
```

```
        v.fuel_type,
        v.horsepower,
        v.purchase_price,
        v.sale_date
) AS vw
WHERE
    (vw.vin NOT IN (
        SELECT po.vin
        FROM parts_order AS po
        INNER JOIN part AS p ON po.parts_order_number = p.parts_order_number
        WHERE p.status <> 'installed'
    ) OR '$include_parts_not_read')
    AND (
        (vw.sale_date IS NULL AND '$filter_type' = 'unsold')
        OR (vw.sale_date IS NOT NULL AND '$filter_type' = 'sold')
        OR ('$filter_type' = 'both')
    )
    AND (vw.vehicle_type = '$vehicle_type' OR '$vehicle_type' IS NULL)
    AND (vw.manufacturer = '$manufacturer' OR '$manufacturer' IS NULL)
    AND (vw.model_year = '$model_year' OR '$model_year' IS NULL)
    AND (vw.fuel_type = '$fuel_type' OR '$fuel_type' IS NULL)
    AND (vw.colors LIKE NULL OR NULL IS NULL)
    AND (LOWER(vw.vin) = LOWER('$vin') OR '$vin' IS NULL)
    AND (
        (vw.manufacturer ILIKE '%$keyword%' OR '%$keyword%' = '%%')
        OR (vw.model ILIKE '%$keyword%' OR '%$keyword%' = '%%')
        OR (vw.model_year::TEXT ILIKE '%$keyword%' OR '%$keyword%' = '%%')
        OR (vw.description ILIKE '%$keyword%' OR '%$keyword%' = '%%')
    )
ORDER BY vw.vin ASC;
```

- If the search query does not return any vehicles, return an **error** message
    - **“Sorry, it looks like we don’t have that in stock!”**
- Else, the search results will be displayed in a list which every item with the following data:
    - VIN
    - Vehicle Type
    - Manufacturer
    - Model
    - Year
    - Fuel Type
    - Colors (In the same line)
    - Horsepower
    - Sale Price
    - Display ***See Details*** button
        - When user clicks on ***See Details*** button it will take the user to **Vehicle Detail** page