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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

- o If click **Associate Vendor**, return to PartsOrder with vendor shown as non-editable
  - o 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'
- o 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')]
- o 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';
```

- 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 is 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 Stats

### 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 vendortotalexpenditure  
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 vendortotalexpenditure 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 (Privileged 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'
  - 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.
- When the **Search** button is clicked
  - 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' = FALSE
    - Display VIN input field for search and store input as '\$vin'

```
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