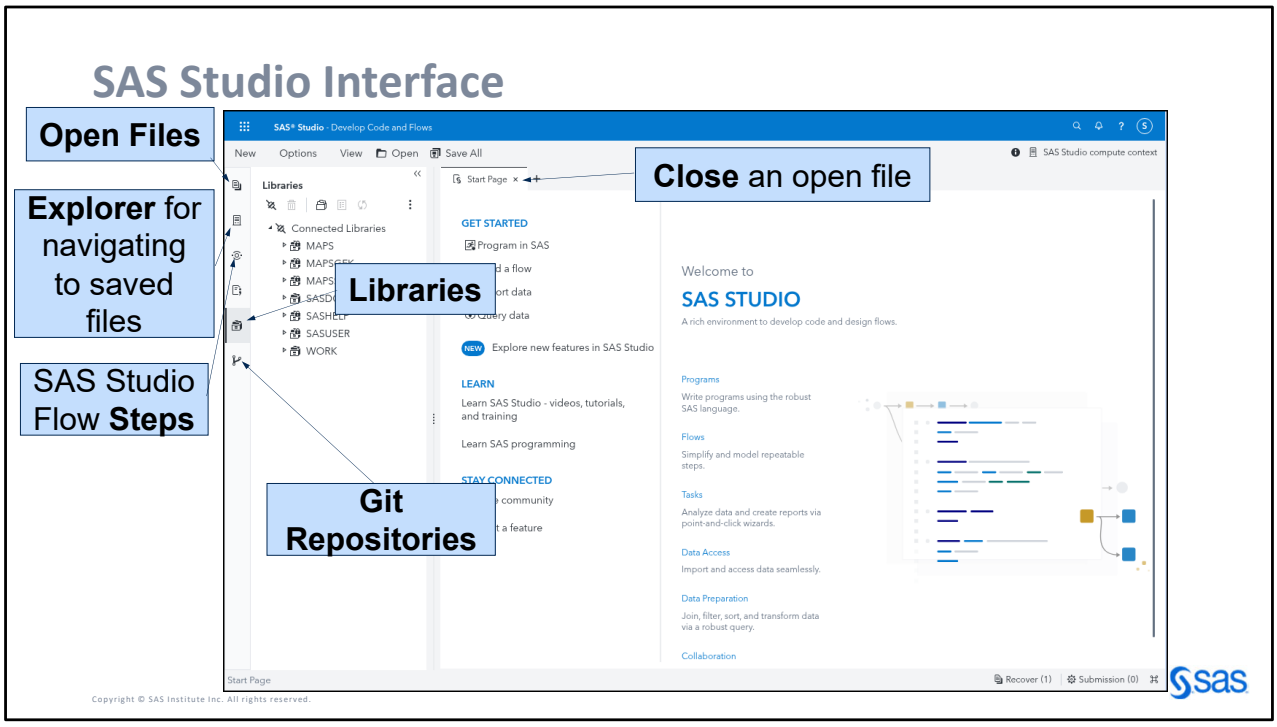
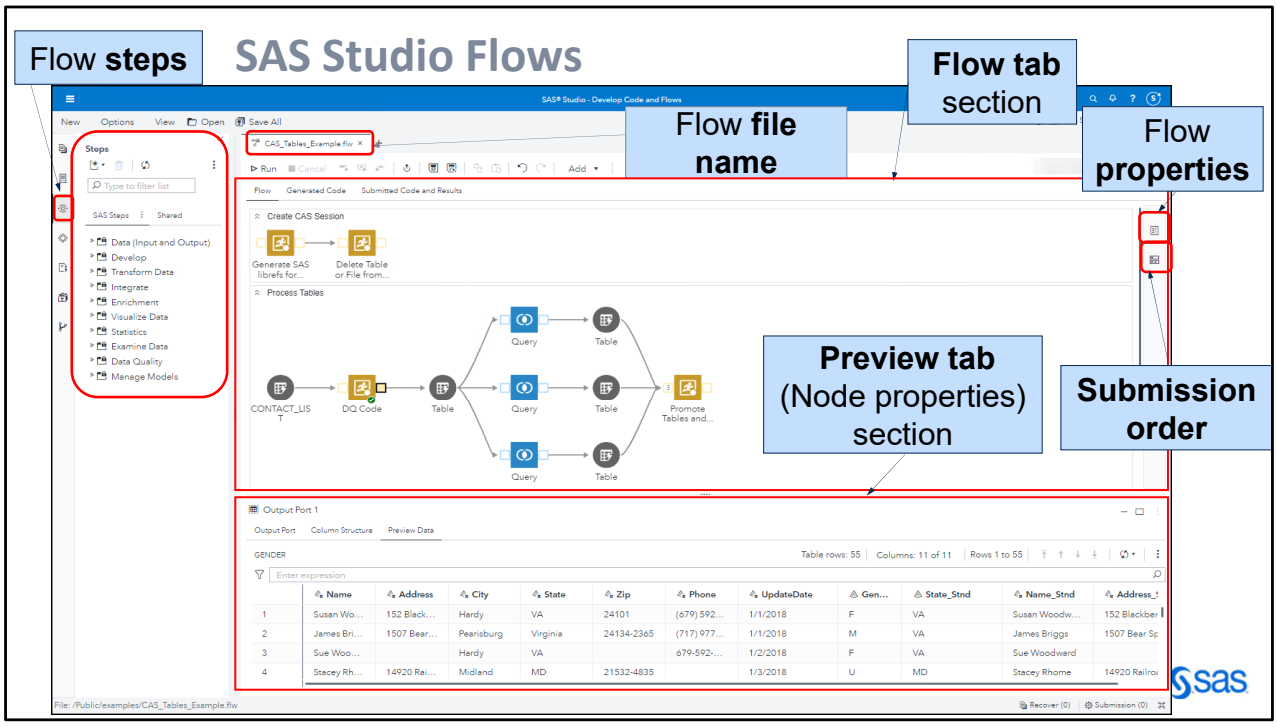
SAS® Studio Flows provide a visual, drag-and-drop interface within SAS® Studio that allows users to build, manage, and execute complex analytics workflows without writing code. In this hands-on workshop you'll learn to build a flow using steps to access, prepare, and analyze your data.



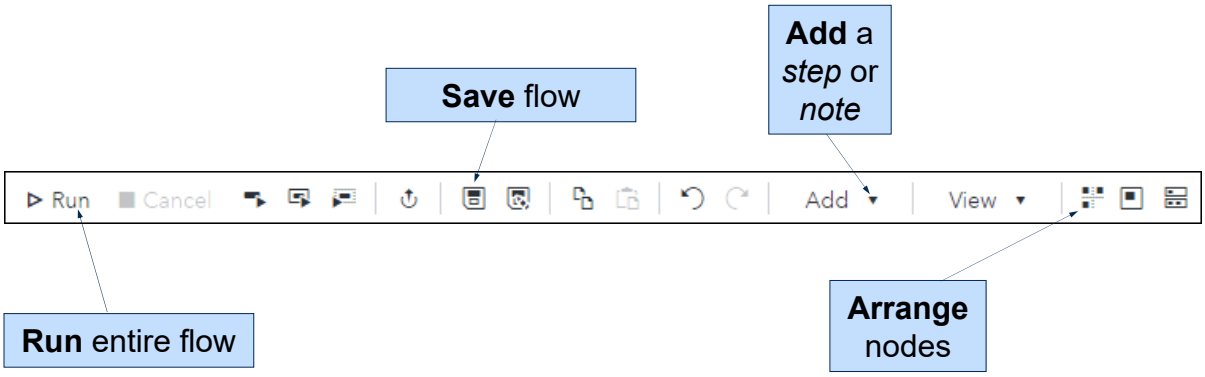
SAS Studio is used to write your own programs or flows. You can also use the pre-defined tasks or code snippets. When you first open SAS Studio, the **Start Page** is available, allowing you to quickly get started writing a new SAS program, building a flow, importing data, or creating a query. Use the icons on the left-hand side to access the different sections of the navigation pane.



At the top of the tab is the name of the SAS Studio Flow file.
On the left-hand side, the Steps pane is displayed. You can add these steps to your flow canvas.
The upper part of the main section is the Flow tab section.
On the right-hand side of the flow tab section is the Flow properties and submission order buttons.
On the bottom-half of the screen is the Preview tab section also known as the node properties section.

SAS Studio Flows

Toolbar



Hands-on Exercise

Build a SAS Studio Flow

sas innovate 2025

Steps in **Build_SAS_Studio_Flow.pdf** located here:
https://github.com/SAS-Innovate-2025/Build-SAS-Studio-Flows/tree/main

Global Enablement & Learning

Build a SAS Studio Flow

Exercise Description

SAS Studio flows provide a visual, drag-and-drop interface within SAS Studio that allows users to build, manage and execute complex analytics workflows without writing code. In this hands-on workshop, you'll learn to build a flow using steps to access, prepare and analyze your data.

You will create a SAS Studio flow that uses SAS data and an imported text file. You will join the data sets and write the output to a SAS Library.

SAS Viya Logon Info

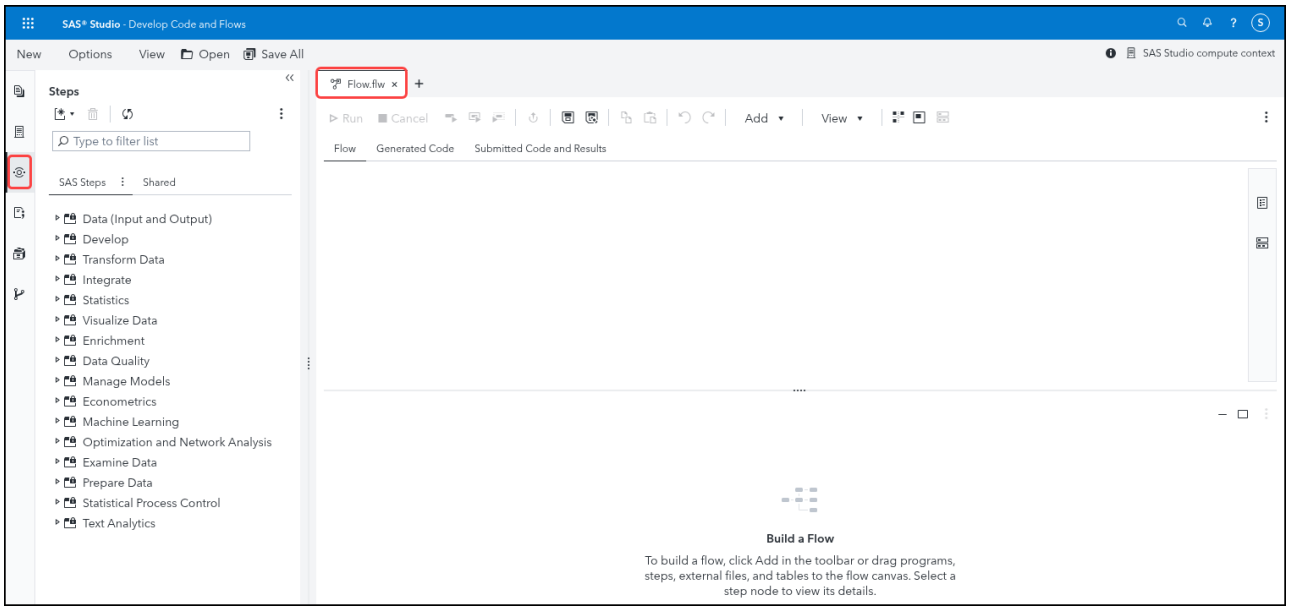
Use the *Google Chrome* browser and select the **SAS Drive** bookmark.

ID: **student** Password: **Metadata0**

Select **No** when prompted about accepting *Admin* privileges.

Create a SAS Studio Flow

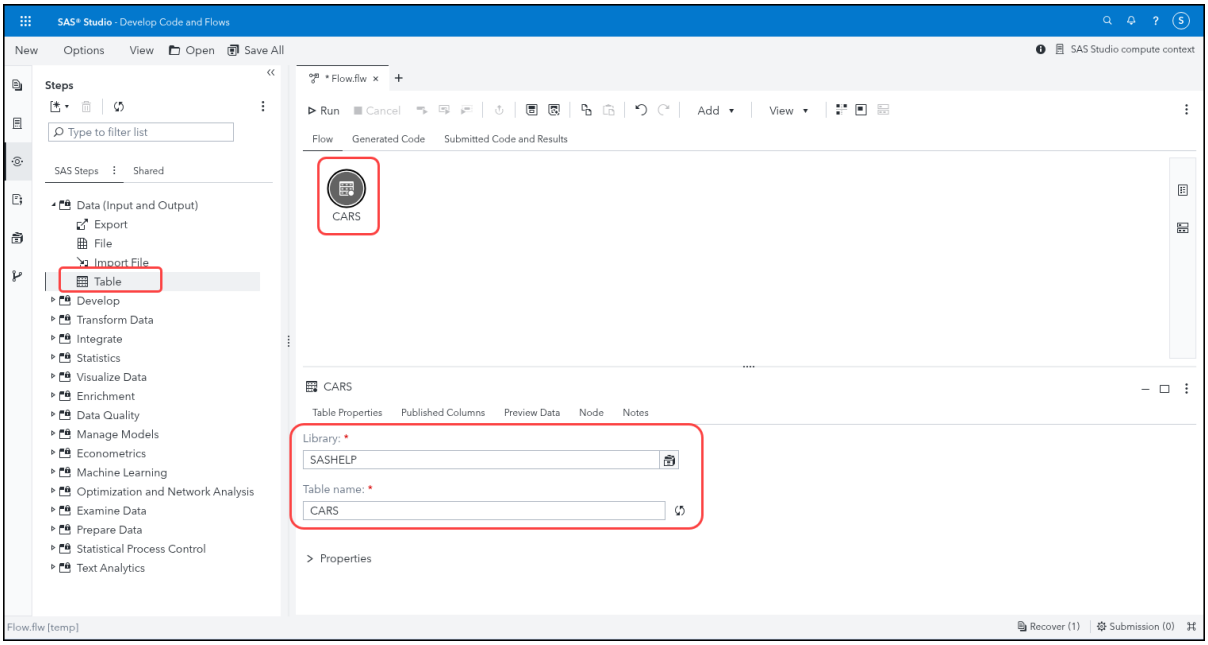
1. Select  ➔ **Develop Code and Flows** to open *SAS Studio*.
2. Select **New ➔ Flow**.
3. Select  to view the **Steps** pane.



4. Double-click the **Table** step in the *Data (Input and Output)* section of the *Steps* pane to add it to the flow canvas.

5. In the **Table Properties** section select the following:

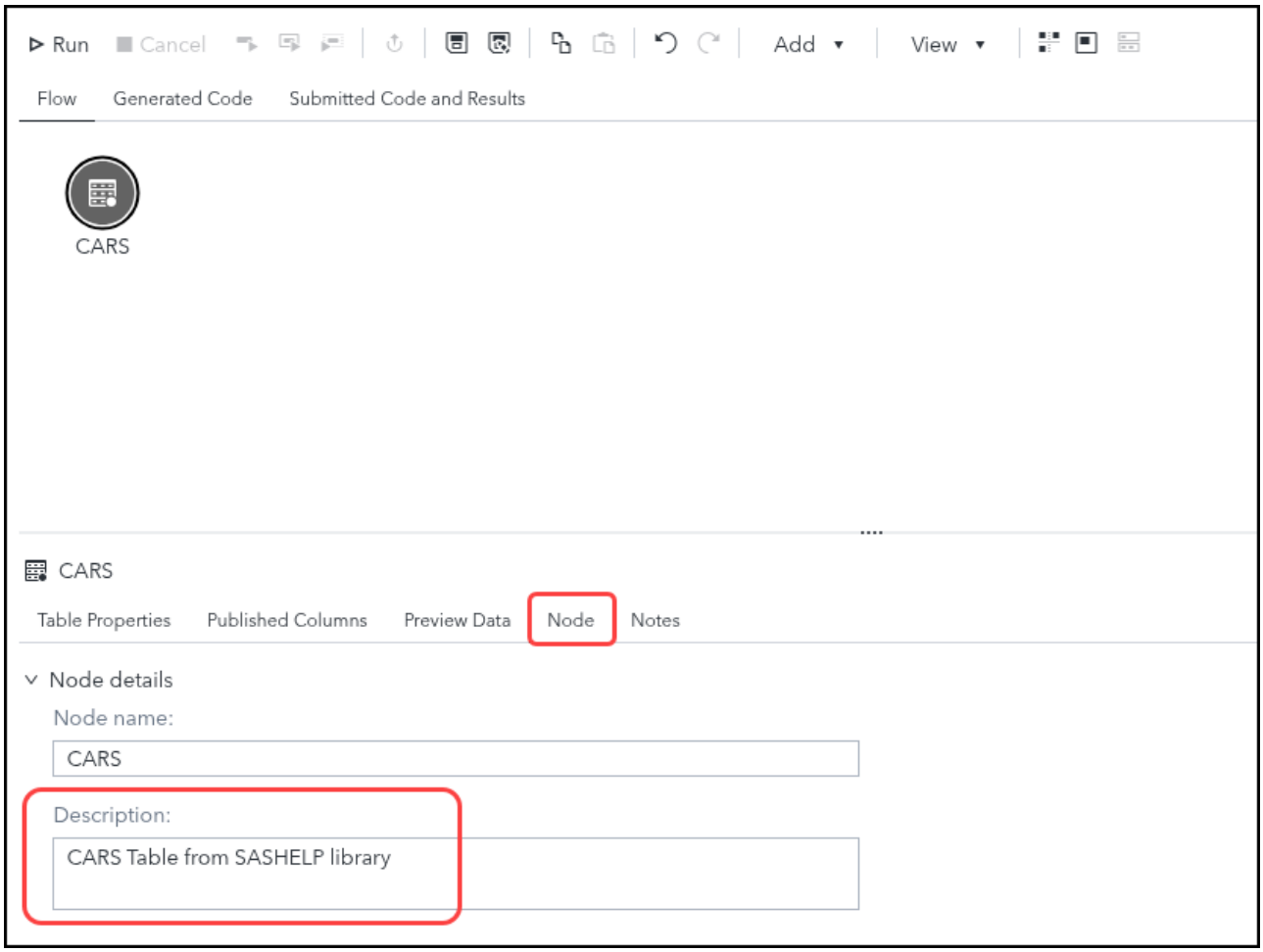
    - Library: **SASHELP**
    - Table name: **CARS**



6. Select **Preview Data** to view a subset of the rows from the table.

7. Select **Node** to name the step in the flow.

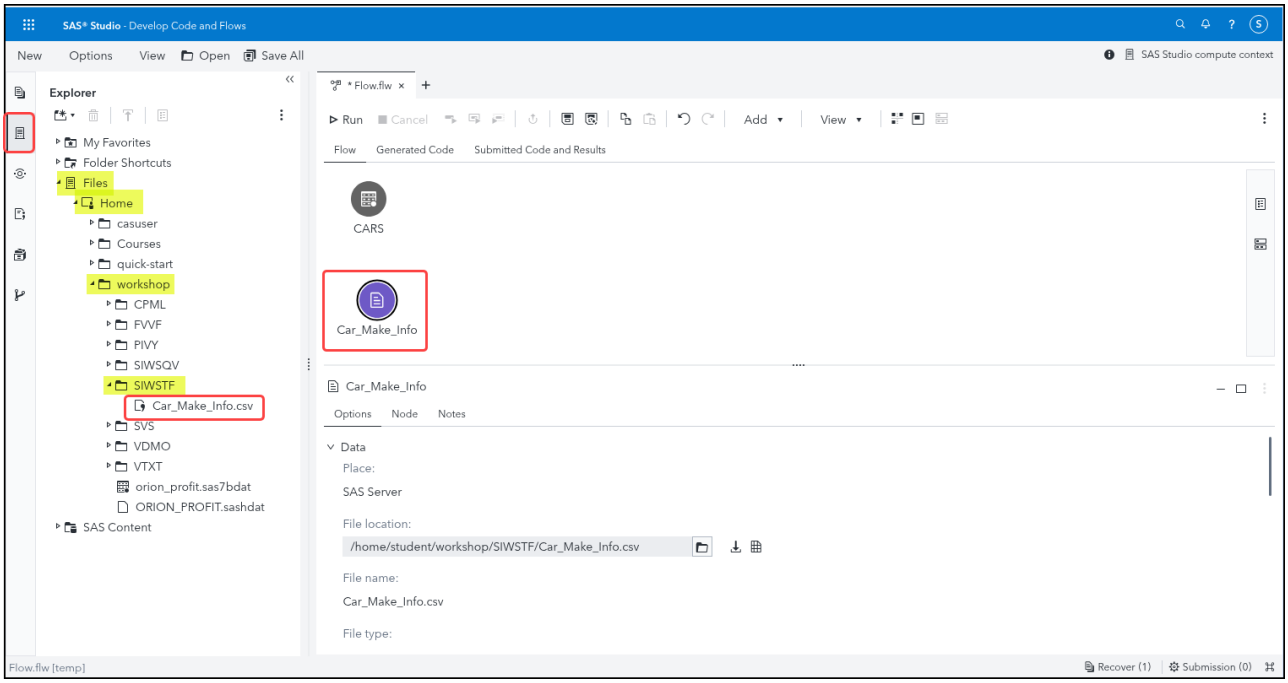
8. Add *Description* to **CARS Table from SASHELP library**.



9. Select  to open the **Explorer** pane.

10. Navigate to **Files ➔ Home ➔ workshop ➔ SIWSTF**.

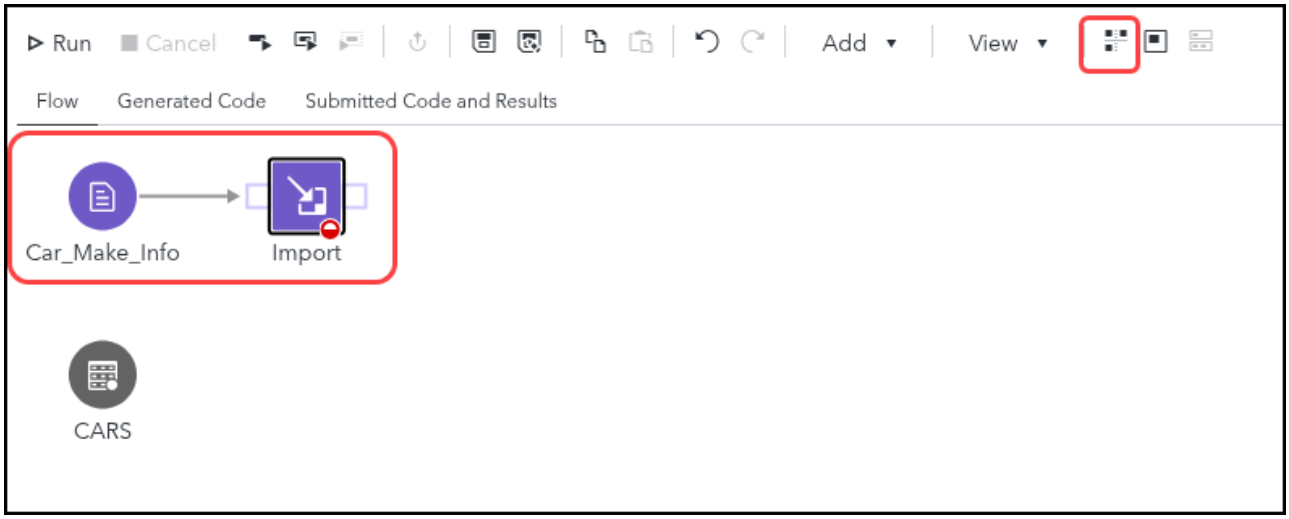
11. Drag the file **Car_Make_Info.csv** on to the flow canvas.



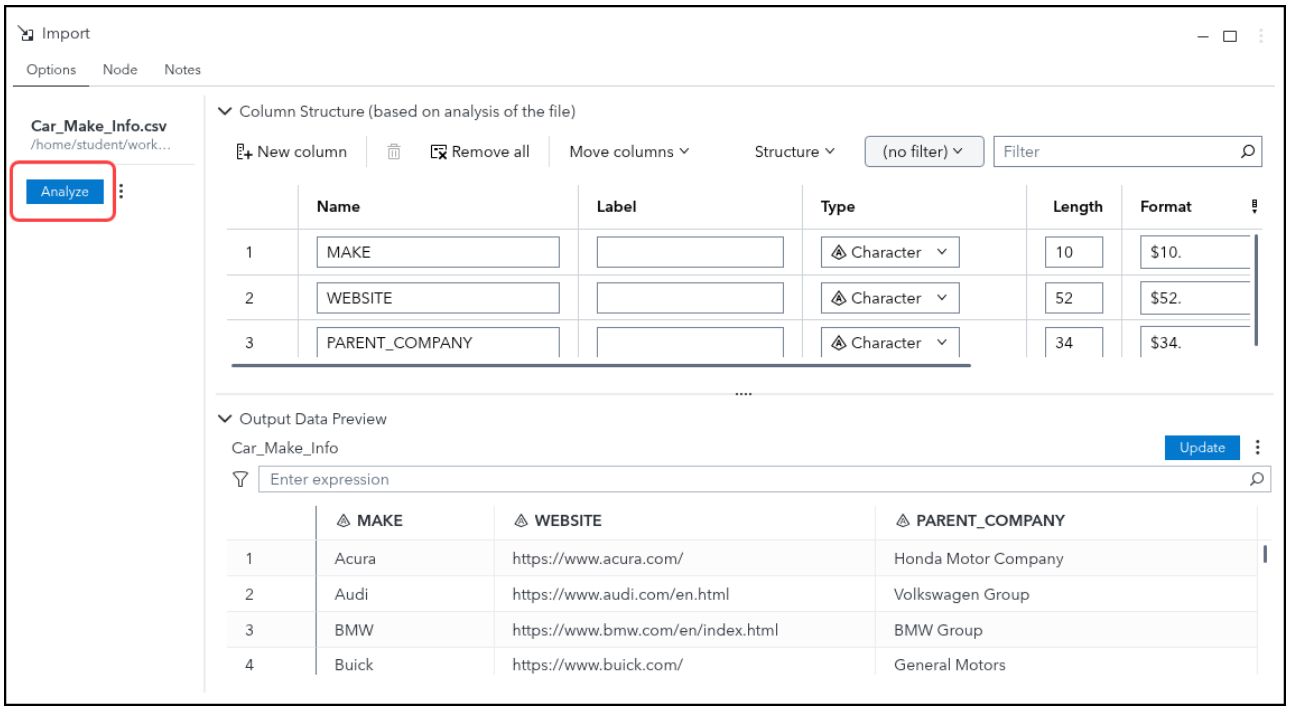
12. Select  ➔ **Import** to add the *Import* step to the flow canvas.

13. Use the mouse to connect the the *Car_Make_Info* file step to *Import* step.

14. Select  to rearrange the steps in the flow.



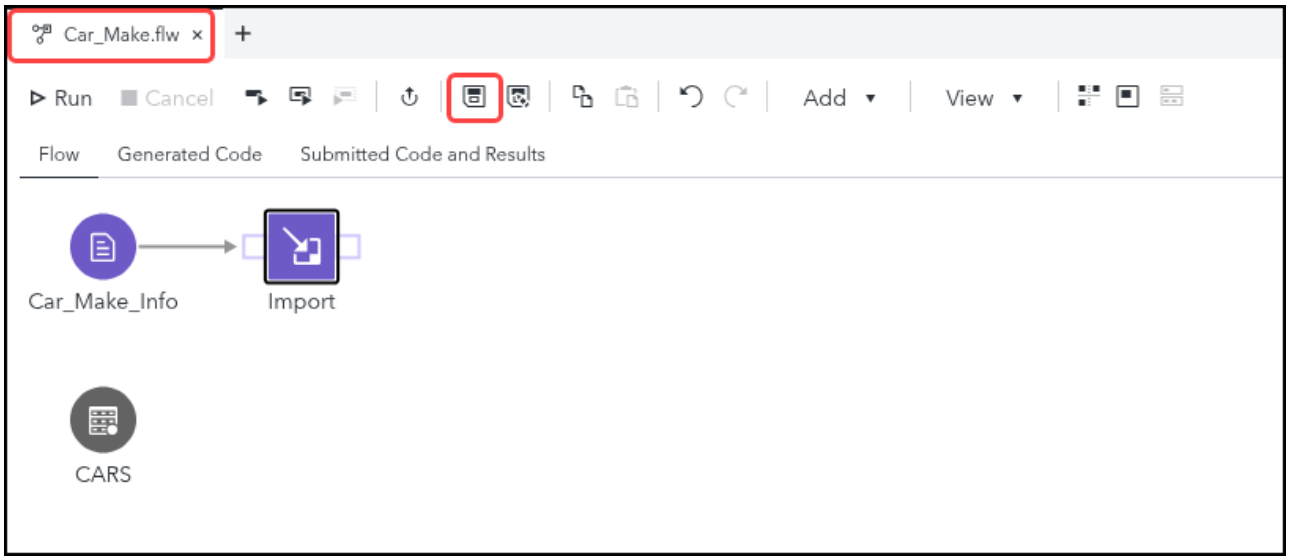
15. In the *Options* section for the *Import* step, select **Analyze** to generate the columns for the connected file.



16. Select  to save the flow.

17. Navigate to **SAS Content ➔ Public**.

18. Enter **Car_Make** for the *name* and click **Save**.



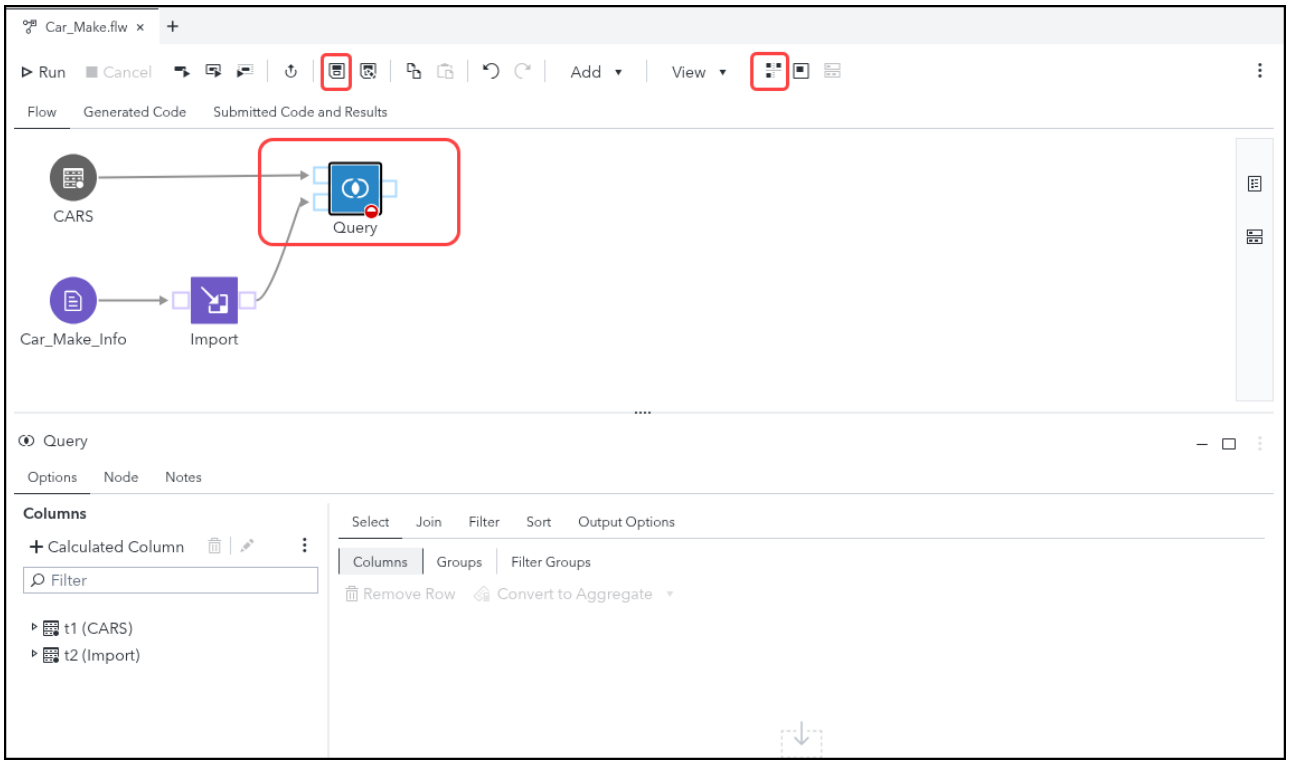
Join the Table and Imported File

1. Select  to return to the **Steps** pane.

2. Add the **Query** step in the *Transform Data* section of the *Steps* pane to the flow canvas and connect it to both the **CARS** *Table* step and the **Import** step. This creates two input ports for the *Query* step.

> ☛ You can drop the **Query** node on the right-hand side of the **CARS** *Table* node in flow canvas to auto-connect them and then manually connect the *Import* step to it.

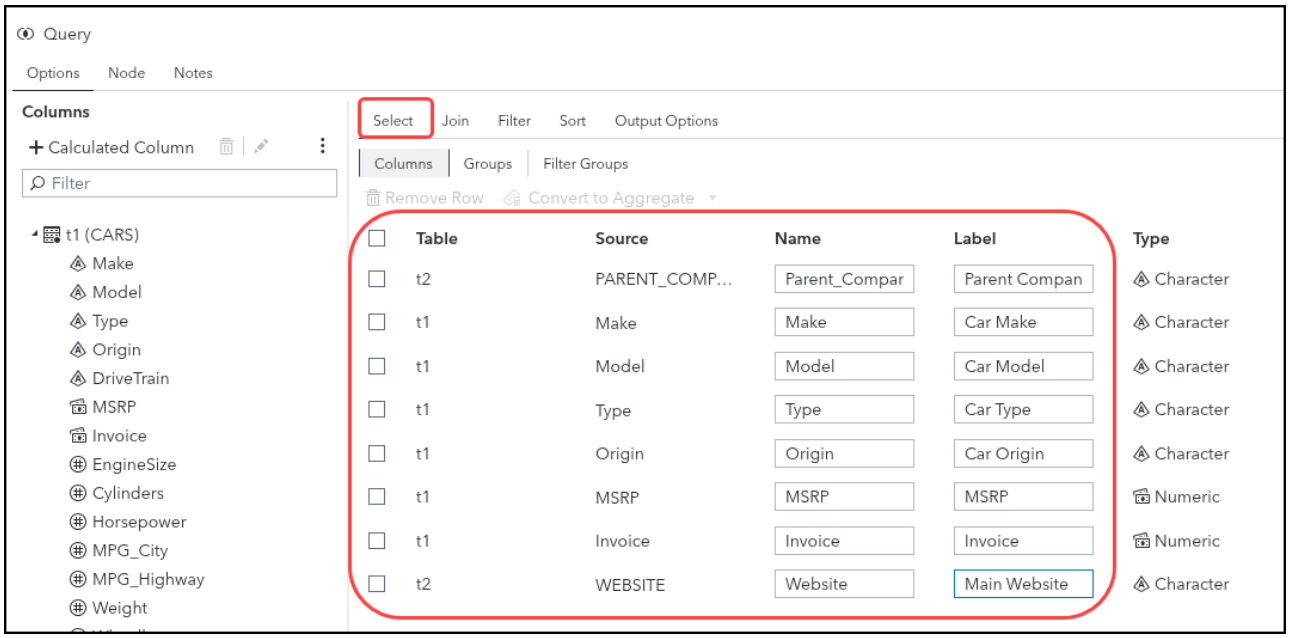
3. **Rearrange** the flow and **save** it.



4. Select the following columns on the *Select* tab:

Table	Source	Name	Label
t2	PARENT_COMPANY	**Parent_Company**	**Parent Company**
t1	Make	Make	**Car Make**
t1	Model	Model	**Car Model**
t1	Type	Type	**Car Type**
t1	Origin	Origin	**Car Origin**
t1	MSRP	MSRP	**MSRP**
t1	Invoice	Invoice	**Invoice**
t2	WEBSITE	**Website**	**Main Website**

> ✎ This assumes that **t1** is the *CARS Table* step and **t2** is the *Import* step.



5. Click + Calculated Column to add a calculated column.

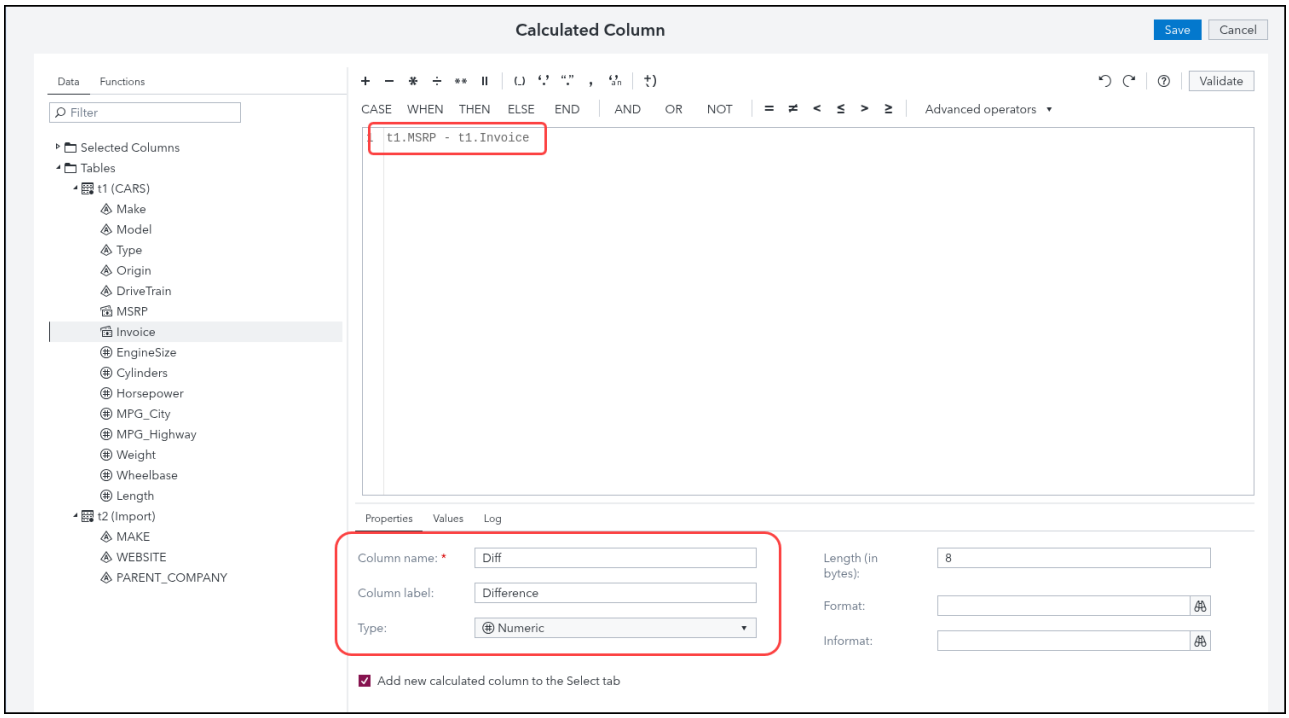
6. Enter the following for the calculation:

   t1.MSRP - t1.Invoice

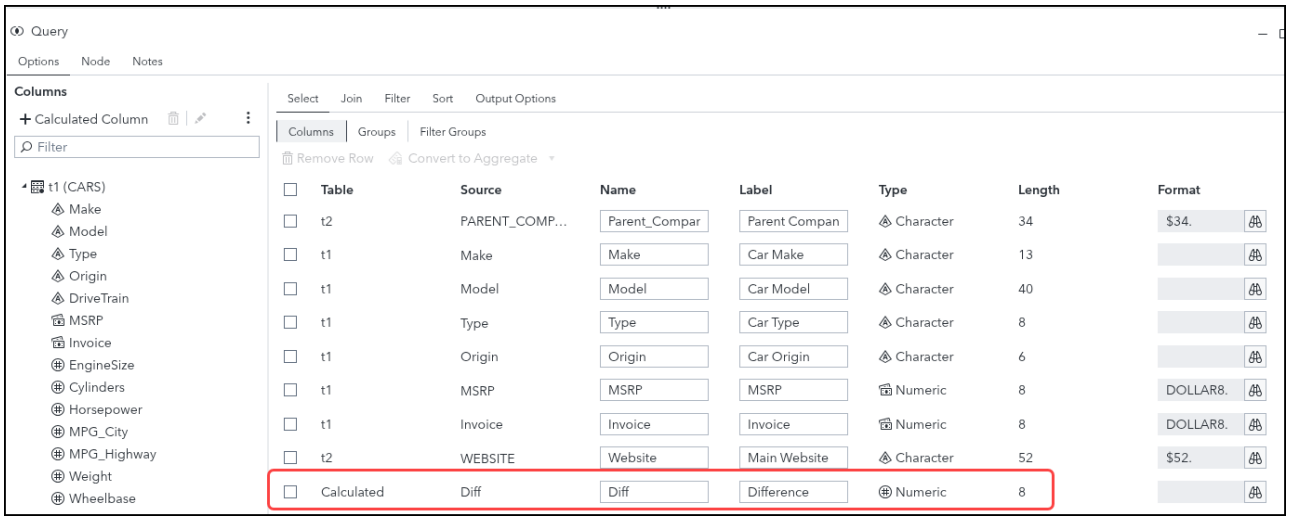
   > ✎ This assumes that **t1** is the *CARS Table* step.

7. Enter the following for the properties:

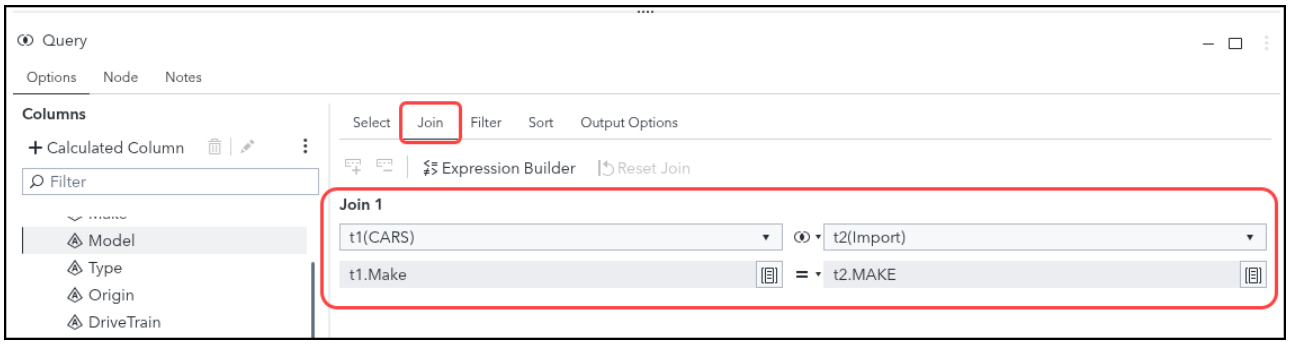
   - Column name: **Diff**
   - Column label: **Difference**
   - Type: **Numeric**



8. Click **Save** to save the calculated column.



9. On the *Join* tab, confirm that the join condition is **t1.Make=t2.MAKE**.

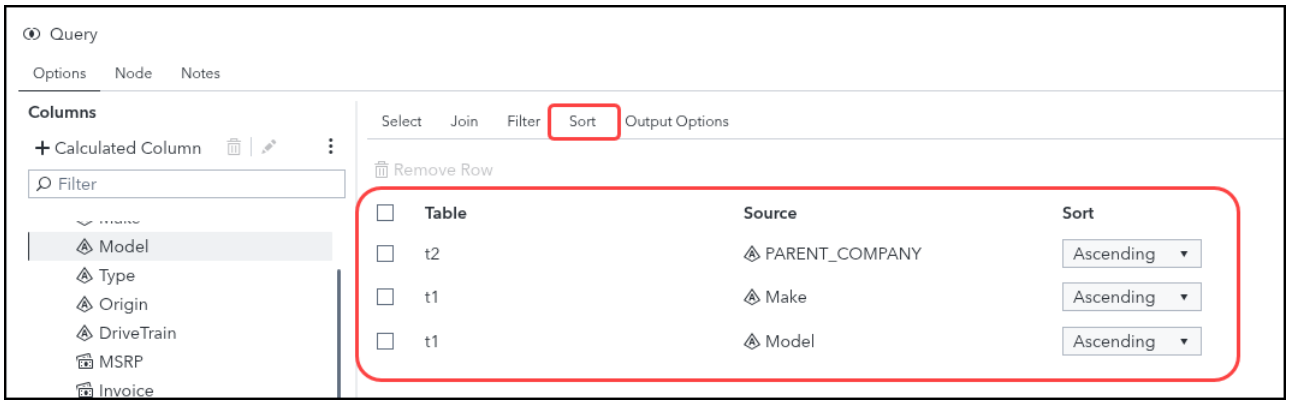


> This join condition is made automatically since the columns have the same name.

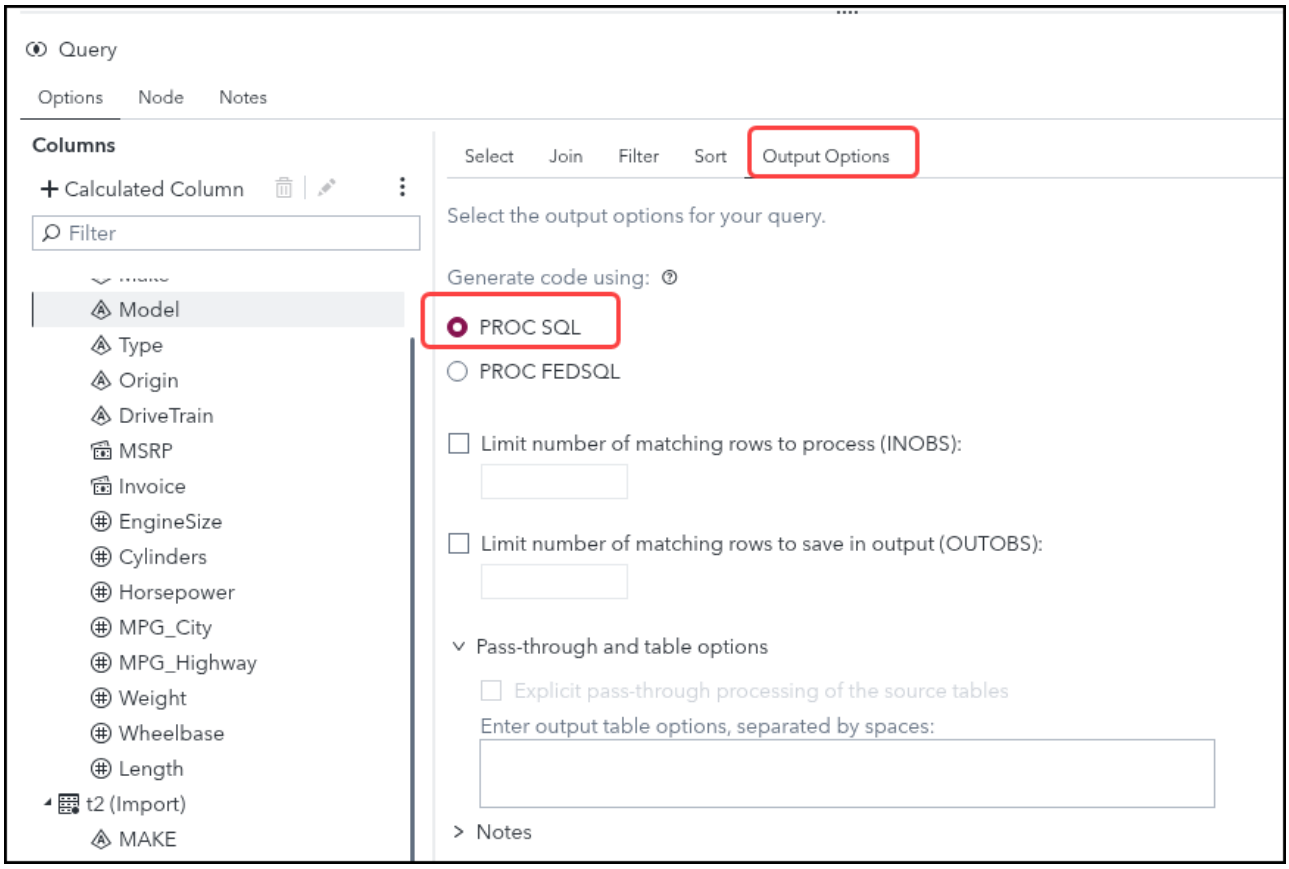
10. Select the following columns on the *Sort* tab:

Table	Source	Sort

Table	Source	Sort
t2	PARENT_COMPANY	Ascending
t1	Make	Ascending
t1	Model	Ascending



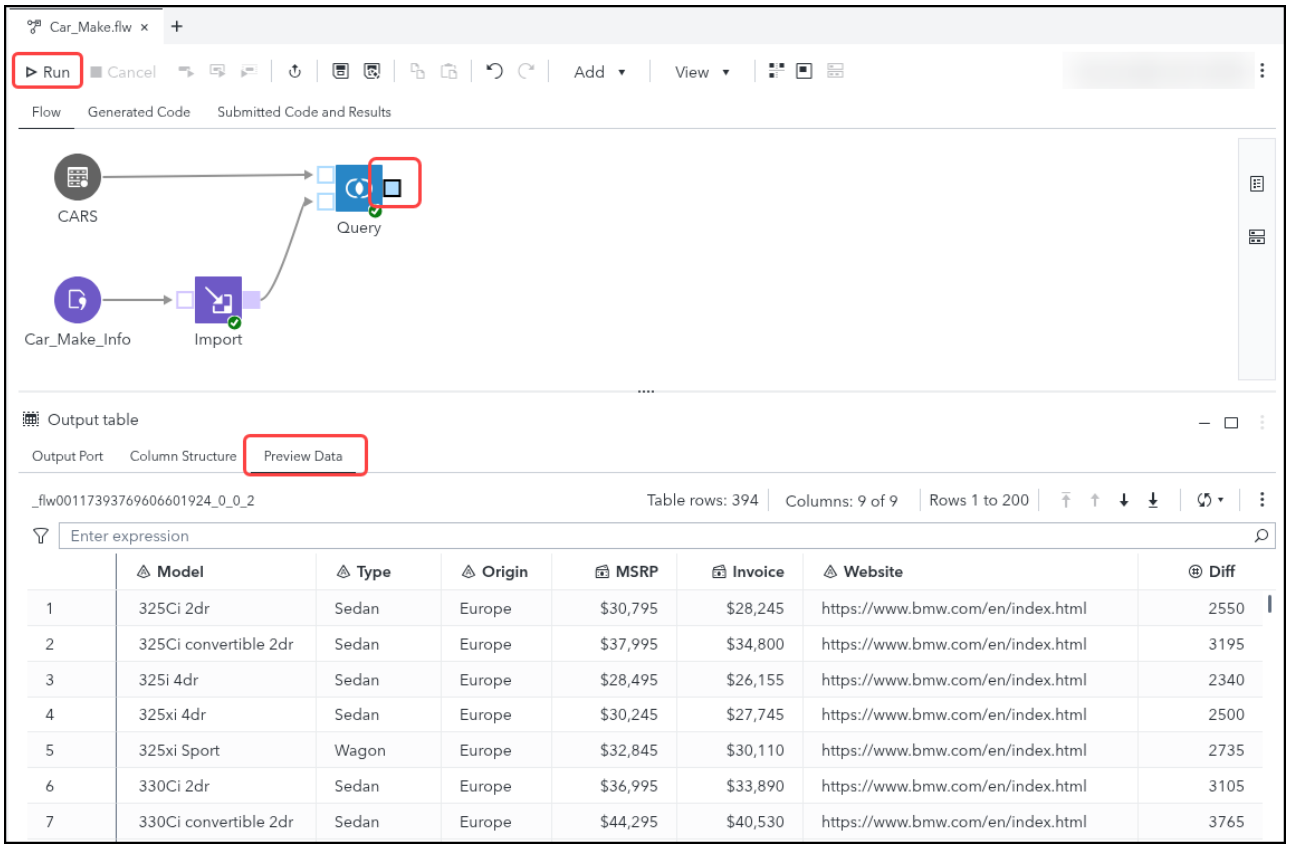
11. On the *Output Options* tab, leave the selection for *Generate code using* as **PROC SQL**.



12. **Save** the changes to the flow.

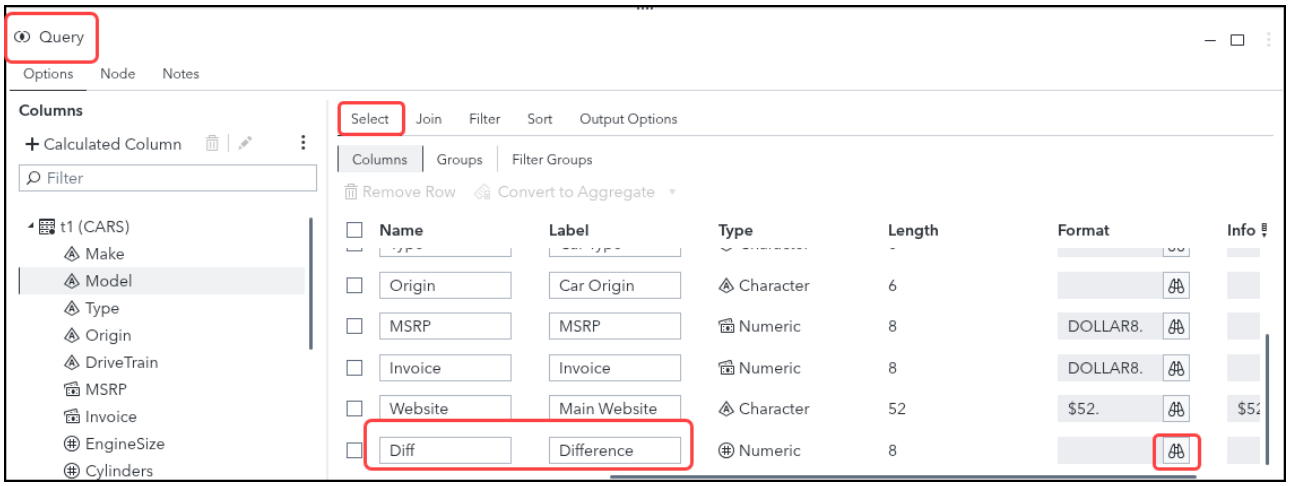
Run and Preview Results

1. **Run** the flow.
2. Select the **Output port** of the *Query* step and **preview** its results.

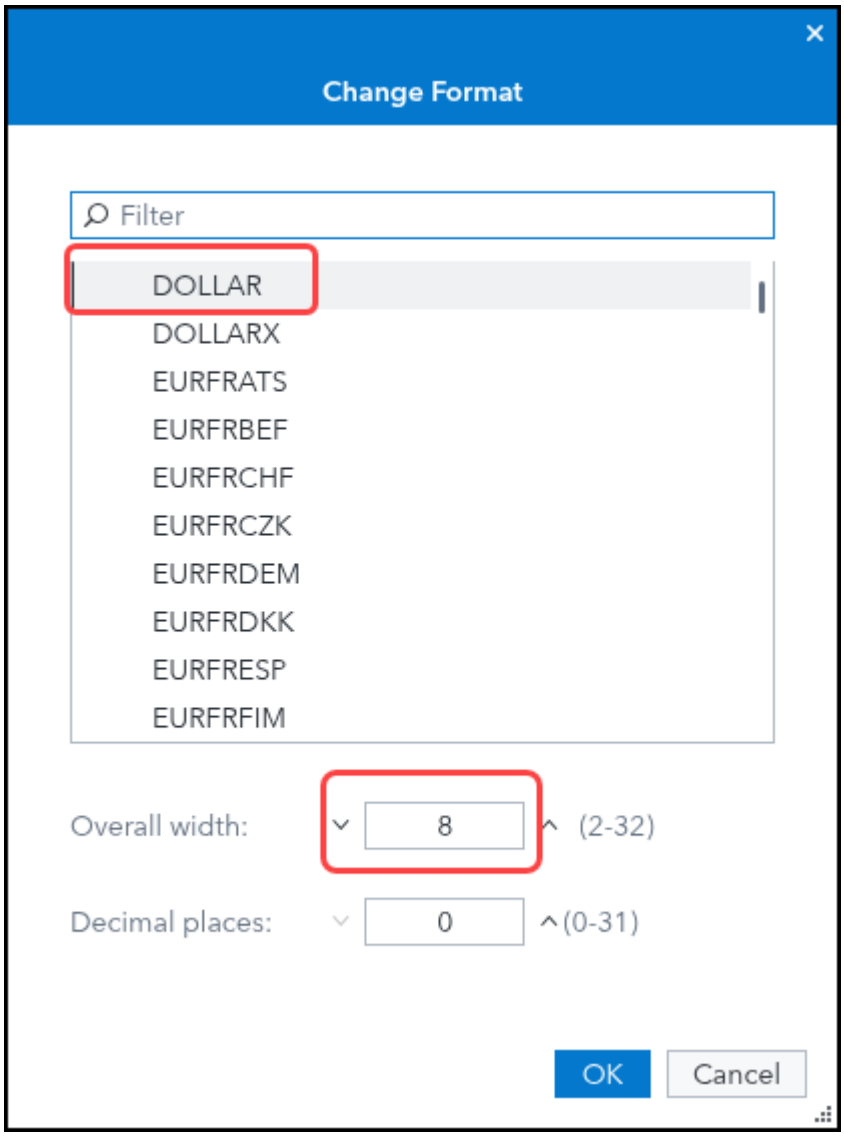


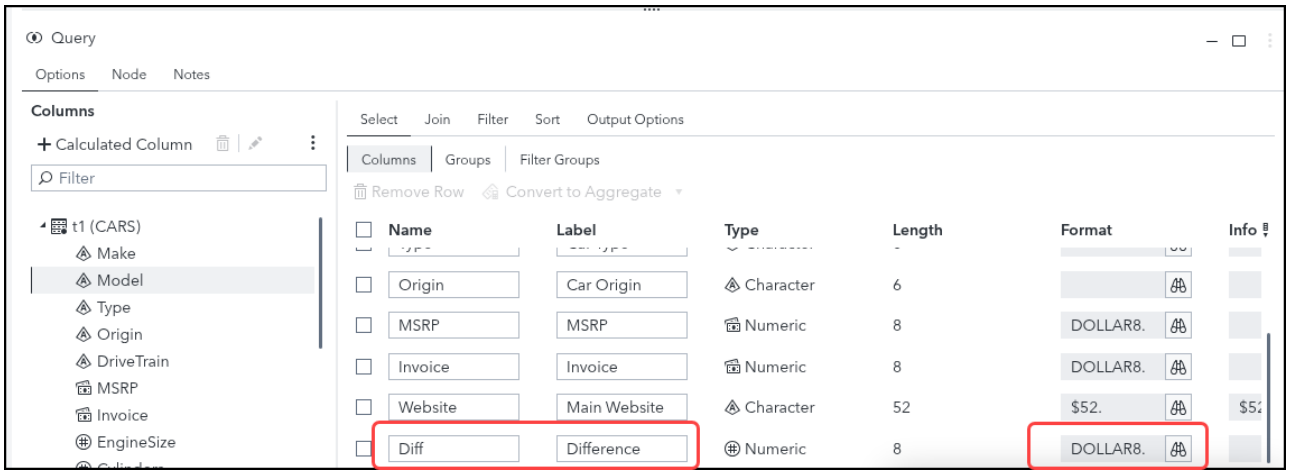
	Model	Type	Origin	MSRP	Invoice	Website	Diff
1	325Ci 2dr	Sedan	Europe	$30,795	$28,245	https://www.bmw.com/en/index.html	2550
2	325Ci convertible 2dr	Sedan	Europe	$37,995	$34,800	https://www.bmw.com/en/index.html	3195
3	325i 4dr	Sedan	Europe	$28,495	$26,155	https://www.bmw.com/en/index.html	2340
4	325xi 4dr	Sedan	Europe	$30,245	$27,745	https://www.bmw.com/en/index.html	2500
5	325xi Sport	Wagon	Europe	$32,845	$30,110	https://www.bmw.com/en/index.html	2735
6	330Ci 2dr	Sedan	Europe	$36,995	$33,890	https://www.bmw.com/en/index.html	3105
7	330Ci convertible 2dr	Sedan	Europe	$44,295	$40,530	https://www.bmw.com/en/index.html	3765

3. On the *Select* tab, of the *Query* node, select  in the *Format* column for the **Diff** calculated column.



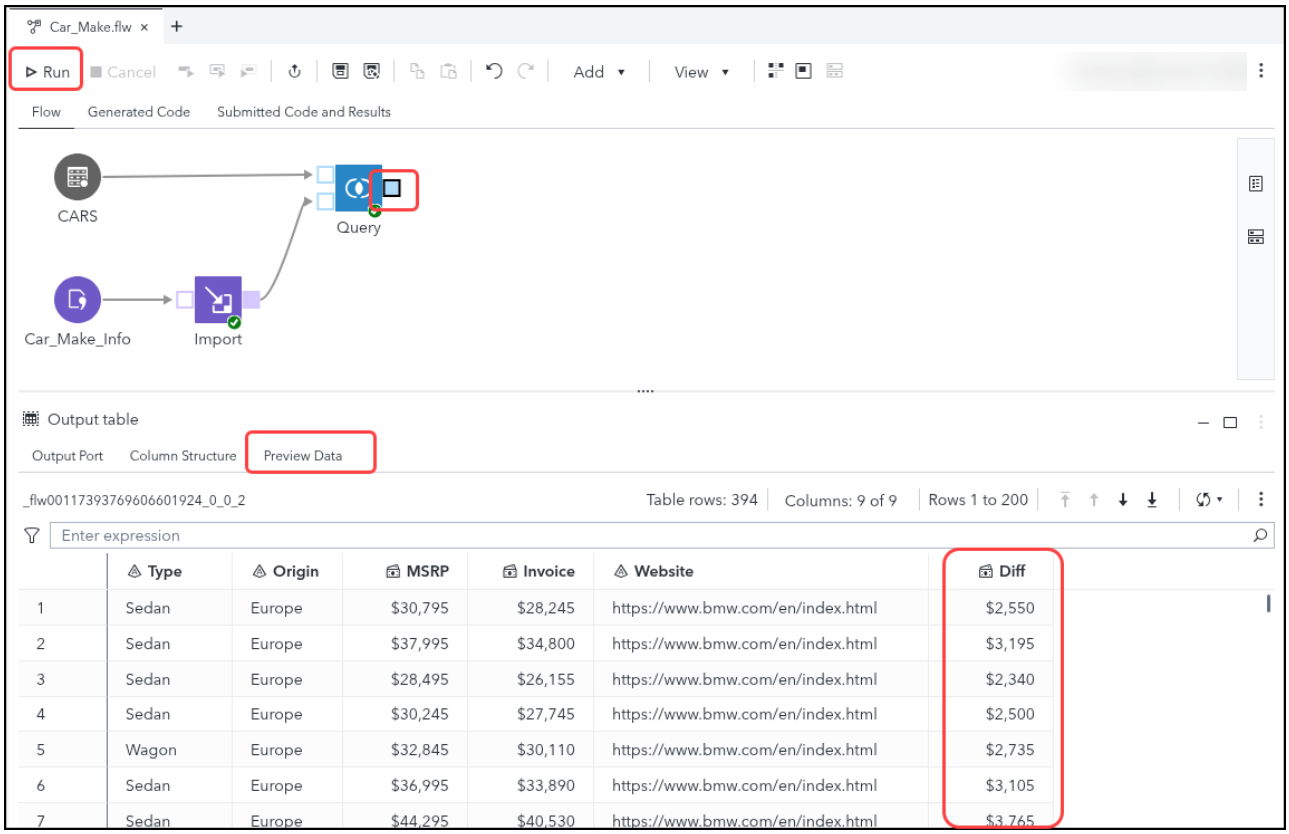
4. Set the format to **DOLLAR8** and click **OK**.





5. **Save** the changes to the flow.

6. **Run** the flow and select the **Output port** of the *Query* step and **preview** its results.

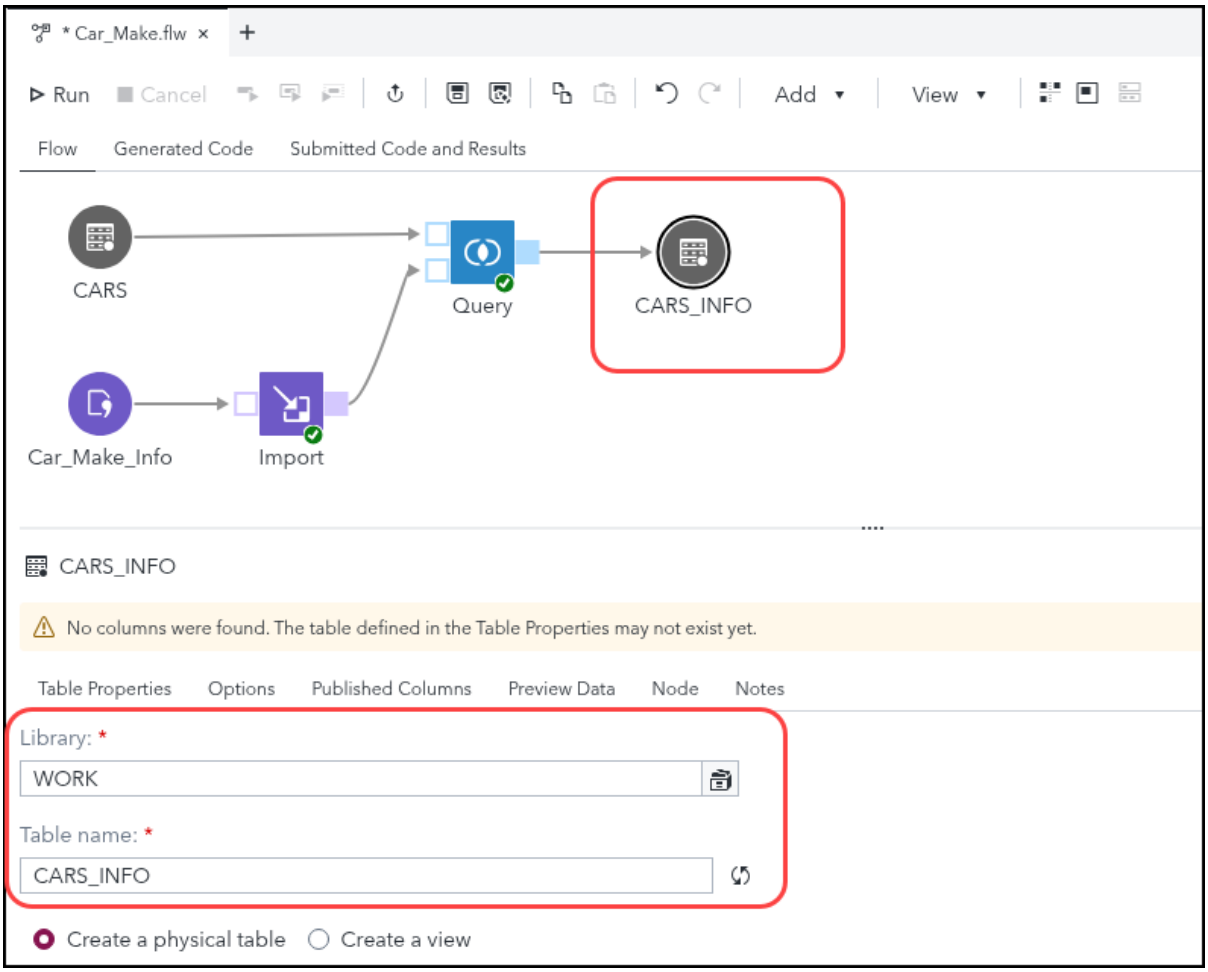


> ✎ The *Diff* column is now formatted correctly.

Add Output Table Step to Flow

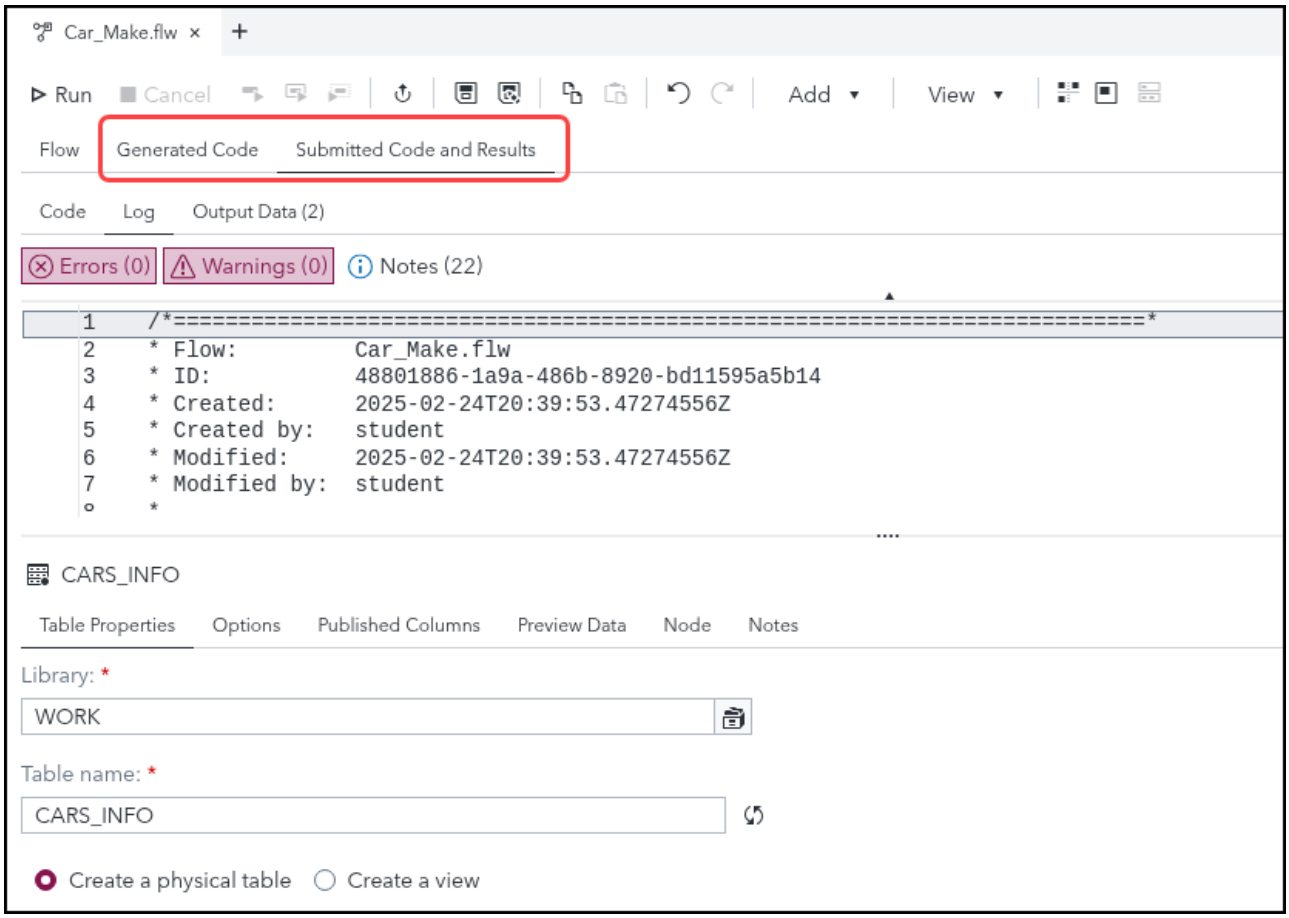
1. Add a **Table** step from the *Data (Input and Output)* section to the flow and connect it to the *Output port* of the **Query** step.
2. In the **Table Properties** section select the following:
   - Library: **WORK**
   - Table name: **CARS_INFO**

     > ✎ This creates an output table for the flow. You will need to type the new table name.



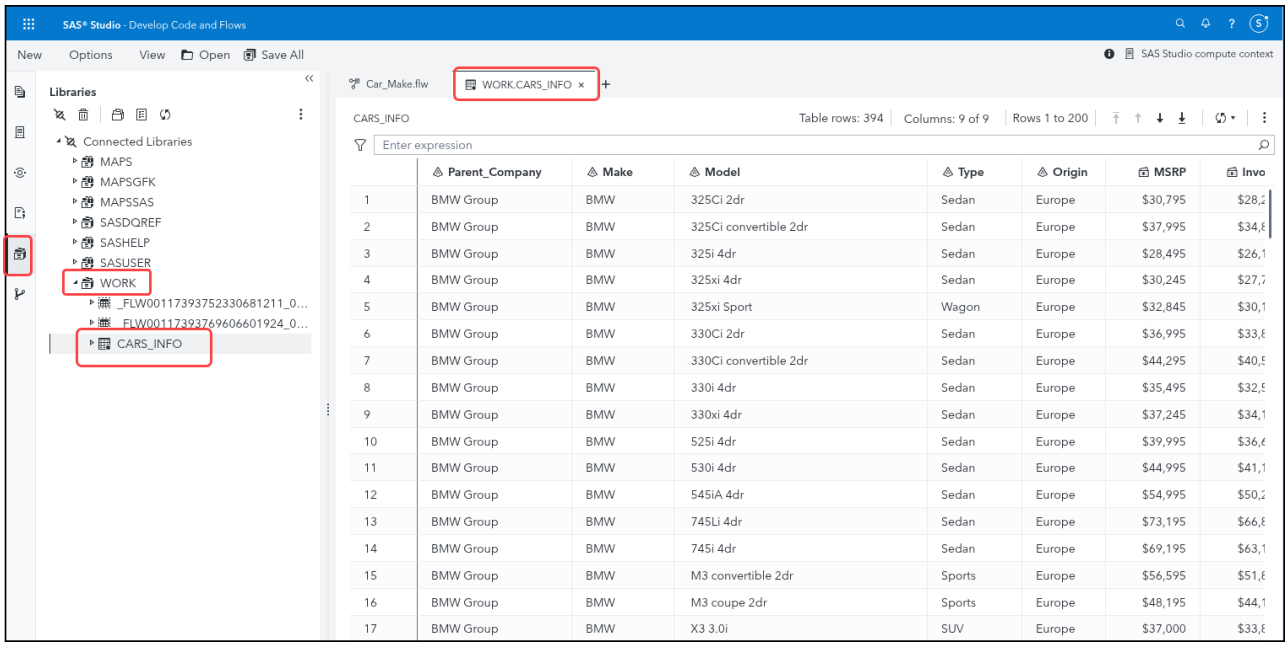
3. **Save** and **Run** the flow.

4. View the **Generated Code** and the **Submitted Code and Results** tabs.



5. Select  to view the Libraries pane.

6. Double-click the **CARS_INFO** table in the **WORK** SAS library to open it for viewing.



7. **Close** the *Table* and the *Flow* file.

Exercise Completed

YOU HAVE COMPLETED THE EXERCISE ON BUILDING A SAS STUDIO FLOW!

For additional information on SAS Studio Flows, please refer to its documentation.

THANKS FOR ATTENDING THIS WORKSHOP!

SAS Studio Flows

Resources

Training Courses:

- Building SAS® Studio Flows in SAS® Viya®
- Using SAS Studio Flows and Custom Steps in SAS® Viya® Fast Track
- Transitioning SAS® Enterprise Guide® Projects to SAS® Studio Flows
- Managing and Querying Data Using Flows in SAS Studio
- Using SAS® Studio Engineer Steps in SAS® Studio Flows
- Scheduling and Orchestrating SAS® Programs and Flows with Apache Airflow

Documentation:

- SAS Help Center: SAS Studio: Working with Flows

SAS Community Articles:

- Search - SAS Support Communities for SAS Studio Flows

Training Courses:

- Building SAS® Studio Flows in SAS® Viya®: https://learn.sas.com/course/view.php?id=217
- Using SAS Studio Flows and Custom Steps in SAS® Viya® Fast Track: https://learn.sas.com/course/view.php?id=6593
- Transitioning SAS® Enterprise Guide® Projects to SAS® Studio Flows: https://learn.sas.com/course/view.php?id=475
- Managing and Querying Data Using Flows in SAS Studio: https://learn.sas.com/course/view.php?id=7084
- Using SAS® Studio Engineer Steps in SAS® Studio Flows: https://learn.sas.com/course/view.php?id=6437
- Scheduling and Orchestrating SAS® Programs and Flows with Apache Airflow: https://learn.sas.com/course/view.php?id=7298

Documentation:

- SAS Help Center: SAS Studio: Working with Flows: https://go.documentation.sas.com/doc/en/sasstudiocdc/default/we

beditorcdc/webeditorflows/titlepage.htm

SAS Community Articles:

- Search - SAS Support Communities for SAS Studio Flows: https://communities.sas.com/t5/forums/searchpage/tab/message?advanced=false&allow_punctuation=false&q=SAS%20Studio%20Flows

Thanks for attending this hands-on session!

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