SPSS PRACTICAL

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INDEX

SPSS Practical 6

This practical includes:

Practical: 6

Definition:

You work for a telecommunications firm and you need to cleanse and enrich a dataset in order to build models later.

Outcomes/Learning:

- Learned how to use the **Derive Node** to create new calculated fields such as billing details, segmentation, and discounts.
- Understood the use of the **Reclassify Node** to standardize and group categorical values for better analysis.
- Gained practical experience in cleansing and enriching raw datasets to prepare them for predictive modelling.

Required Tool:

IBM SPSS MODELER

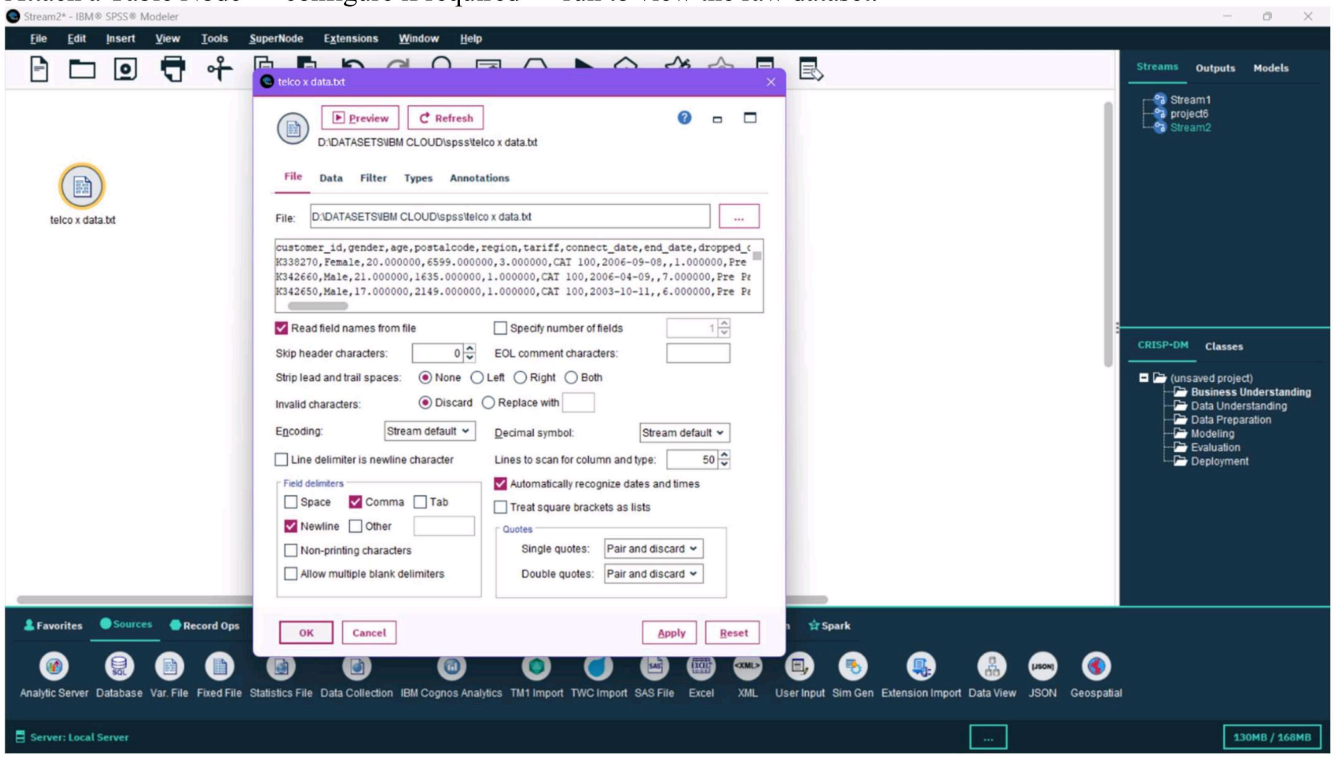
Working:

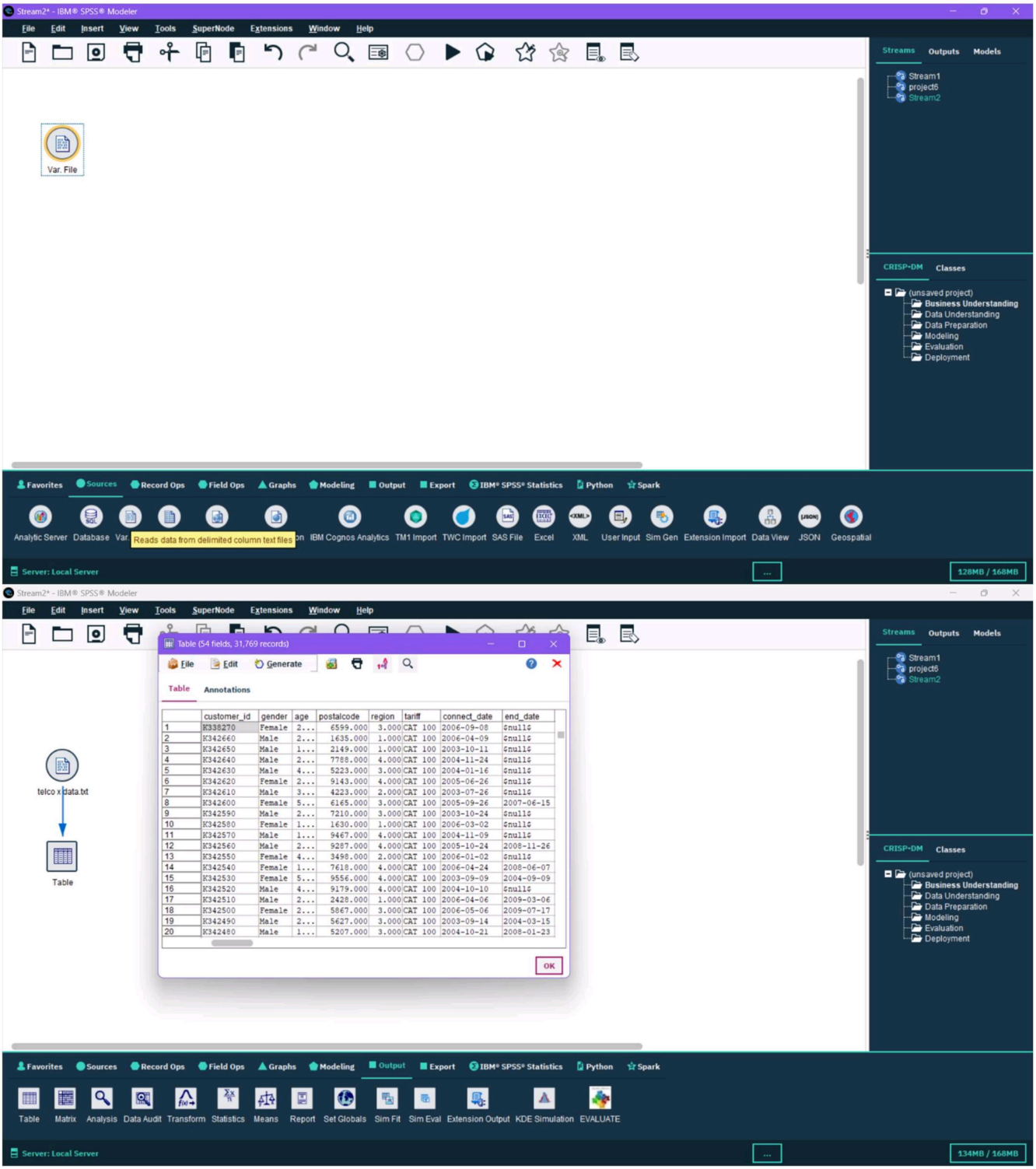
In this practical, the goal is to cleanse and enrich the dataset (*telco x data.txt*) for further modelling. Fields are standardized, billing details are calculated, customers are segmented, and discounts are derived. Finally, categorical values are reclassified into consistent groups.
The main nodes used are:

- **Type Node** – to define field roles and measurement levels.
- **Derive Nodes** – to create new fields such as billing, segmentation, and discounts.
- **Reclassify Node** – to restructure categorical values.
- **Table Nodes** – to validate results at each step.

Step 1: Importing the Dataset

Open IBM SPSS Modeler → create a new stream.
Add a Var. File Node and import *telco x data.txt*.
Attach a Table Node → configure if required → run to view the raw dataset.

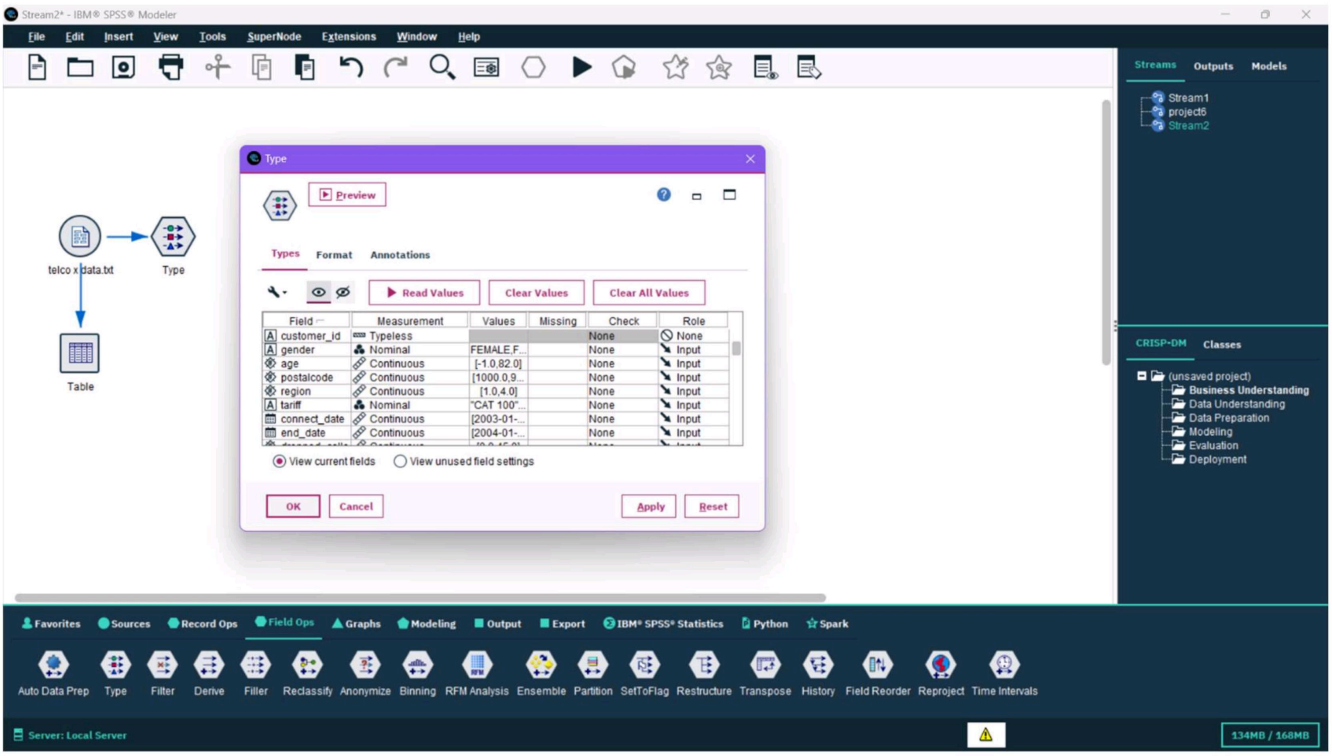




Step 2: Defining Field Properties

Connect a Type Node to the Var. File Node.

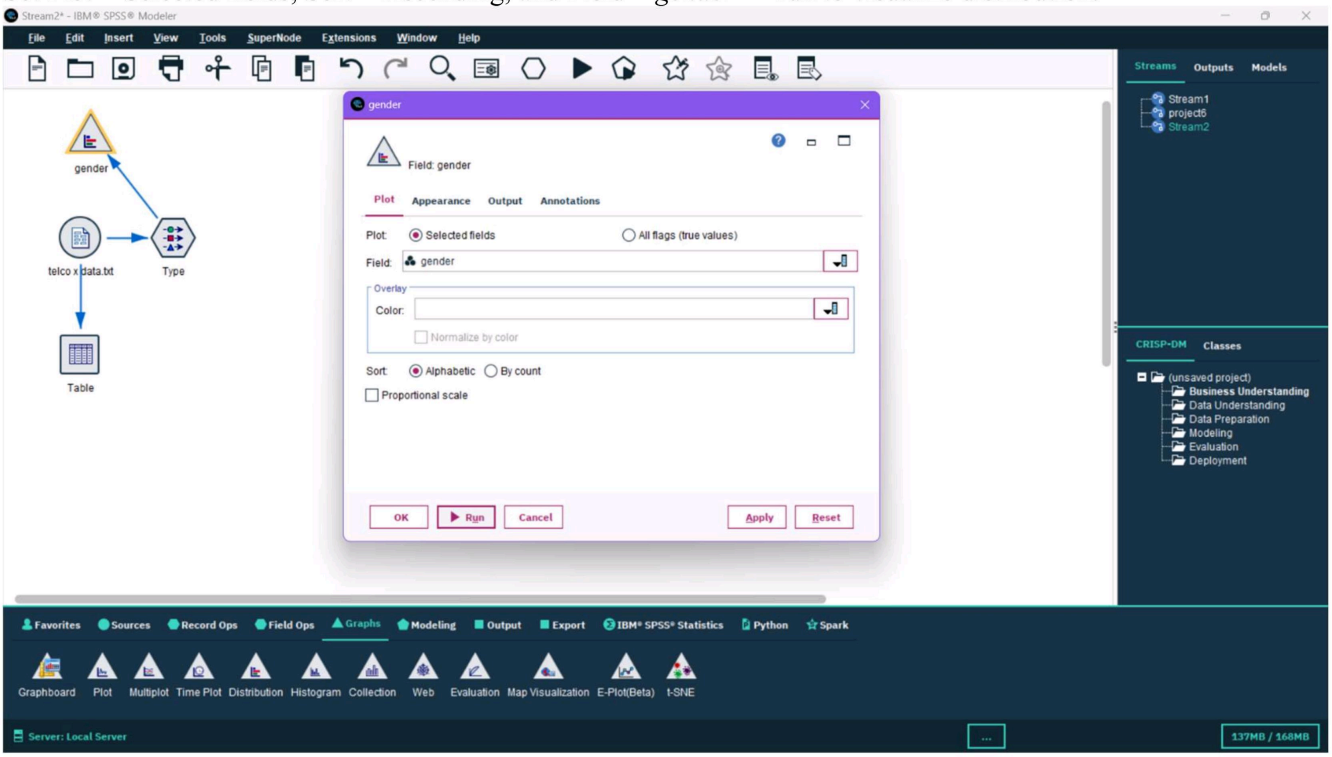
Open it → click Read Values → observe updated measurement types (Nominal, Ordinal, etc.).

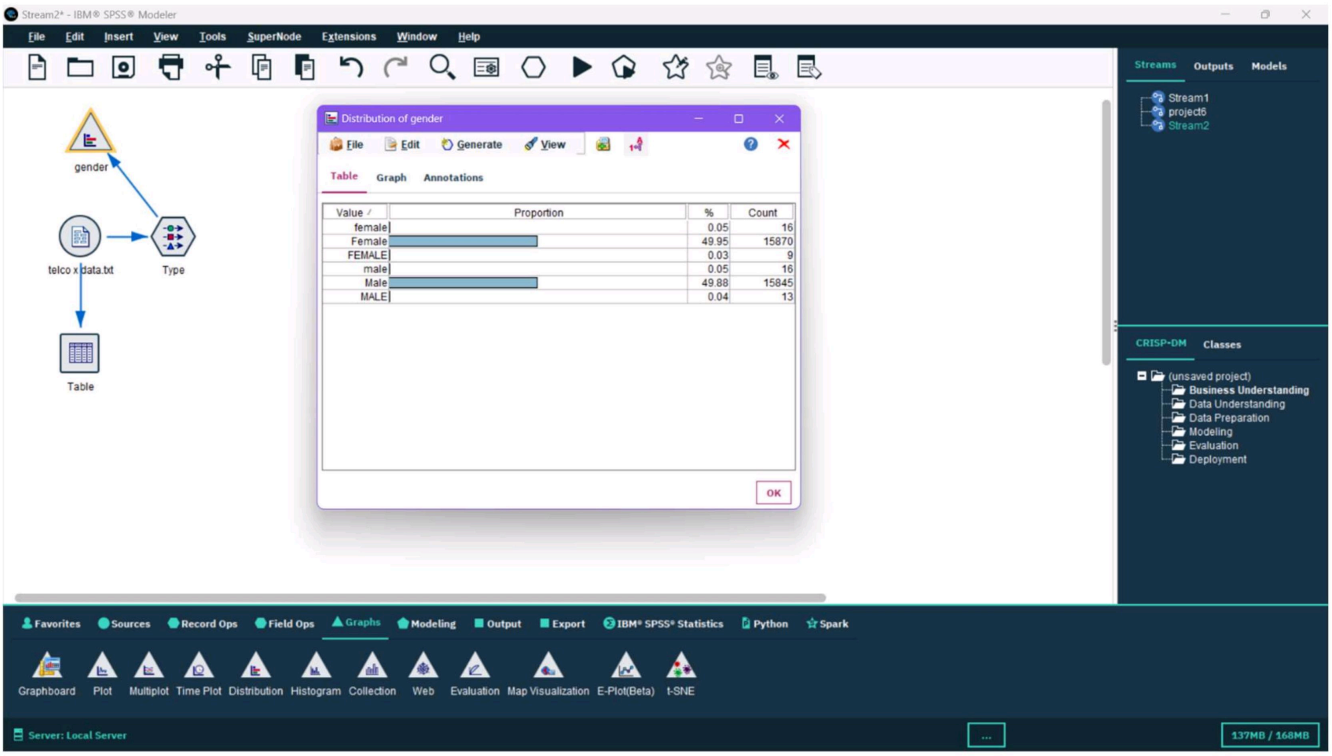


Step 3: Exploring with Distribution Graph

Attach a Distribution Node to the Type Node.

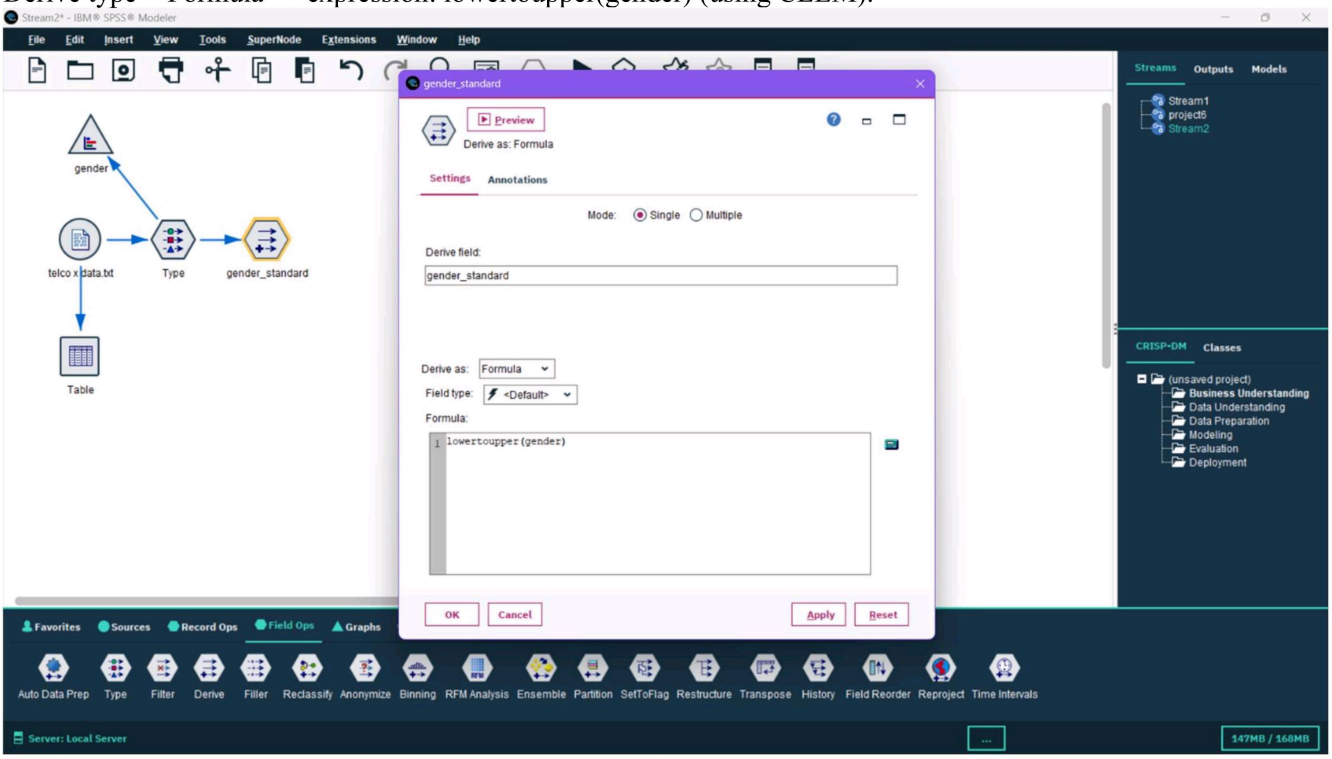
Set Plot = Selected fields, Sort = Ascending, and Field = *gender* → run to visualize distribution.





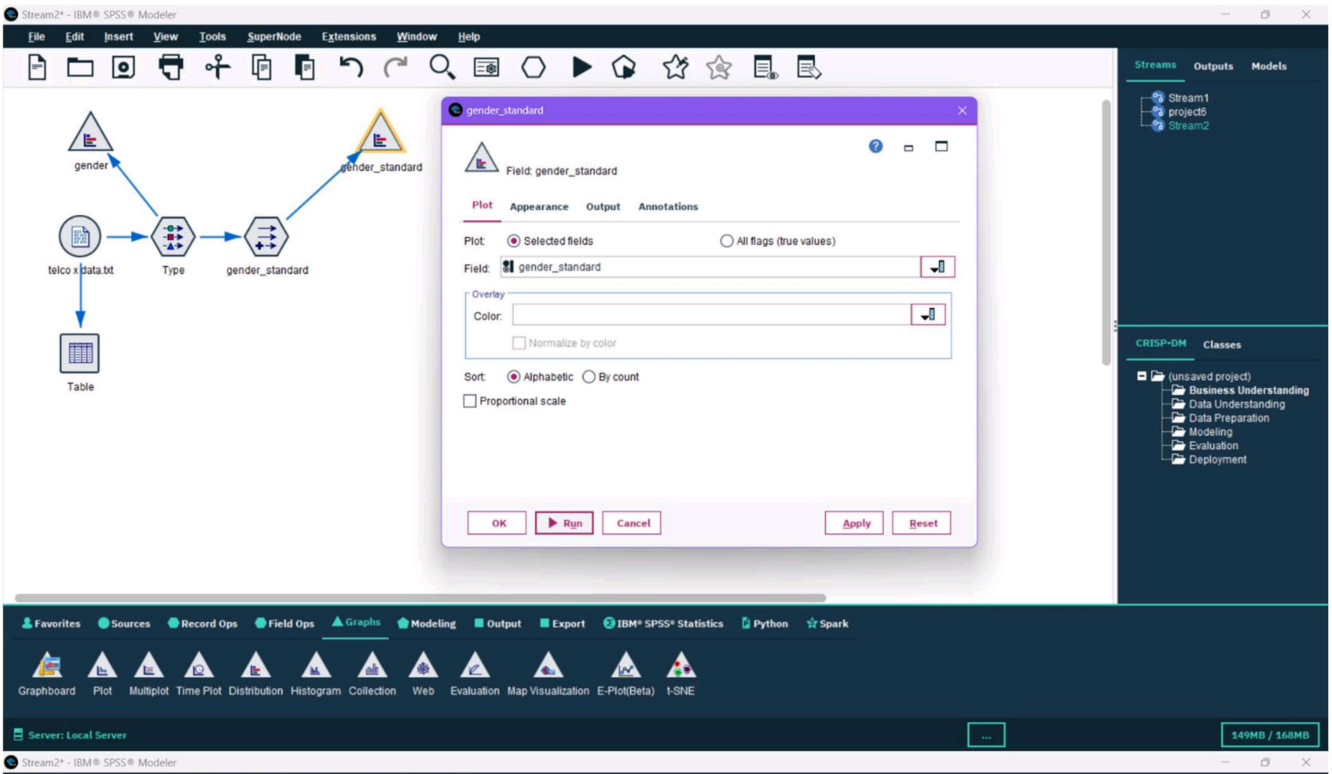
Step 4: Standardizing Gender Field

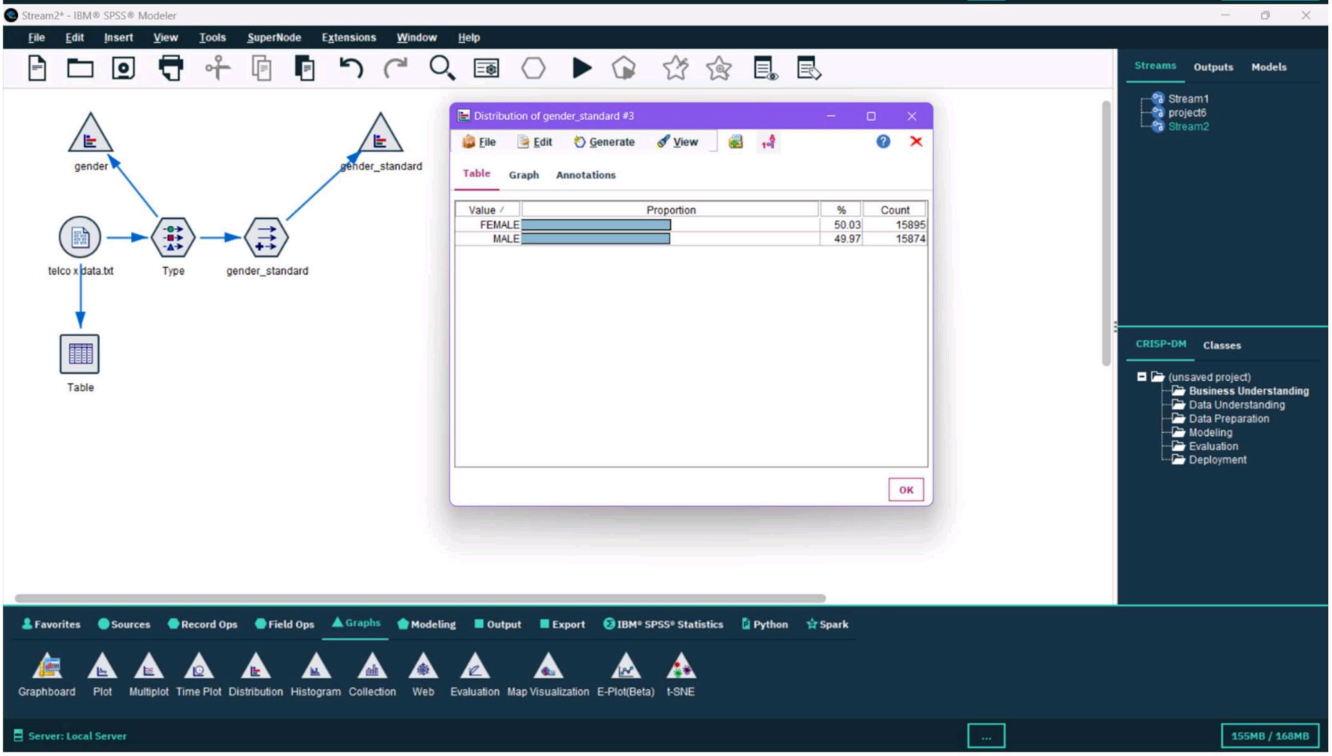
Connect a Derive Node to the Type Node.
Rename field = *gender_standard*.
Derive type = Formula → expression: lowertoupper(gender) (using CLEM).



Step 5: Visualizing Standardized Gender

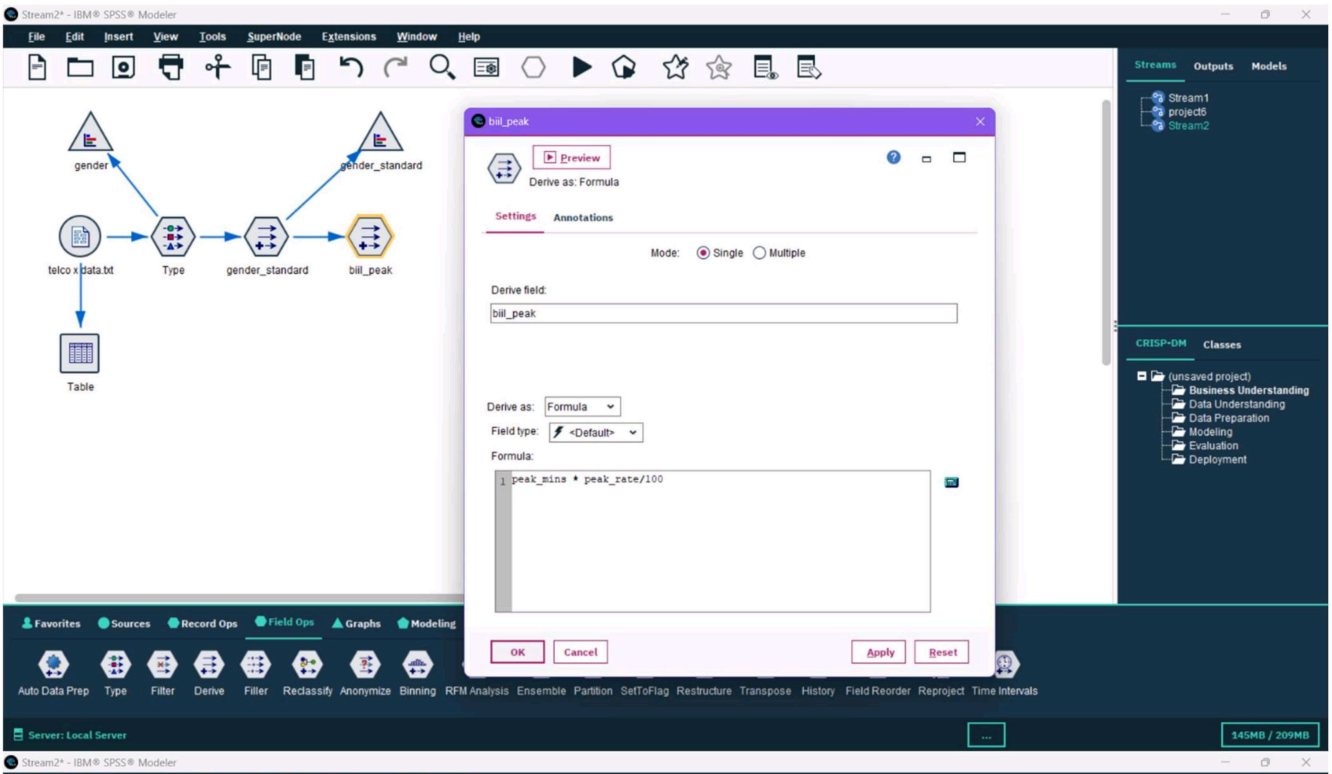
Attach a Distribution Node to the *gender_standard* Derive Node.
Set field = *gender* → run to confirm corrected values.

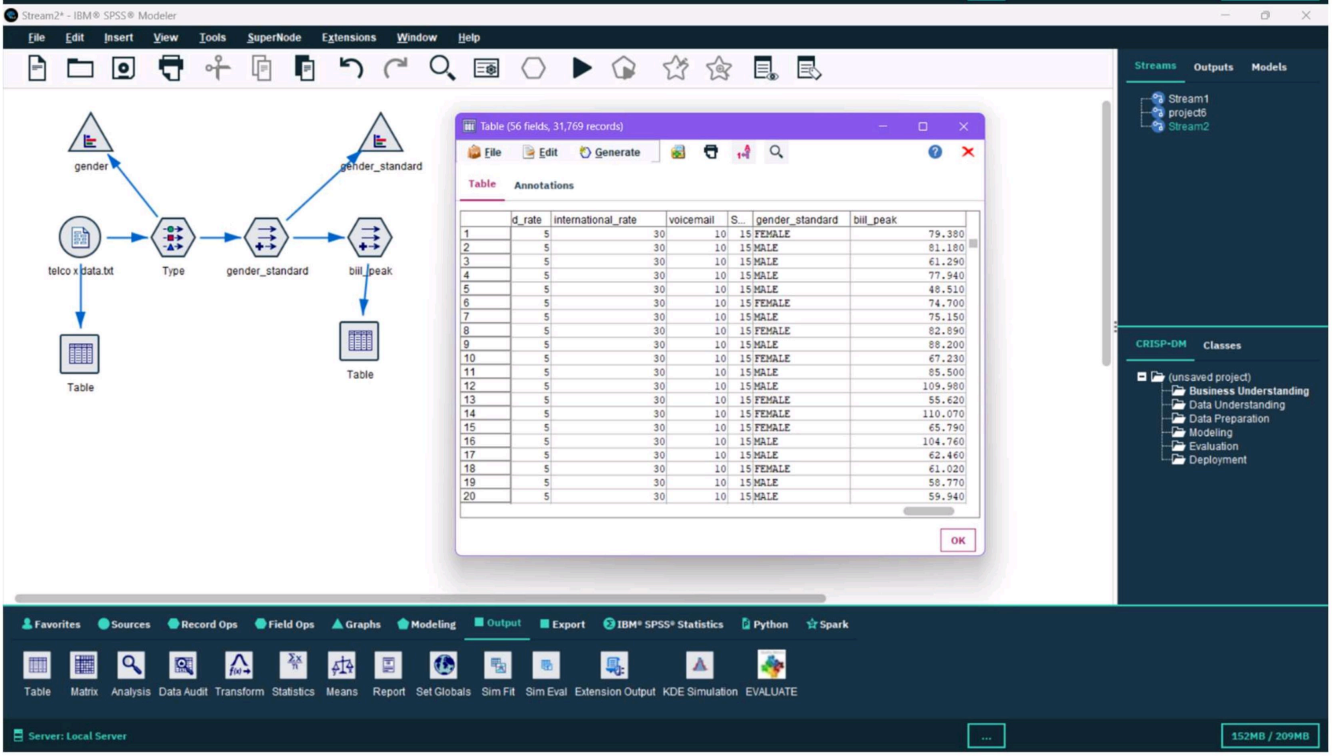




Step 6: Calculating Peak Bill

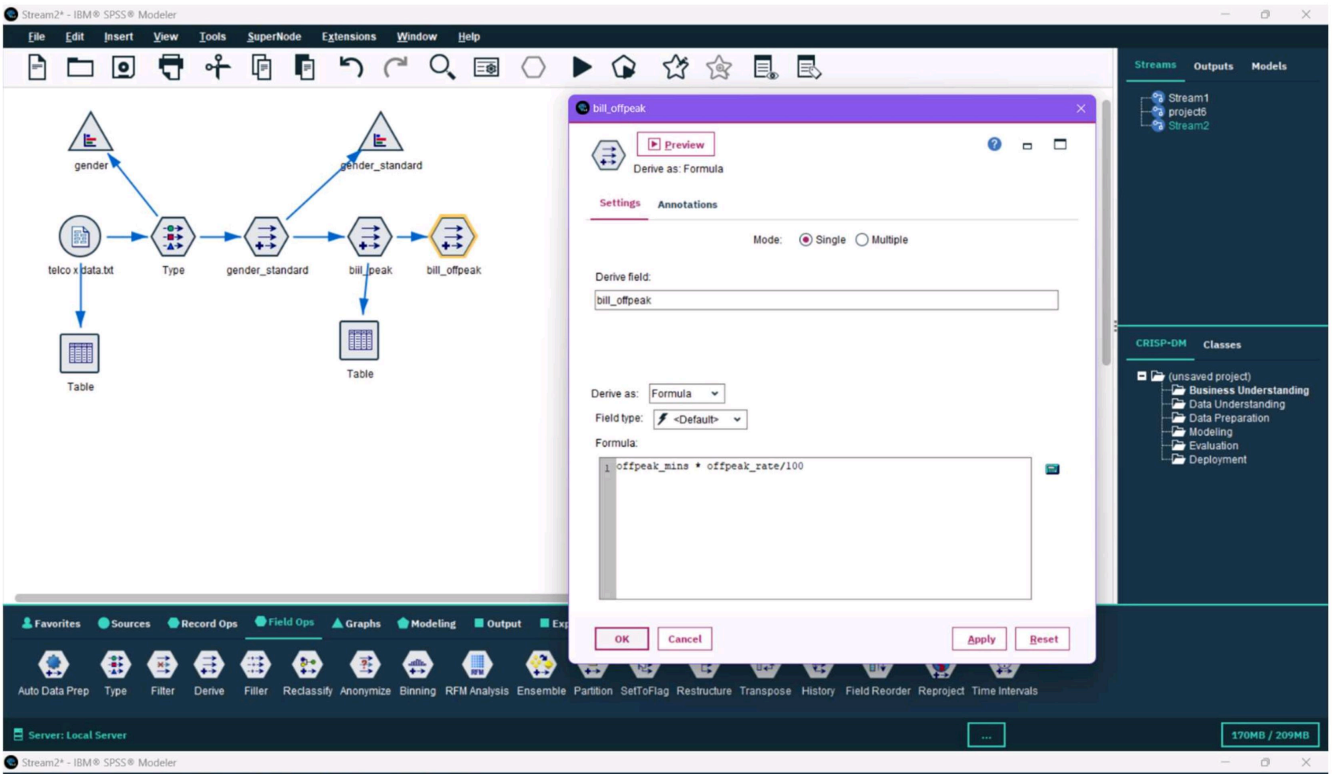
Add a new Derive Node after *gender_standard*.
Rename field = *bill_peak*.
Formula = peak_mins * peak_rate / 100.
Attach a Table Node → run to view results.

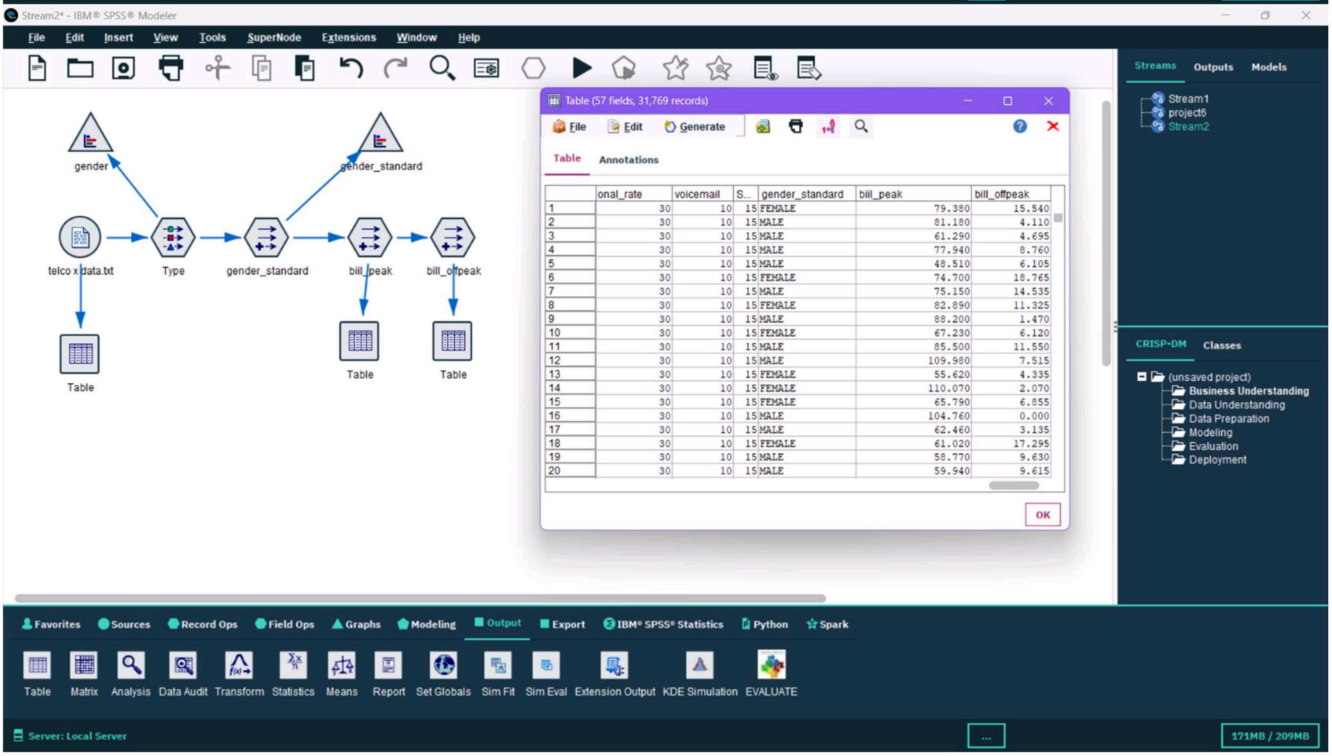




Step 7: Calculating Off-Peak Bill

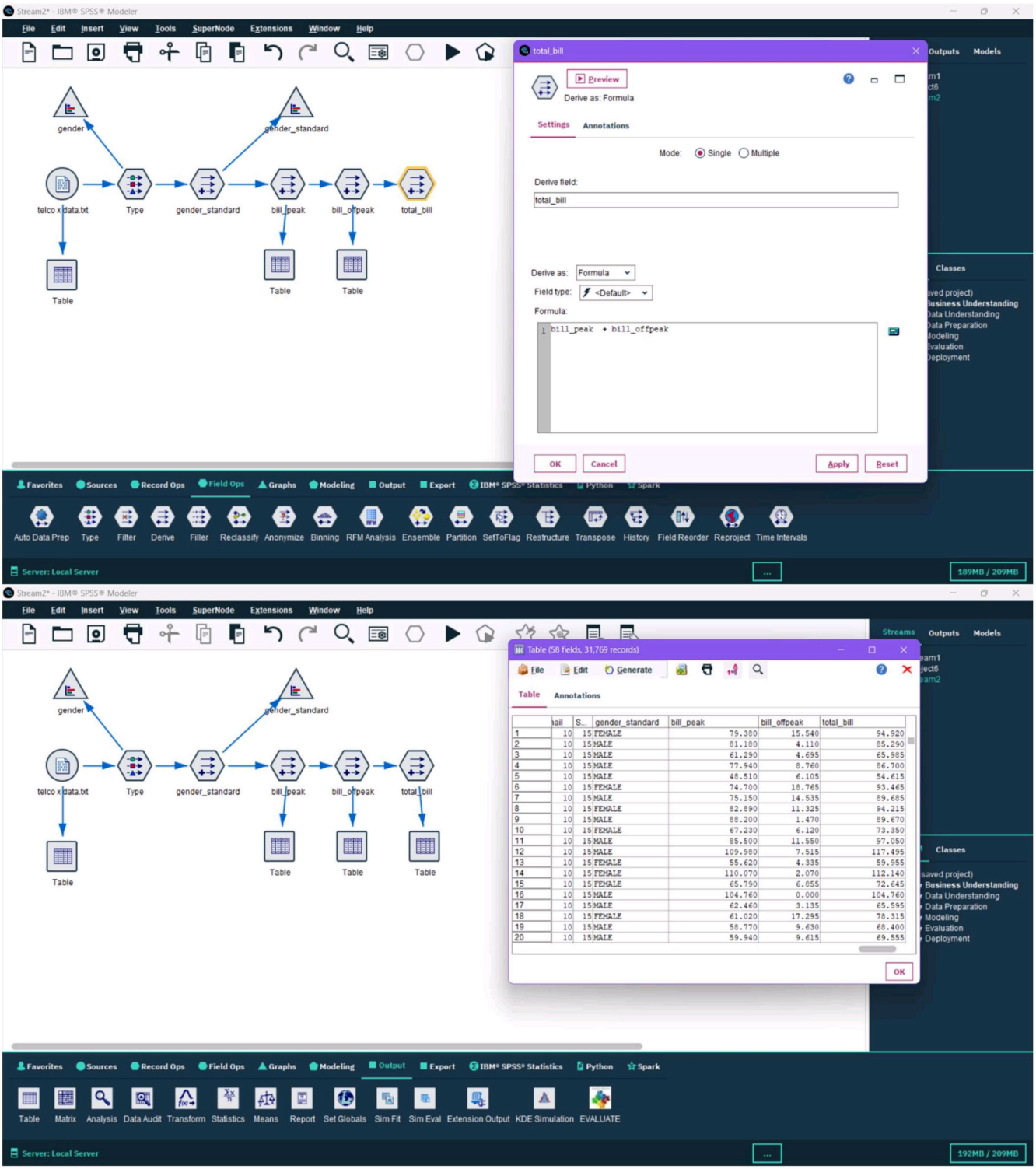
Add another Derive Node after *bill_peak*.
Rename field = *offbill_peak*.
Formula = offpeak_mins * offpeak_rate / 100.
Attach a Table Node → run to confirm results.





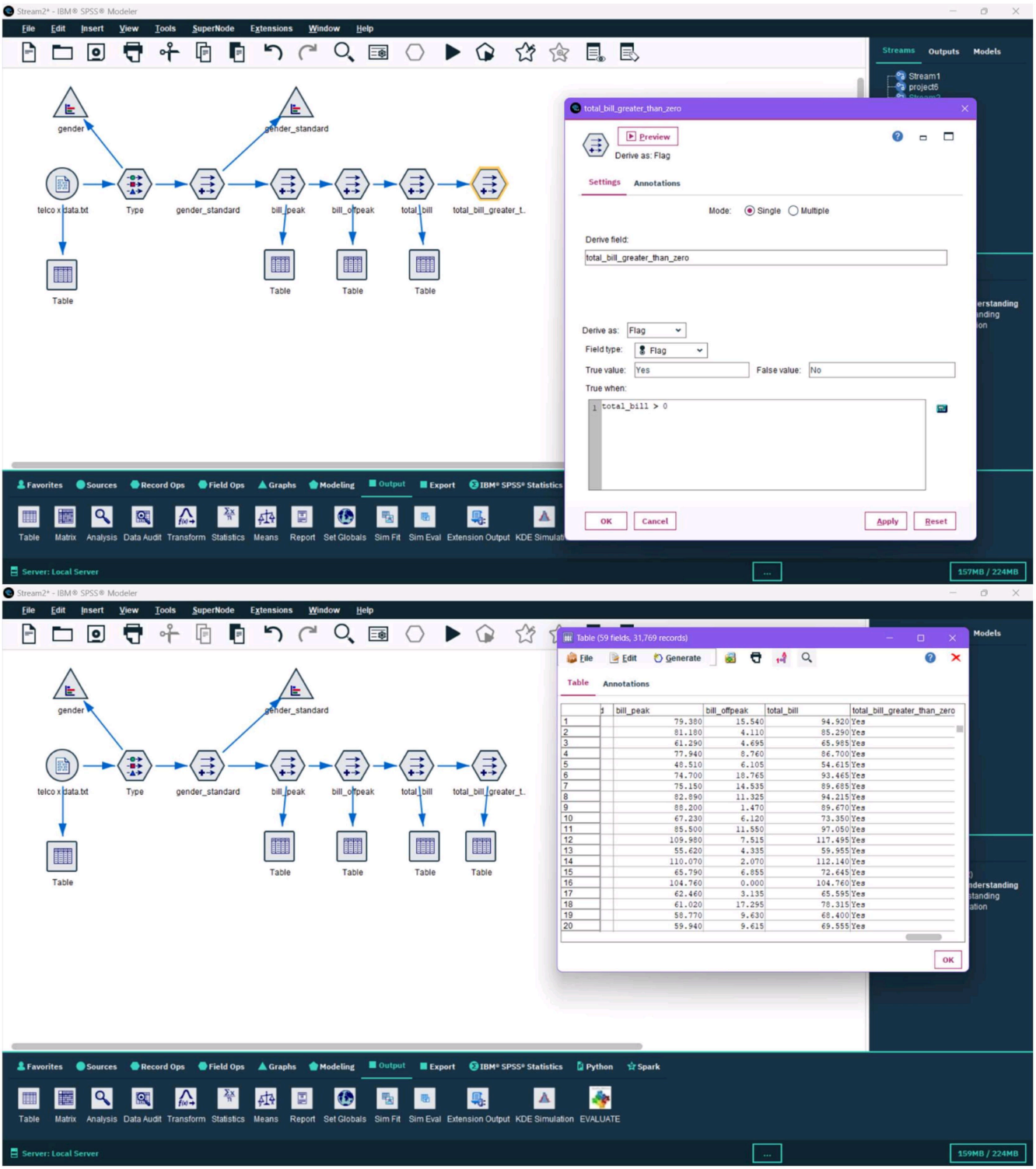
Step 8: Calculating Total Bill

Connect a Derive Node to *offbill_peak*.
Rename field = *total_bill*.
Formula = bill_peak + offbill_peak.
Attach a Table Node → run to display total bill values.



Step 9: Flagging Valid Bills

Insert another Derive Node after *total_bill*.
Rename field = *total_bill_greater_than_zero*.
Type = Flag → condition: bill_total > 0.
Attach a Table Node → run to validate flags.



Step 10: Customer Segmentation

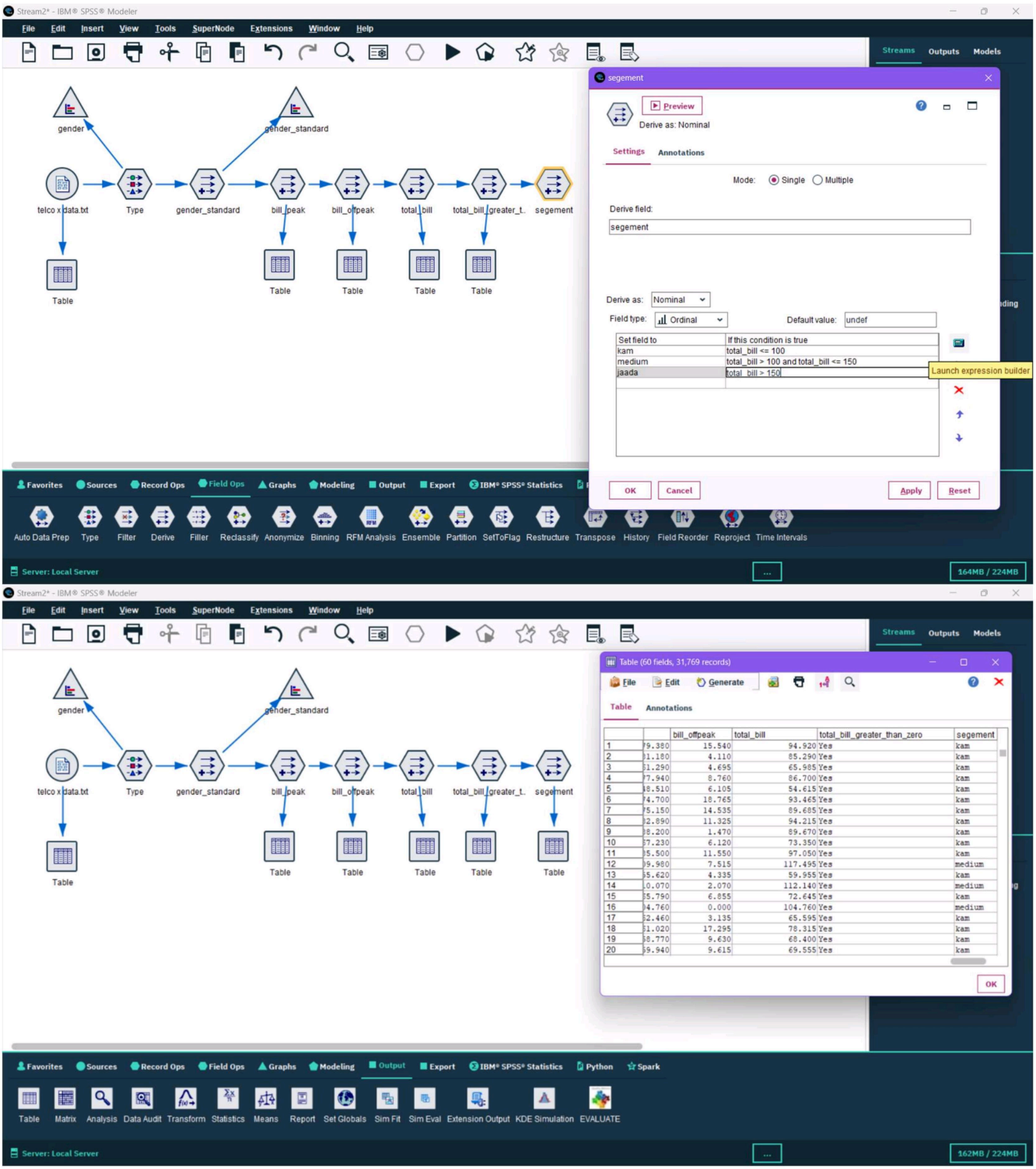
Add a Derive Node after the flag.

Rename field = *segment*.

Type = Nominal and Ordinal → expression:

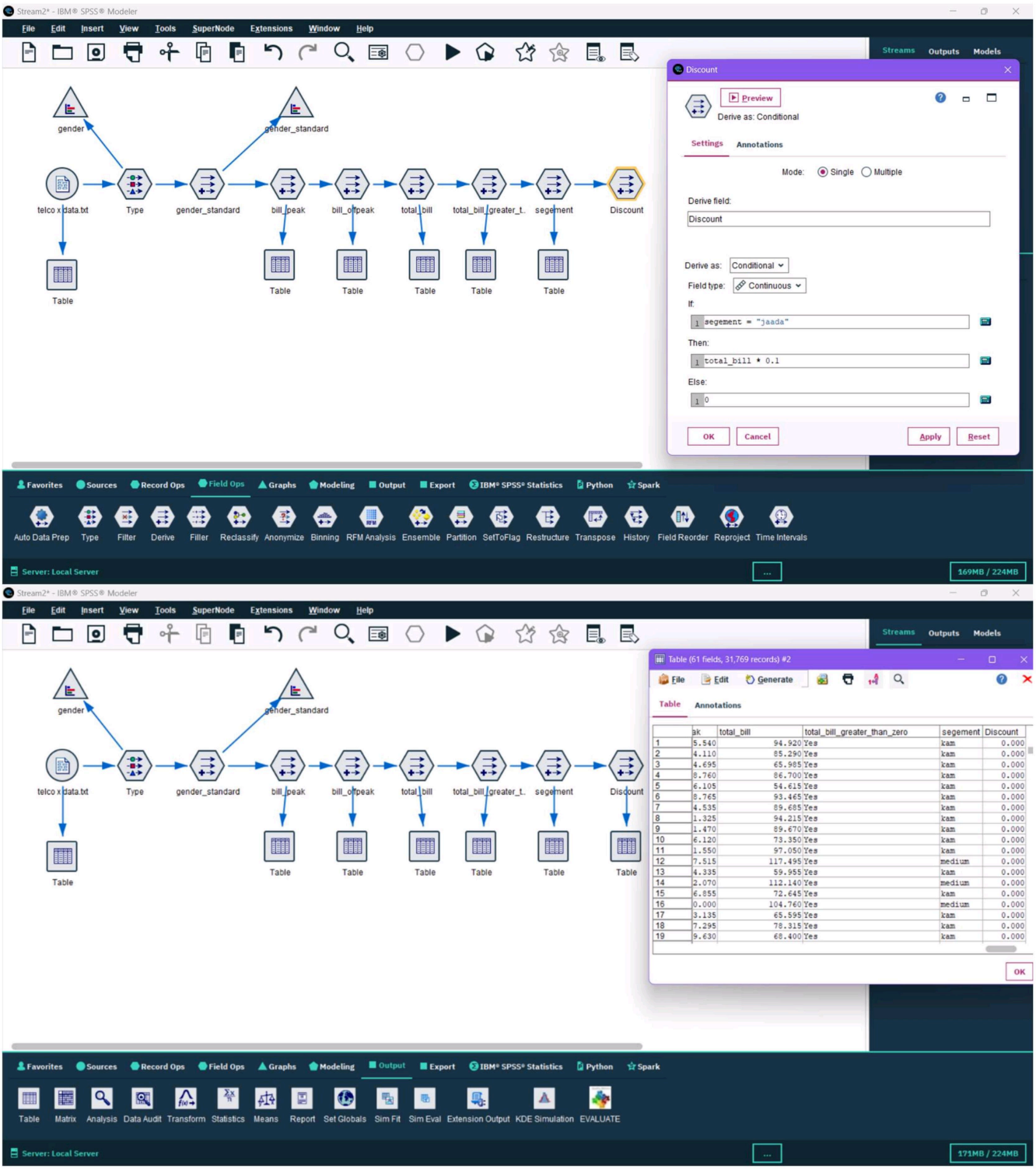
- *kam* if bill_total <= 100
- *medium* if bill_total > 100 and <= 150
- *jaada* if bill_total > 150.

Attach a Table Node → run to confirm segment allocation.



Step 11: Applying Discount Rules

Connect another Derive Node to *segment*.
Rename field = *discount*.
Type = Conditional Continuous → expression:
If segment = "jaada" Then bill_total * 0.1 Else 0.
Attach a Table Node → run to calculate discounts.

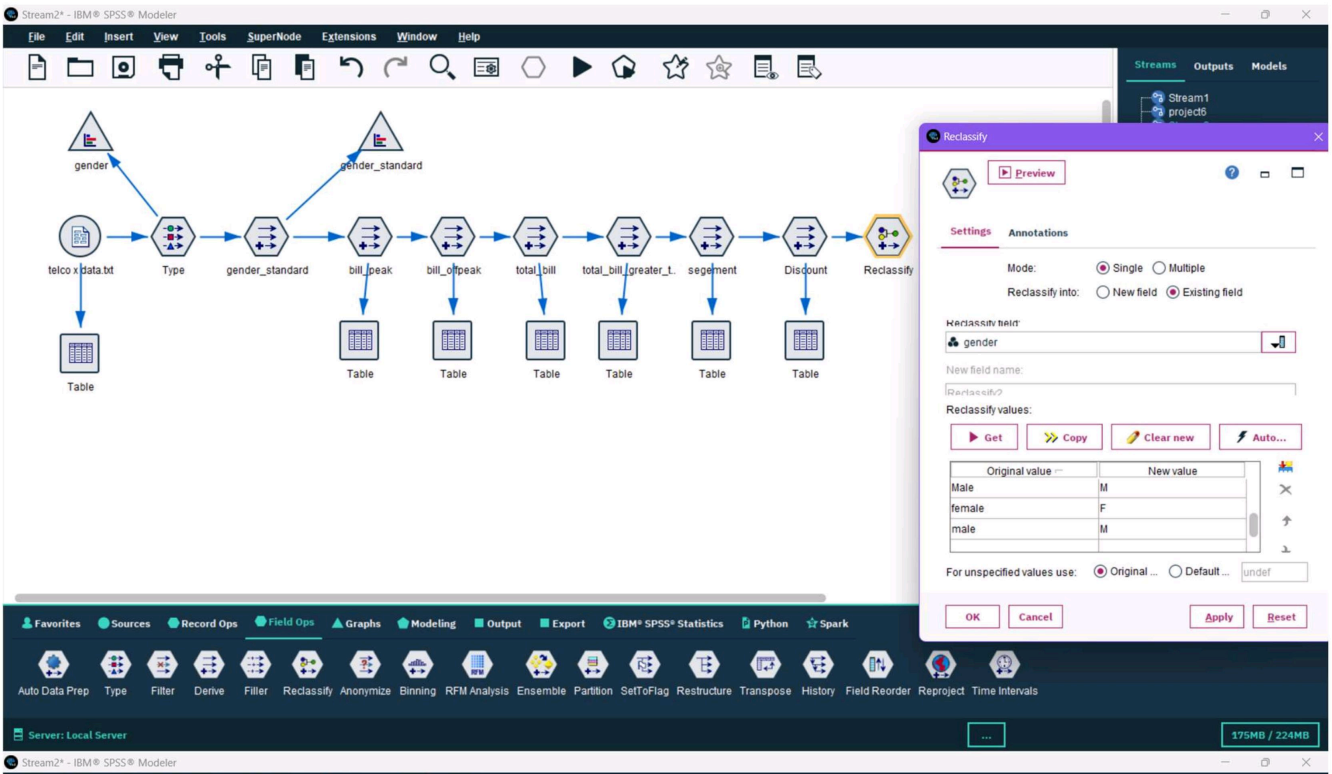


Step 12: Reclassifying Gender Field

Finally, add a Reclassify Node after *segment*.

Reclassify field = *gender* → map values into standardized categories (M, F).

Attach a Table Node → run to generate the final cleaned dataset.


Stream2* - IBM® SPSS® Modeler
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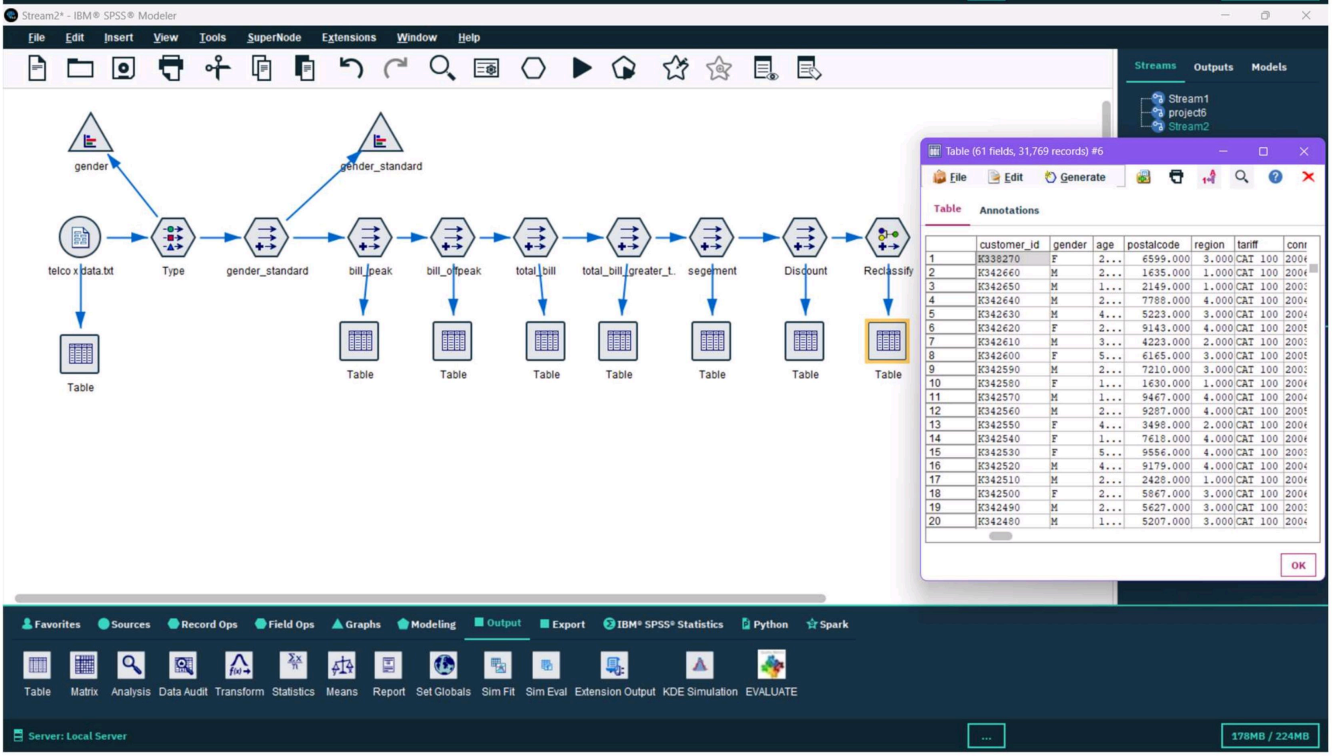
Stream2* - IBM® SPSS® Modeler
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Streams Outputs Models
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Table Annotations
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