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BBD UNIVERSITY

PROJECT - ACME Credit Card DATA ANALYSIS Using IBM SPSS Modeler

SUBMITTED TO:

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ACME Credit Card Data Analysis using IBM SPSS Modeler

Agenda / Definition

This project analyzes customer credit card data from the ACME dataset using IBM SPSS Modeler.
The goal is to identify how customers use their credit limits, find those who spend beyond their limit, and group customers into meaningful segments. The analysis involves deriving new variables, setting flags for overspending behavior, and examining relationships among variables such as bonus and gender.

Outcomes / Learning

- After completing this project, you will be able to:
- Understand how to import and prepare data in IBM SPSS Modeler.
- Derive new fields and perform calculations within the stream.
- Create flag variables to mark special conditions (like overspending).
- Segment customers into behavioral groups.
- Visualize results using table outputs for interpretation
- Apply the CRISP–DM process (Data Understanding → Data Preparation → Modeling → Evaluation → Deployment).
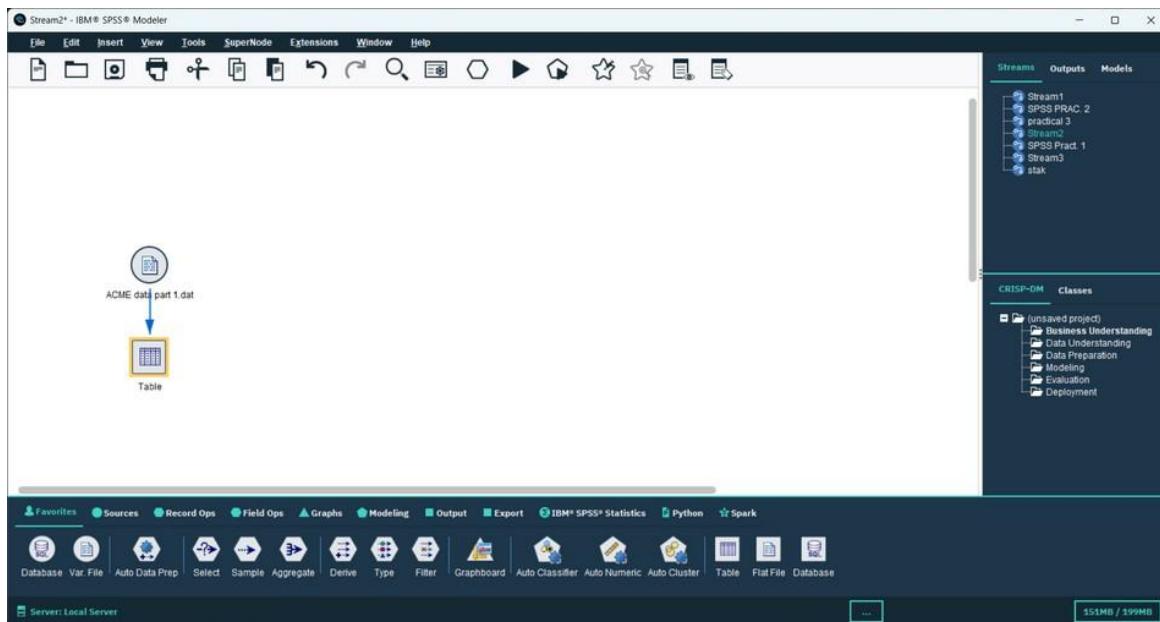
Required Tools

The tool used for this project is IBM SPSS Modeler.

Working
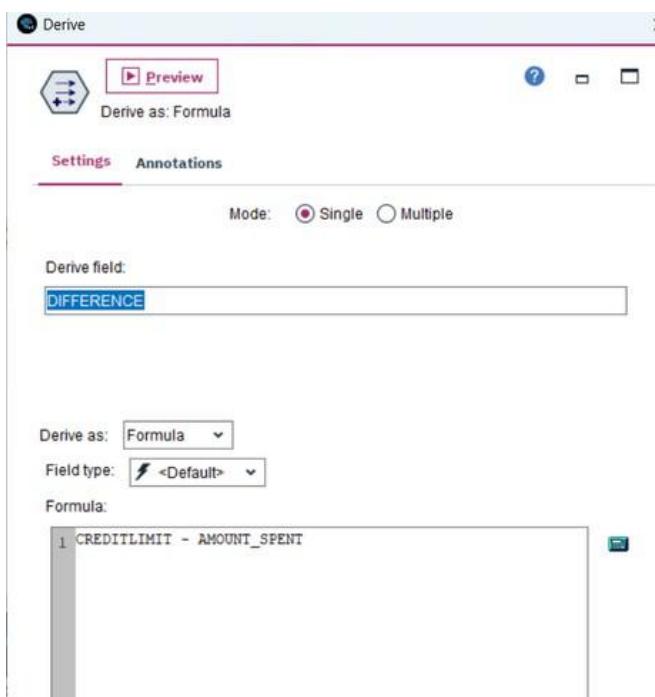
Step 1: Import Data

- Used Var. File Node to import the dataset ACME data part 1.dat.
- Contains key fields such as CREDITLIMIT_Dollar, AMOUNT_SPENT_Dollar, BONUS, and GENDER.
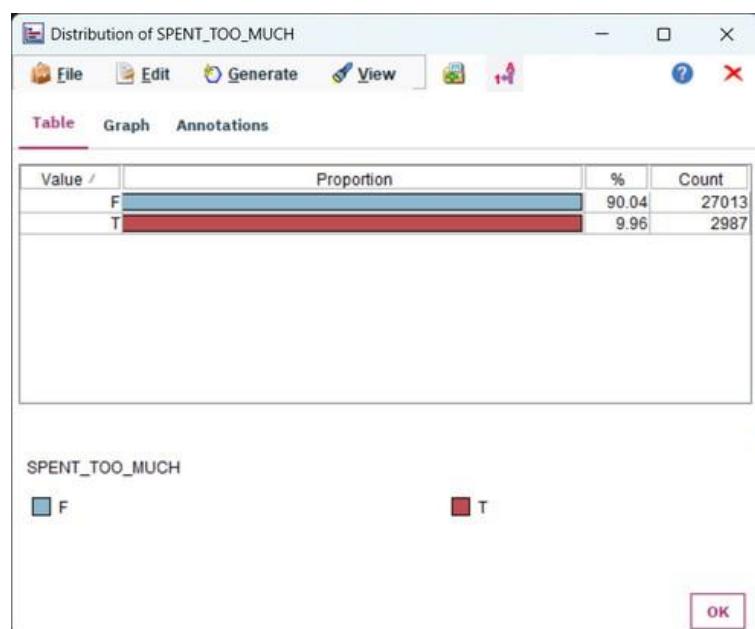
Step 2: Derive (DIFFERENCE)

- Added a Derive Node named DIFFERENCE to calculate:

- DIFFERENCE = CREDITLIMIT_Dollar – AMOUNT_SPENT_Dollar

- Helps identify how much of the credit limit is still available or overspent.
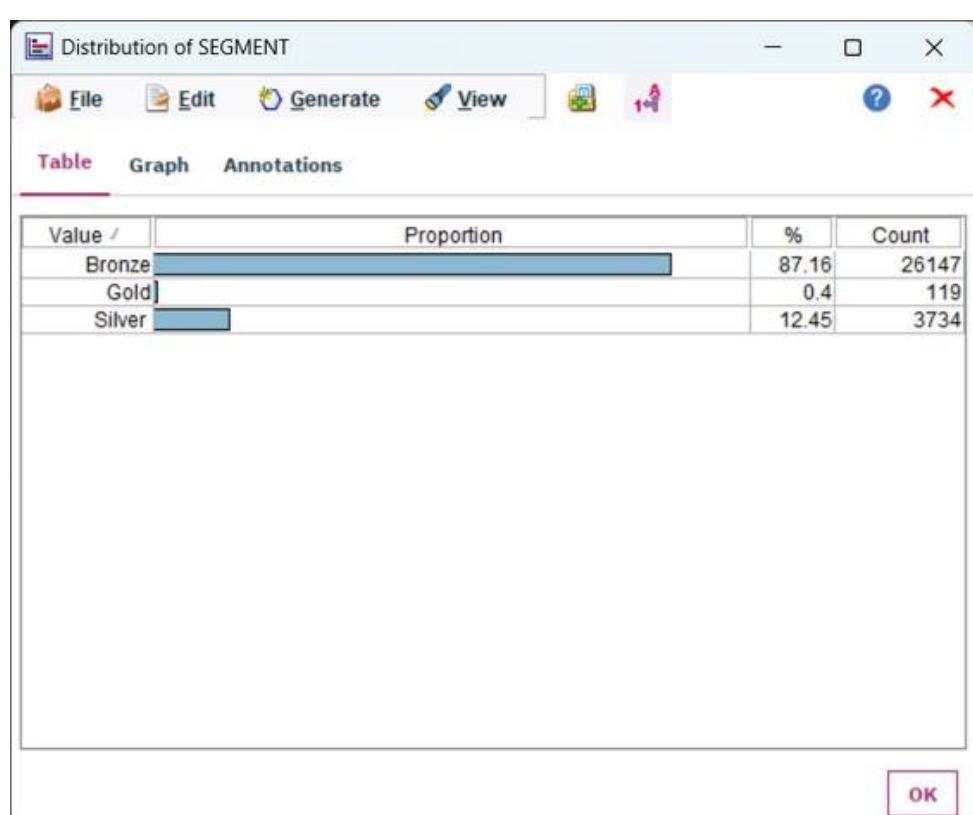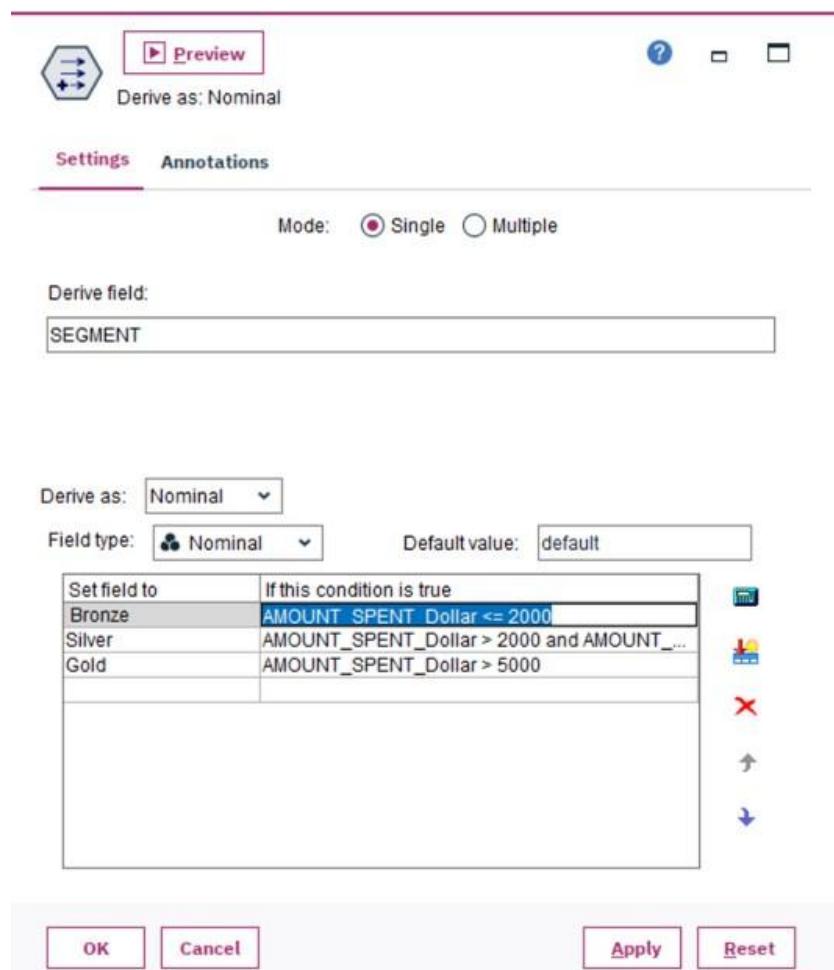
Step 3 : SetToFlag Node (SPENT_TOO_MUCH)

- Created a new binary variable SPENT_TOO_MUCH:
- If Amount Spent > Credit Limit, then 1 (Yes)
- Else 0 (No)
- Used the SetToFlag Node to implement this condition.

SPENT_TOO_MUCH   ✕

▶ Preview

Derive as: Flag

Settings   Annotations

Mode: ⦿ Single ○ Multiple

Derive field:

SPENT_TOO_MUCH

Derive as: Flag

Field type: Flag

True value: T   False value: F

True when:

```
1 AMOUNT_SPENT_Dollar > CREDITLIMIT_Dollar
```

OK   Cancel   Apply   Reset

Distribution of SPENT_TOO_MUCH   — ☐ ✕

File   Edit   Generate   View   ❓ ✕

Table   Graph   Annotations

Value /	Proportion	%	Count
F		90.04	27013
T		9.96	2987

SPENT_TOO_MUCH

☐ F   ■ T

OK

Step 4 : Segment Customers::

Added a Segment node to group customers based on spending behavior and gender.

Step 5 : Bonus Analysis:

Added Bonus node to study if bonuses relate to overspending behavior

BONUS ✕

▶ Preview ❓ ▭ ▢

Derive as: Conditional

Settings Annotations

Mode: ⦿ Single ⚪ Multiple

Derive field:

BONUS

Derive as: Conditional ⌄
Field type: ⚡ <Default> ⌄

If:

| 1 | SEGMENT = "Gold" |

Then:

| 1 | AMOUNT_SPENT_Dollar * 0.05 |

Else:

| 1 | 0 |

OK   Cancel   Apply   Reset
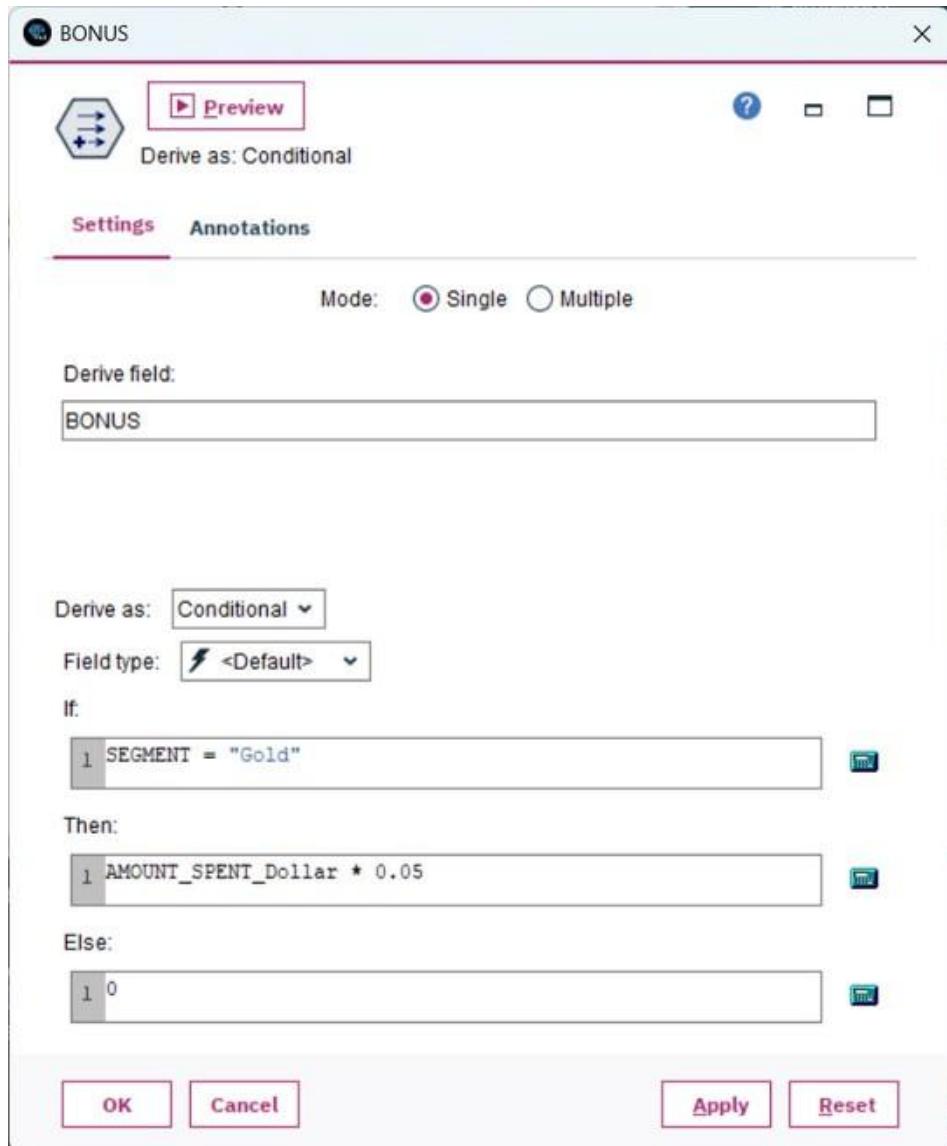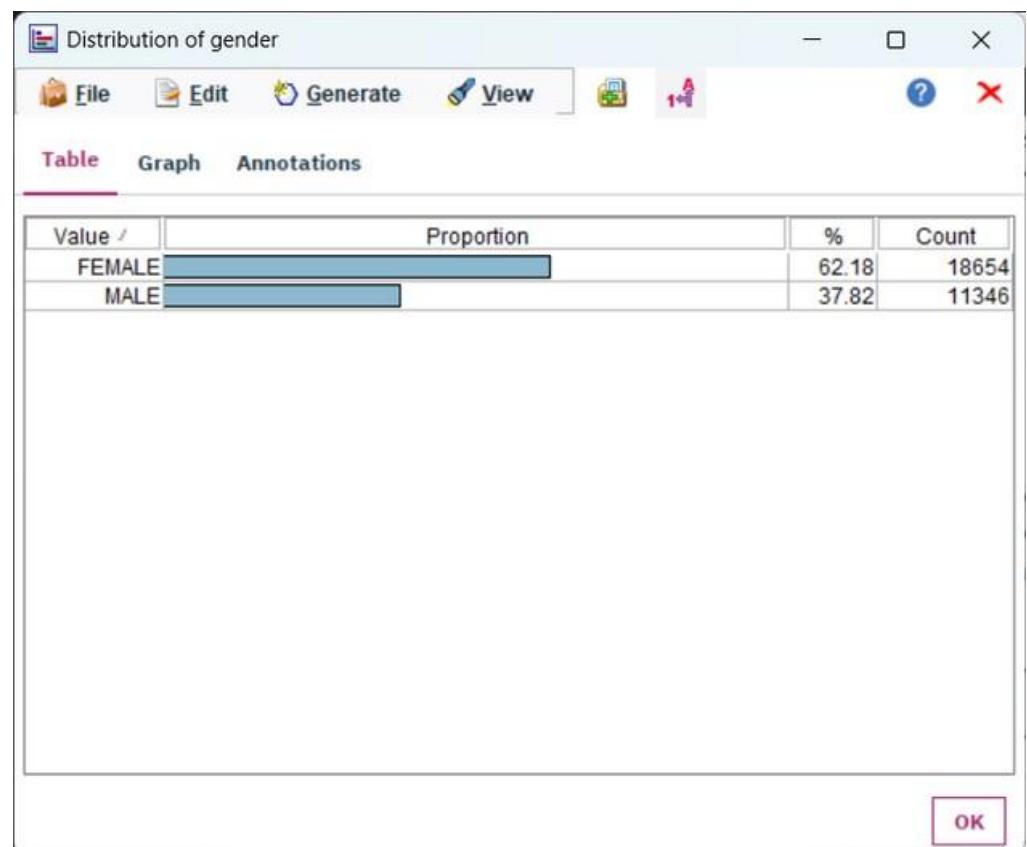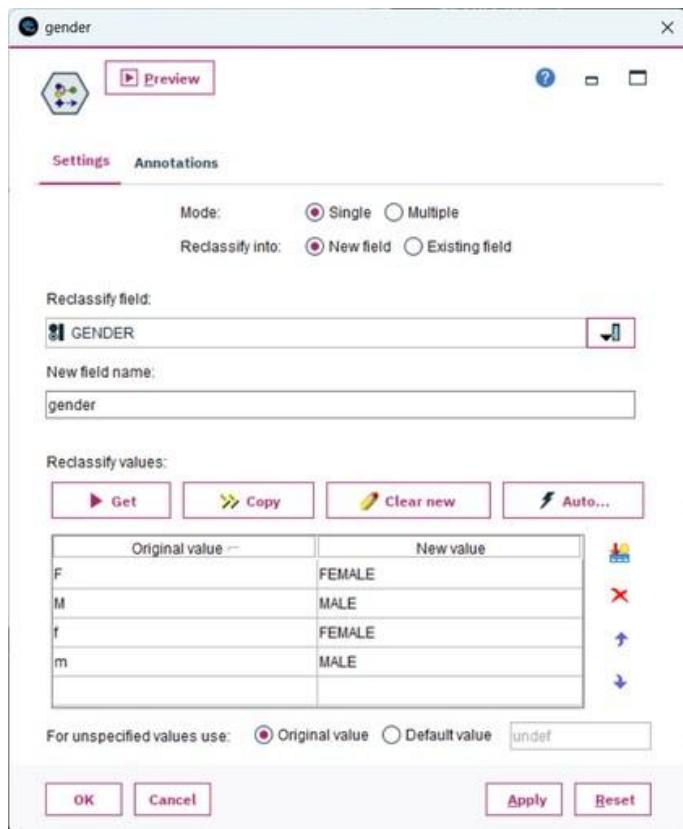
Table (22 fields, 30,000 records) — ▢ ✕

🗀 File 📝 Edit ⟳ Generate 🔍 ❓ ✕

Table Annotations

	REDITLIMIT_Dollar	AMOUNT_SPENT_Doll	DIFFERENCE_CL_AS_Dollar	SPENT_TOO_M	SEGME	BON
1	12636.400	765.424	11870.976	F	Bronze	0.000
2	7312.200	429.072	6883.128	F	Bronze	0.000
3	935.200	2514.422	-1579.222	T	Silver	0.000
4	11622.800	3484.962	8137.838	F	Silver	0.000
5	1395.800	528.094	867.706	F	Bronze	0.000
6	2737.000	873.621	1863.379	F	Bronze	0.000
7	9657.200	48.614	9608.586	F	Bronze	0.000
8	9083.200	1103.410	7979.790	F	Bronze	0.000
9	7008.400	3387.370	3621.030	F	Silver	0.000
10	1300.600	1621.452	-320.852	T	Bronze	0.000
11	4624.200	1747.158	2877.042	F	Bronze	0.000
12	12507.600	1450.437	11057.163	F	Bronze	0.000
13	13731.200	639.851	13091.349	F	Bronze	0.000
14	6612.200	2966.754	3645.446	F	Silver	0.000
15	940.800	761.656	179.144	F	Bronze	0.000
16	10921.400	569.114	10352.286	F	Bronze	0.000
17	8377.600	1276.772	7100.828	F	Bronze	0.000
18	3669.400	2760.408	908.992	F	Silver	0.000
19	8486.800	1843.450	6643.350	F	Bronze	0.000
20	13715.800	540.848	13174.952	F	Bronze	0.000

OK

Step 6 : Gender Analysis

Added Gender node to analyze differences in spending between male and female customers.
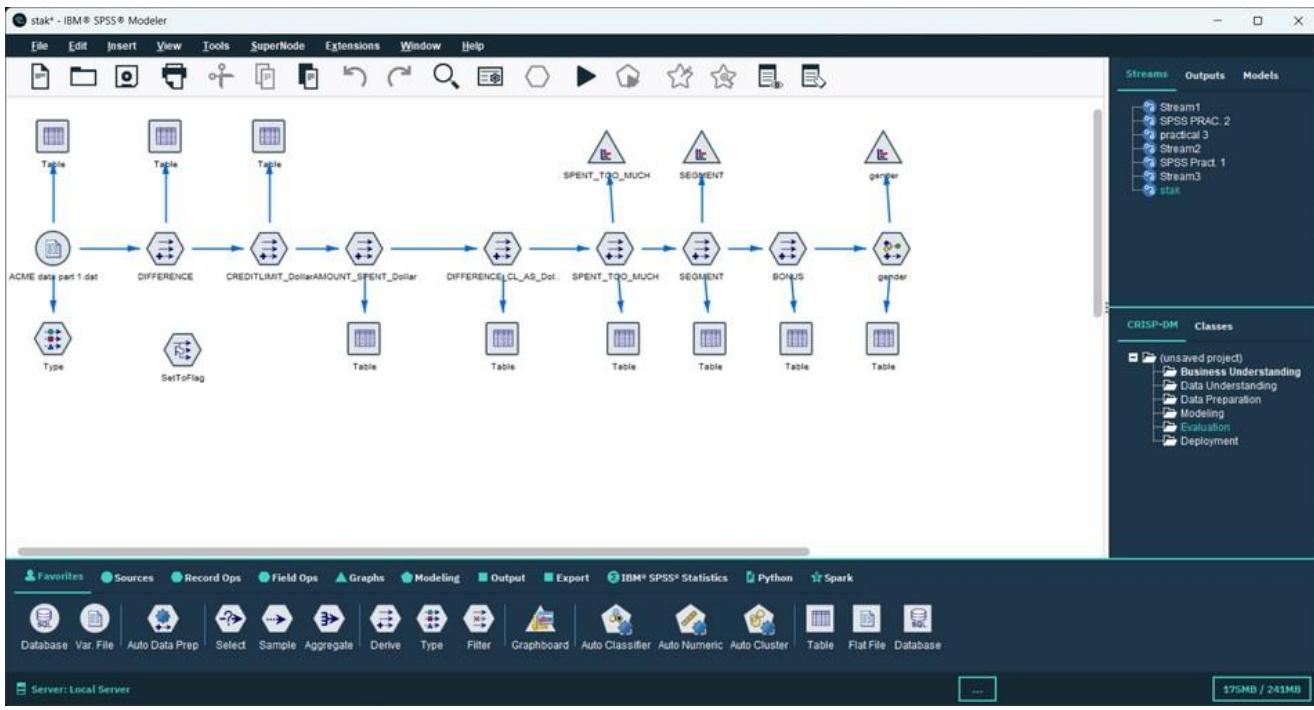
Step 7 : FINAL EVALUTION

- Verified all calculations through Table nodes.
- Checked number of overspending customers and spending gaps.

Variable Definitions:

Conclusion :

The ACME Credit Card Data Analysis was completed using IBM SPSS Modeler.
By deriving the difference between Credit Limit and Amount Spent, and creating a flag for overspending, we identified customers who spent beyond their limit.
Segmentation and tabular results helped understand spending patterns.
Overall, the project showed how SPSS can effectively analyze and visualize financial data for better decision-making