

BABU BANARASI DAS UNIVERSITY

School Of Computer Application



Academic Session 2023 – 2024

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Section:BCADS36

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Assignment:Predictive Analytics

Semester:5th

Date:16th November 2025

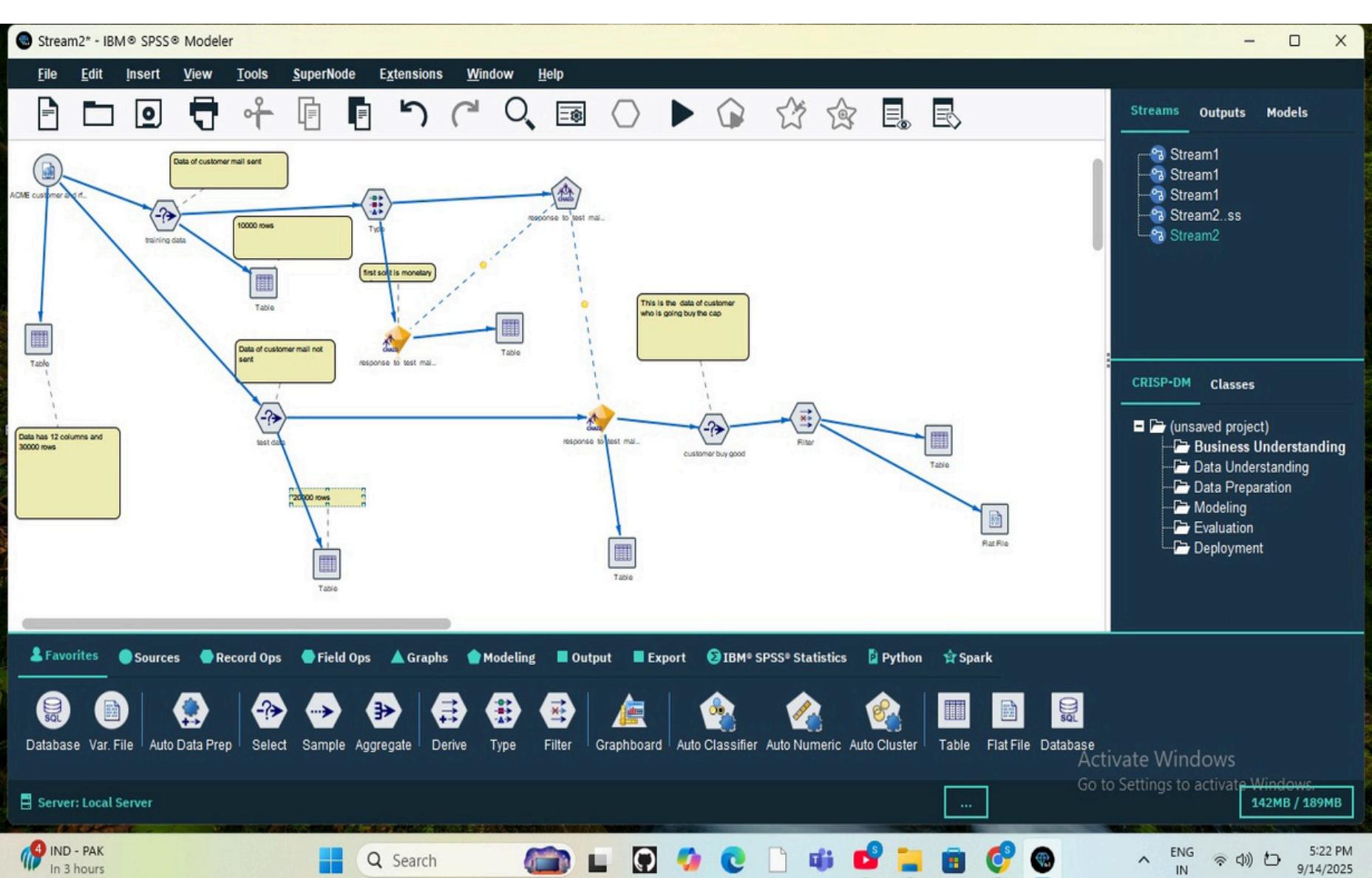
Submit To :Mr. Ayushman Bhaduria Sir

ACME CASE STUDY: Predicting Customer Response

Definition: Predictive Modelling is a statistical technique that uses Historical data to predict future outcomes. It helps in identifying patterns and relationships within data to make informed business decisions.

Outcome: Learned how to import and explore data in SPSS MODELER
Understand how to identify important variables.

Required tools: SPSS MODELER



This image shows the complete predictive modelling workflow in SPSS MODELER , illustrating the process from data import and preparation to model building, testing, and deployment for customer response prediction

Step 1:

Stream2* - IBM® SPSS® Statistics

Table (12 fields, 30,000 records) #7

File Edit Insert File Edit Generate Table Annotations

ACME customer and rf..

Table

Data has 12 columns and 30000 rows

	customer_id	gender	email_address	postal_code	monetary_value_01_01_2011	frequency_01_01_2011	recency_01_01_2011	has_received_test_mailing	response_to_te
1	723.000	male	name7502@tnet.fr	1818BO	2 medium	3 high	2 medium	yes	F
2	724.000	female	name25485@wwmail.org	1132DG	1 low	3 high	1 low	yes	F
3	725.000	male	name15543@wwmail.de	1803YT	3 high	1 low	1 low	yes	F
4	726.000	male	name28335@zigzag.be	1205WR	3 high	1 low	3 high	yes	F
5	727.000	female	name5354@tnet.jp	1711ON	1 low	3 high	1 low	yes	F
6	728.000	female	name20637@wwmail.es	1055FG	2 medium	3 high	1 low	yes	T
7	729.000	female	name20636@wwmail.es	1254MR	1 low	3 high	1 low	yes	F
8	730.000	female	name10414@tnet.inc	1723DG	2 medium	3 high	1 low	yes	F
9	731.000	male	name23372@wwmail.inc	1713AQ	3 high	2 medium	1 low	yes	F
10	732.000	male	name20635@wwmail.es	1264EC	3 high	2 medium	3 high	yes	T
11	733.000	female	name5356@tnet.jp	1648BT	3 high	2 medium	1 low	yes	F
12	734.000	female	name17582@wwmail.de	1285XV	3 high	1 low	3 high	yes	F
13	735.000	female	namee6388@tnet.fr	1282NB	1 low	2 medium	2 medium	yes	F
14	736.000	male	name10409@tnet.inc	1799IT	3 high	2 medium	1 low	yes	F
15	737.000	female	name13849@tnet.uk	1802UO	2 medium	3 high	1 low	yes	F
16	738.000	male	name25473@wwmail.org	1971NK	1 low	3 high	1 low	yes	F
17	739.000	male	name13848@tnet.uk	1361RL	2 medium	3 high	1 low	yes	F
18	740.000	female	name23366@wwmail.inc	1164VN	3 high	2 medium	1 low	yes	F
19	741.000	female	name3188@molbe.cat	1767YN	3 high	1 low	1 low	yes	F
20	742.000	male	name1606@lomejor.es	1681HP	1 low	3 high	1 low	yes	F

OK

Favorites Sources Record Ops Field Ops Graphs Modeling Output Export IBM® SPSS® Statistics Python Spark

Table Matrix Analysis Data Audit Transform Statistics Means Report Set Globals Sim Fit Sim Eval Extension Output KDE Simulation EVALUATE

Activate Windows
Go to Settings to activate Windows.

164MB / 200MB

Server: Local Server

10:43 AM
10/30/2025

Data Overview (Understanding the data).

a. Open SPSS Modeler, import the training dataset
(Excel/CSV statistical).

b. Connect a Table node to summarize.

Check how many rows . Check how many columns

c. Identify important fields:

Response → Target (Yes/No: Customer bought or not)

Gender, recency – 01.01.2011, frequency – 01.01.2011,
monetary-value – 01.01.2011 → input

Step 2: Test Mailing Customer (Filtering)

a. Use a filter node.

b. Keep only customers who
were in the test mailing (has_received_test_mail = 1).



Table (12 fields, 10,000 records) #2

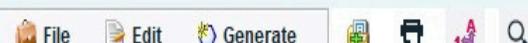


Table Annotations

	customer_id	gender	email_address	postal_code	monetary_value_01_01_2011	frequency_01_01_2011	recency_01_01_2011	has_rece...
1	723.000	male	name7502@tnet.fr	1818BO	2 medium	3 high	2 medium	yes
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Table Matrix Analysis Data Audit Transform Statistics Means Report Set Globals Sim Fit Sim Eval Extension Output KDE Simulation EVALUATE

Activate Windows

Go to Settings to activate Windows.

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Step 3:

Stream2* - IBM® SPSS® Modeler

File Edit Insert View Tools SuperNode Extensions Window Help

Streams Outputs Models

ACME customer and rf..

Data of customer mail sent

training data

10000 rows

Type

first solit is monetary

Table

Table

Data has 12 columns and 30000 rows

CRISP-DM Classes

(unsaved project)

- Business Understanding
- Data Understanding
- Data Preparation
- Modeling
- Evaluation
- Deployment

Favorites Sources Record Ops Field Ops Graphs Modeling Output Export IBM® SPSS® Statistics Python Spark

Auto Data Prep Type Filter Derive Filler Reclassify Anonymize Binning RFM Analysis Ensemble Partition SetToFlag Restructure Transpose History Field Reorder Reproject Time Intervals Activate Windows

Server: Local Server Go to Settings to activate Windows. 165MB / 200MB

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Predictive Modelling.

a. Add a Type node – Define roles:

Response → Target

Other customer details → Input

b. Train the model to predict response.—

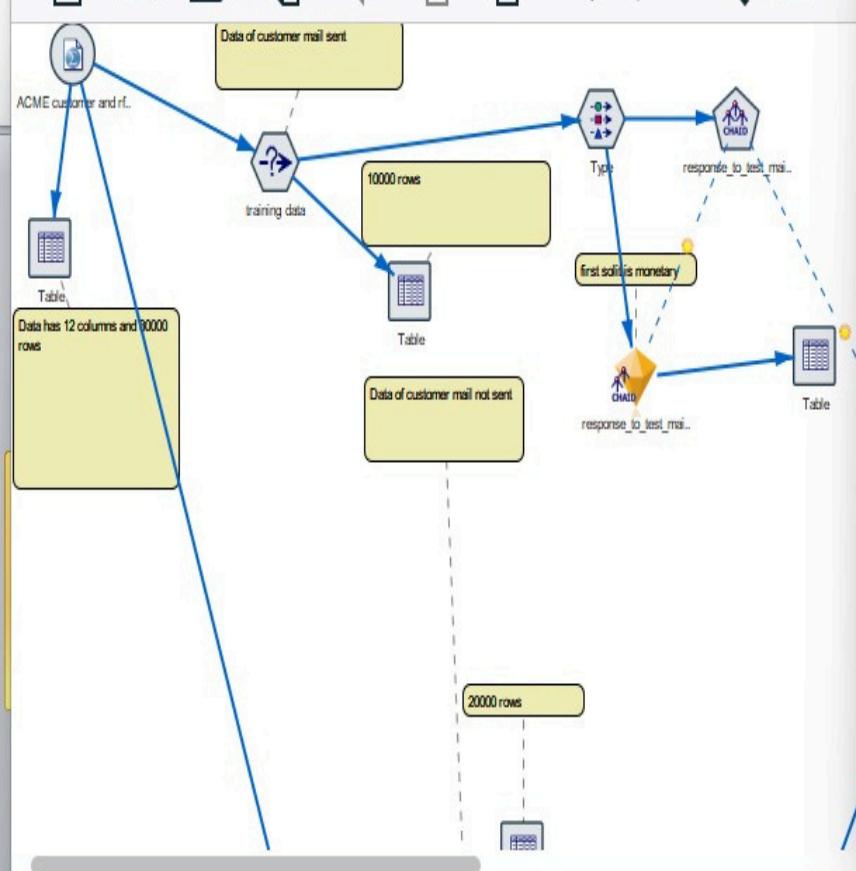
Step 4: Model Output (Checking results)

a. Connect a Table node downstream of the trained model nugget.

b. Look at the new fields created by the model:

Predicted field → model's prediction

Confidence → probability score for each prediction



	per_id	gender	email_address	postal_code	monetary_value_01_01_2011	frequency_01_01_2011
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5	27.000	female	name5354@tnet.jp	1711ON	1 low	3 high
6	28.000	female	name20637@wwmail.es	1055FG	2 medium	3 high
7	29.000	female	name20636@wwmail.es	1254MR	1 low	3 high
8	30.000	female	name10414@tnet.inc	1723DG	2 medium	3 high
9	31.000	male	name23372@wwmail.inc	1713AQ	3 high	2 medium
10	32.000	male	name20635@wwmail.es	1264EC	3 high	2 medium
11	33.000	female	name5356@tnet.jp	1648BT	3 high	2 medium
12	34.000	female	name17582@wwmail.de	1285XV	3 high	1 low
13	35.000	female	name6388@tnet.fr	1282NB	1 low	2 medium
14	36.000	male	name10409@tnet.inc	1799IT	3 high	2 medium
15	37.000	female	name13849@tnet.uk	1802UO	2 medium	3 high
16	38.000	male	name25473@wwmail.org	1971NK	1 low	3 high
17	39.000	male	name13848@tnet.uk	1361RL	2 medium	3 high
18	40.000	female	name23366@wwmail.inc	1164VN	3 high	2 medium
19	41.000	female	name3188@molbe.cat	1767YN	3 high	1 low
20	42.000	male	name1606@lomejor.es	1681HP	1 low	3 high

OK

Step 5: Applying the Model

- a. Import the testing dataset (customers who did not receive the mailing).
- b. Apply the trained model to this test dataset.
- c. The model will generate predictions for test customers.
- d. Check how many customers are predicted to respond positive (predicted = T).

Step 6: Exporting Results (Deployment)

- a. Use a filter node to keep only customers predicted as positive.
- b. Export results using a Flat File Node → save as customer-to-contact.txt.
- c. Include only required fields:
 - Predicted category (rename to predicted_category)
 - Customer_id
 - Confidence score (rename to confidence_score)