BABU BANARASI DAS UNIVERSITY
School of Computer Application

CASE STUDY REPORT

Predictive Analytics: Predicting Customer Response using SPSS Modeler

SUBMITTED TO:

Mr. Ayushman Bhadauria

SUBMITTED BY:

Name: Anshuman Singh

Roll No: 1230258087

Section: BCA DS 32

Definition

The main objective of this case study is to use predictive analytics techniques in IBM SPSS Modeler to analyze and predict customer responses in a marketing campaign. The project demonstrates how data-driven insights can help improve business decisions.

Outcomes / Learning

After completing this project, the student will be able to perform predictive analysis using SPSS Modeler and interpret model outputs to inform marketing decisions.

Required Tool

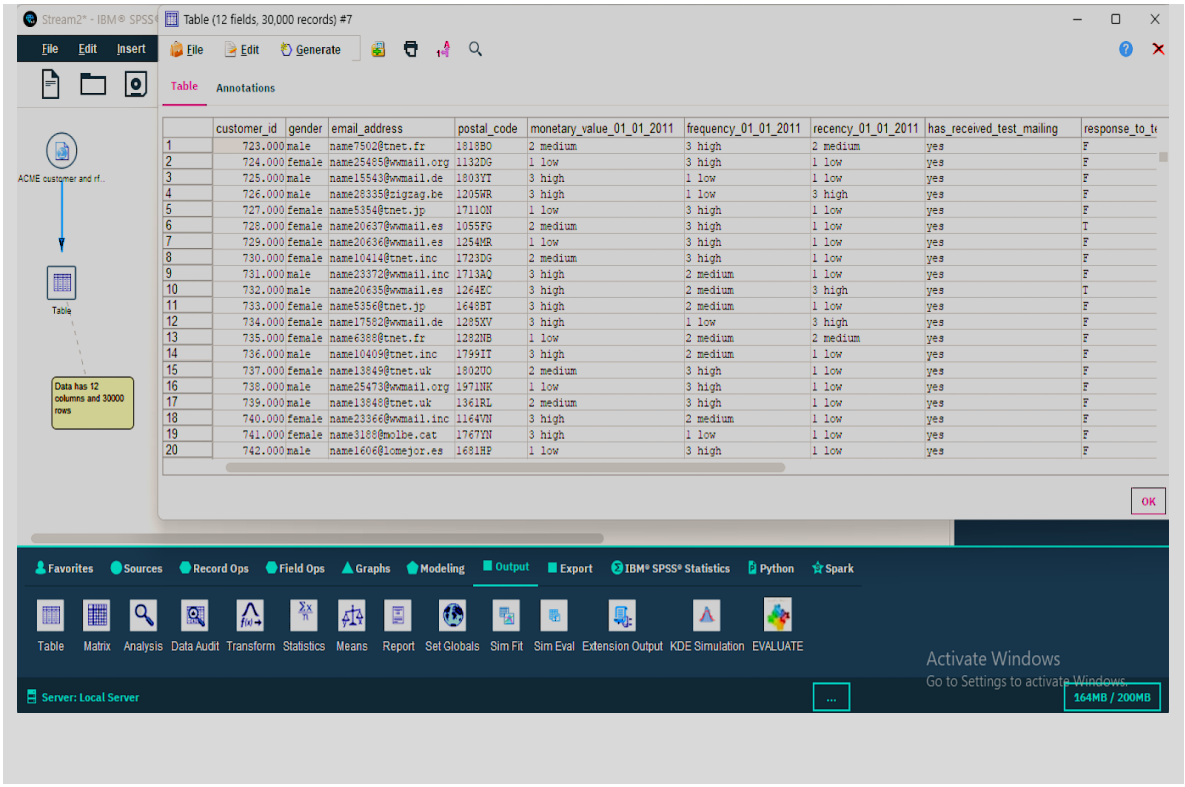
IBM SPSS Modeler – A visual data science and machine learning tool for data preparation, modeling, and deployment.

Working

SPSS Modeler is used to import data, clean and filter records, define variable roles, train classification models, evaluate their performance, and export predicted results for deployment.

Step 1: Data Overview (Understanding the Data)

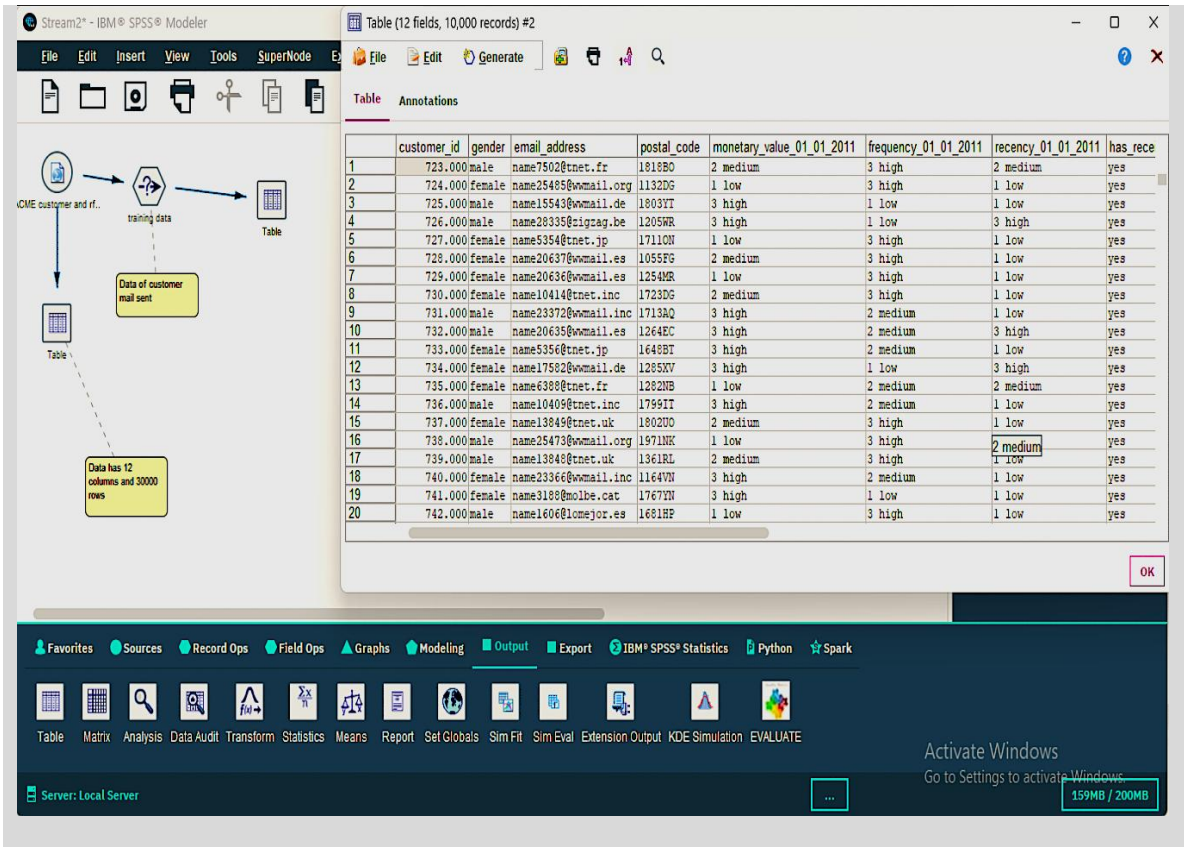
Import the dataset using the Var. File or Database node. Use a Table node to inspect records and fields. Identify key fields such as Response (target), Gender, Recency, Frequency, and Monetary value.



Step 1: data overview (understanding the data).

Step 2: Test Mailing Customers (Filtering)

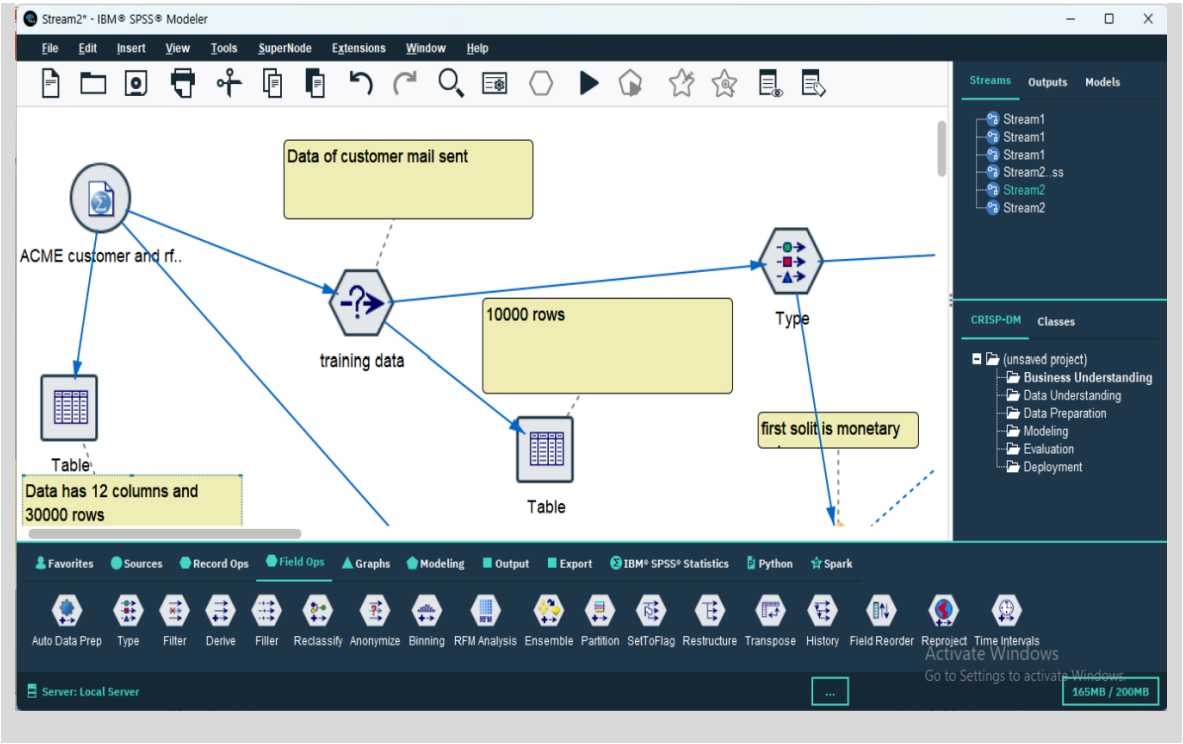
Apply a Filter node to select only customers who received the test mailing (has_received_test_mail = 1) to ensure relevant training data.



step 2: test mailing customers (filtering).

Step 3: Defining Variables / Building Model

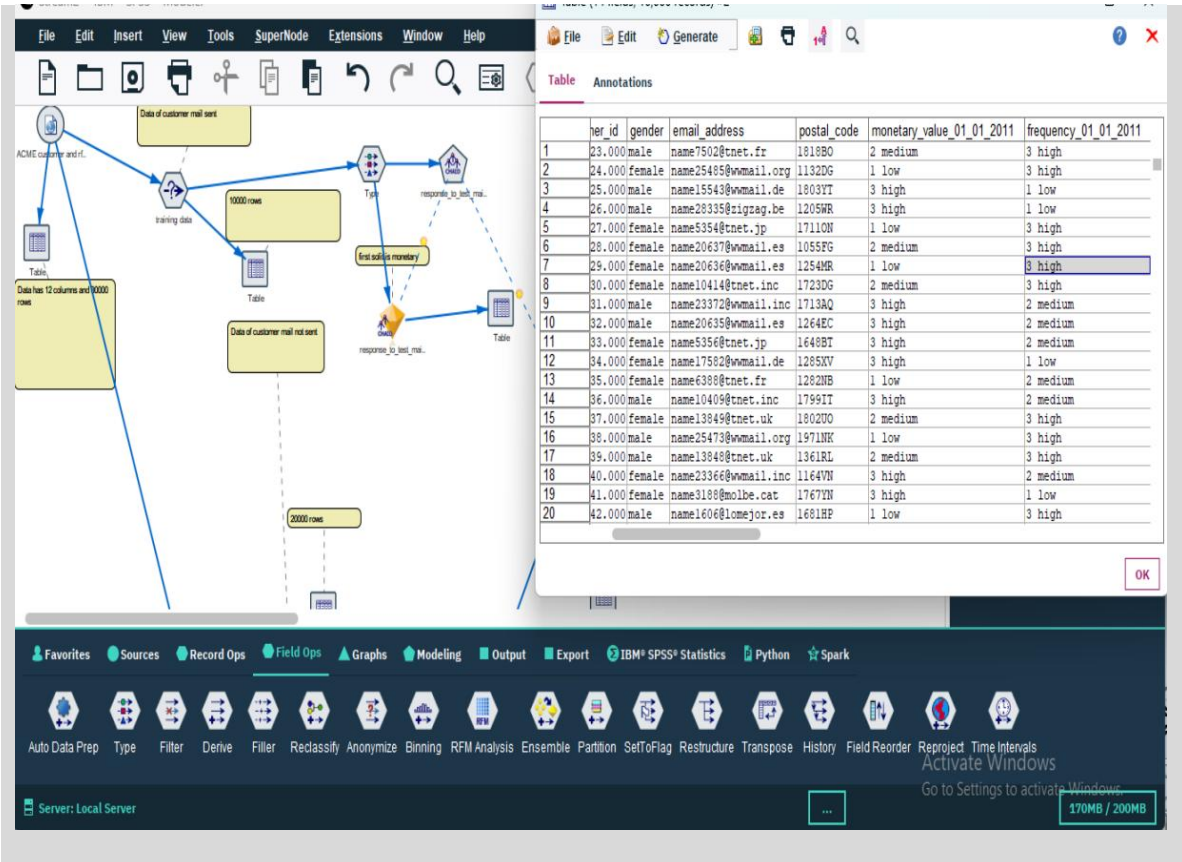
Use a Type node to set variable roles (Target/Input). Train a classification model such as Decision Tree or Logistic Regression to predict customer response.



3: defining variables / building model.

Step 4: Model Output (Checking Results)

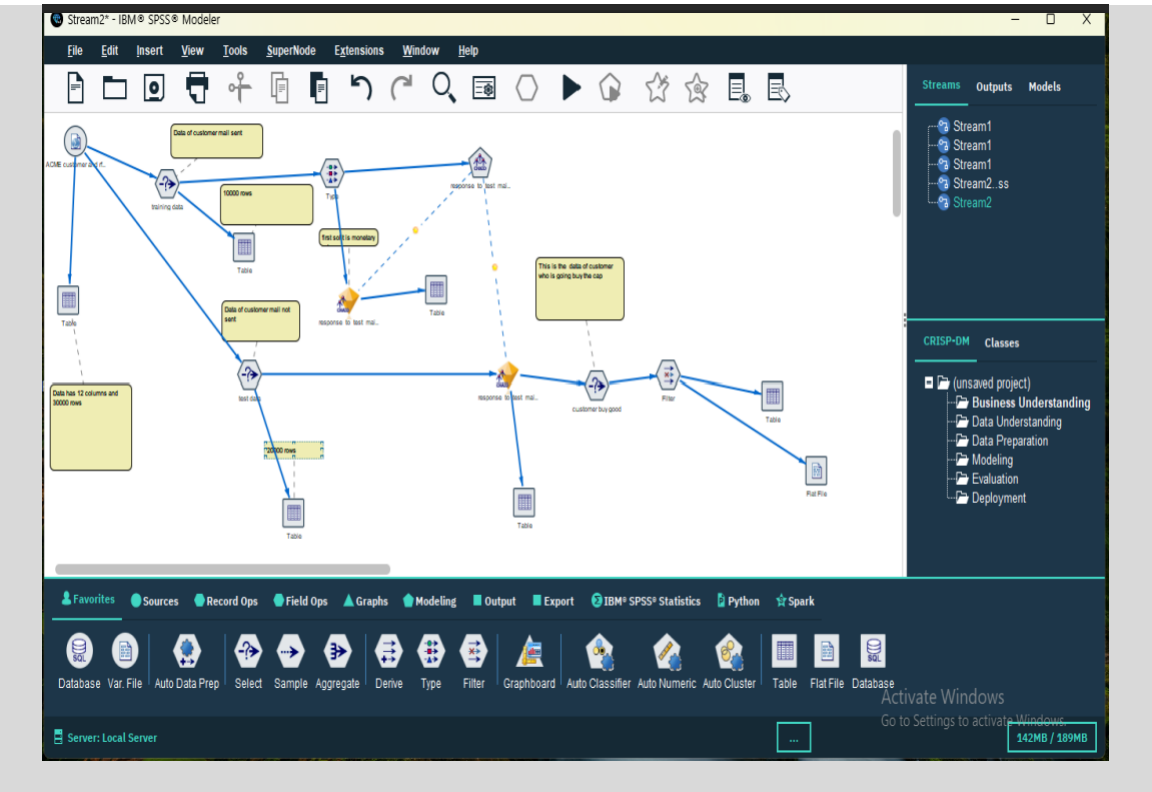
Review the model nugget and output table showing predicted responses and confidence scores. Use evaluation nodes to check accuracy and confusion matrix.



step 4: model output (checking results).

Step 5: Applying the Model

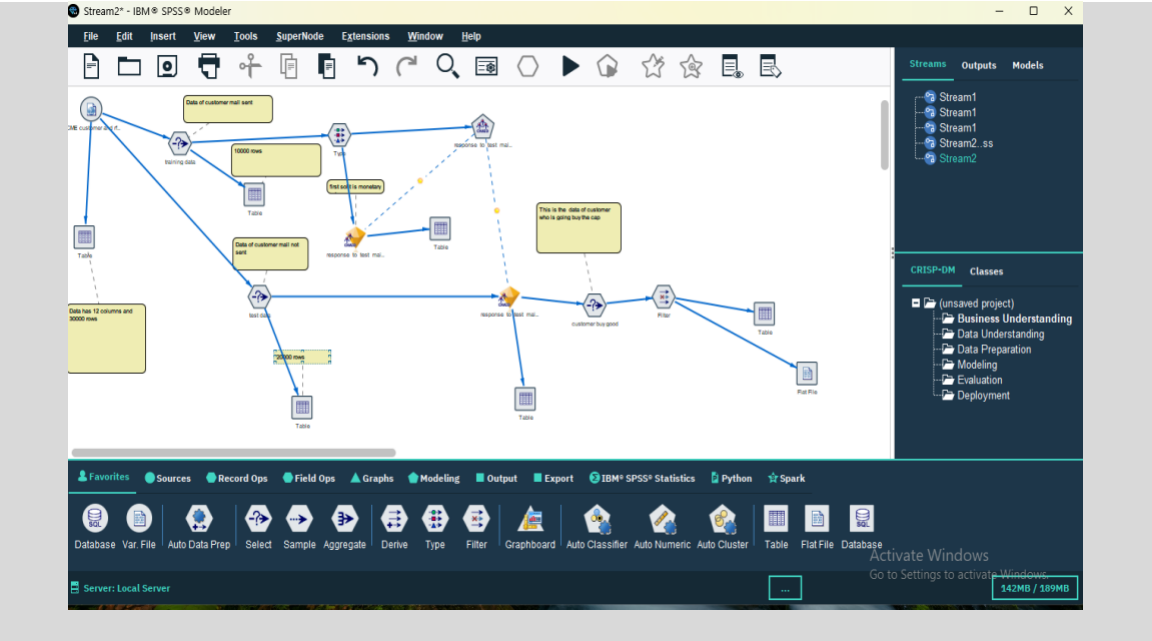
Apply the trained model to the holdout/test dataset to generate predictions for customers who did not receive the mail.



step 5: applying the model.

Step 6: Exporting Results (Deployment)

Export the predicted positive customers to a flat file (customer_to_contact.txt) including fields: customer_id, predicted_category, confidence_score.



step 6: exporting results (deployment).

Result / Discussion

The model identified key predictors of customer response such as recency and frequency. Predictions with high confidence should be prioritized for outreach. Model performance metrics (accuracy, precision, recall) should be reviewed and documented once the model is trained.

Conclusion

This case study demonstrated end-to-end predictive modeling using IBM SPSS Modeler. The workflow from data import to deployment provides a template for future marketing analytics tasks.