



NextGen
INVENT CORP
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Customer Survey Analysis (Linear Discriminant Analysis) Model



Contents

- 1. INTRODUCTION..... 3**
 - 1.1. OVERVIEW 3
 - 1.2. USE CASES 3
- 2. REQUIREMENTS & PREREQUISITES 4**
 - 2.1. SYSTEM REQUIREMENTS..... 4
 - 2.2. PREREQUISITES 4
- 3. GETTING STARTED 5**
 - 3.1. SKILL MATRIX 5
 - 3.2. INSTALLATION HIERARCHY 5
 - 3.3. CONFIGURATION 5
- 4. LOGS 7**
- 5. TROUBLESHOOTING & SUPPORT 8**
 - 5.1 SUPPORT 8**
- APPENDIX A - RECORD OF CHANGES..... 9**
- APPENDIX B - ACRONYMS..... 9**
- APPENDIX C - REFERENCES 9**



1. Introduction

NextGen Invent corporation is a leading global technology services provider. Our multi-disciplinary teams, Data Scientists, Change Agents, Strategists and Process Analysis framework are delivering Robotic Process Automation solution to its clients.

NGI in partnership with Automation Anywhere is delivering Stats/ML/AI/NLP/OR/Deep Learning models as ready to use Cloud Bots that are providing efficiencies across business processes, improved customer conversion rate and reduced churn rate.

1.1.Overview

A business user could use this bot, which is based on the principles of Linear Discriminant Analysis to classify high dimensional survey data to solve a business classification problem. The Bot takes in the input data in CSV file and performs the LDA algorithm driven classification and provides output in the MS excel

1.2.Use cases

- This bot could be used in market research studies and customer survey results analysis
- This bot would be an essential companion for behavioral survey to identify target customer group
- This bot could be used as a dimensionality reduction tool in multi-parameter survey data
- Help marketer to view alternative customer groups and their intent to purchase



2. Requirements & Prerequisites

2.1. System Requirements

For the PC or server where the bot needs to run:

Device	Processor	RAM	Storage	Network
Machine	Intel Core i5 or higher	8GB or higher	16GB	1GbE
Bot Creator and Bot Runner	No additions to the machine requirements	No additions to the machine requirements	No additions to the machine requirements	No additions to the machine requirements

2.2. Prerequisites

Software's required -

Automation Anywhere Plugin version	Excel Requirement Version
11.x	2013 version or higher



3. Getting Started

3.1. Skill Matrix

- Rapid segmentation of homogeneous sub-groups
- This bot model could be used for cluster and sub-groups creations for a customer analytics project
- Prepare CSV file to pass it to the model and processing MS Excel output.

3.2. Installation Hierarchy

- Download the bot from Bot Store.
- Double click on the .msi file.
- On Welcome to Installation wizard, click Next to continue.
- Click I agree to the terms in the license agreement radio button to accept the agreement.
- Get/Copy the License key from Bot Store Downloads into License Key, click Next to continue.
- Click Install to begin the installation.
- Click Finish to complete the installation.
- To view the installation, go to 'My Tasks' folder on AAE Client to see bot files.

3.3. Configuration

Inputs:

Parameter	Type	Direction	Additional Info
Path	String	Input	Path of the CSV file For example: C:\~\ Airline_Passenger_Survey.csv
ColumnCount	Numeric	Input	Count of columns available in CSV file being provided with input data
InputColumnNames	String	Input	Name of columns being provided in CSV file. For example: 'Gender','Customer Type','Age','Type of Travel','Class','Inflight wifi','Timeless','Online booking','Seat comfort','Inflight service','Cleanliness','Survey Result'
InputColumnDataType	String	Input	Data Type of columns being provided in CSV file in the same order as column names. For example, 'String','String','Numeric','String','String','



Customer Survey Analysis (Linear Discriminant Analysis) Model

			Numeric','Numeric','Numeric','Numeric',' Numeric','Numeric','String'
MissingNumberValueReplacement	String	Input	A value that can be used by Model in case CSV file has blank field/s or missing numerical value/s.
IgnoreColumns	String	Input	Names of the column that model should ignore while calculating correlation. For example: 'Inflight wifi'
PredictionColumnName	String	Input	Header of the Column on which you want to predict Ex: 'Survey Result'

Input Sample:

Input Ex:-

This below mentioned input example shows the survey result of the airline passenger based on different features like customer type, class, inflight wifi, Timeless, seat comfort

Gender	Customer Type	Age	Type of Travel	Class	Inflight wifi (0-5)	Timeless (0-5)	Online booking (0-5)	Seat Comfort (0-5)	Inflight Service (0-5)	Cleanliness (0-5)	Survey Result
Male	Loyal Customer	44	Personal Travel	Eco	3	5	3	2	5	2	neutral or dissatisfied
Male	Loyal Customer	57	Business travel	Business	4	4	4	5	2	4	satisfied
Female	Loyal Customer	63	Personal Travel	Eco	1	4	1	5	2	5	neutral or dissatisfied
Male	Loyal Customer	48	Business travel	Business	2	2	2	5	5	3	satisfied
Male	Loyal Customer	32	Personal Travel	Eco Plus	2	3	2	2	3	2	neutral or dissatisfied
Female	Loyal Customer	38	Business travel	Business	1	3	3	4	2	3	neutral or dissatisfied
Female	Loyal Customer	36	Business travel	Business	1	5	5	2	1	3	neutral or dissatisfied
Male	Loyal Customer	43	Business travel	Business	0	4	0	4	5	3	satisfied
Female	Loyal Customer	45	Personal Travel	Eco	3	5	3	2	2	3	neutral or dissatisfied
Male	Loyal Customer	24	Personal Travel	Eco	1	5	1	2	2	2	neutral or dissatisfied
Female	disloyal Customer	22	Business travel	Business	2	2	2	5	3	2	neutral or dissatisfied
Male	Loyal Customer	28	Personal Travel	Eco	3	4	3	2	5	2	neutral or dissatisfied
Male	Loyal Customer	60	Personal Travel	Eco Plus	3	5	3	1	4	1	neutral or dissatisfied
Male	Loyal Customer	10	Personal Travel	Eco	3	4	3	3	5	3	neutral or dissatisfied
Male	Loyal Customer	34	Business travel	Business	1	1	1	5	3	3	satisfied
Female	Loyal Customer	28	Personal Travel	Eco	2	4	2	5	5	5	
Male	Loyal Customer	58	Business travel	Business	2	2	2	5	5	3	
Female	Loyal Customer	39	Business travel	Business	2	2	2	1	4	2	
Female	Loyal Customer	48	Business travel	Business	2	2	2	5	5	2	
Female	Loyal Customer	42	Personal Travel	Eco	3	1	3	3	1	1	
Female	Loyal Customer	72	Business travel	Business	2	3	5	3	2	3	
Male	Loyal Customer	56	Business travel	Eco	3	3	3	3	3	3	
Male	Loyal Customer	51	Business travel	Business	1	1	1	5	4	3	
Female	Loyal Customer	37	Business travel	Eco	2	3	3	2	2	2	
Male	Loyal Customer	30	Business travel	Business	4	4	4	4	4	4	
Female	Loyal Customer	11	Personal Travel	Eco	3	2	3	4	3	4	
Male	Loyal Customer	48	Personal Travel	Eco	3	5	3	4	4	4	
Female	Loyal Customer	66	Business travel	Eco	3	4	4	2	3	4	
Female	Loyal Customer	29	Personal Travel	Eco	3	5	3	4	5	4	
Female	Loyal Customer	27	Business travel	Business	2	4	4	2	4	2	

Outputs:

- Output: the result in the form of the Excel
- The output provides various customer groups

Ex: The below examples shows the Predicted class which shows the passenger is satisfied or not



Output Sample:

Gender	Customer Type	Age	Type of Travel	Class	Inflight wifi (0-5)	Timeless (0-5)	Online booking (0-5)	Seat Comfort (0-5)	Inflight Service (0-5)	Cleanliness (0-5)	Gold_Class	Predicted_Class
Male	Loyal Customer	44	Personal Travel	Eco	3	5	3	2	5	2	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	57	Business travel	Business	4	4	4	5	2	4	satisfied	satisfied
Female	Loyal Customer	63	Personal Travel	Eco	1	4	1	5	2	5	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	48	Business travel	Business	2	2	2	5	5	3	satisfied	satisfied
Male	Loyal Customer	32	Personal Travel	Eco Plus	2	3	2	2	3	2	neutral or dissatisfied	neutral or dissatisfied
Female	Loyal Customer	38	Business travel	Business	1	3	3	4	2	3	neutral or dissatisfied	satisfied
Female	Loyal Customer	36	Business travel	Business	1	5	5	2	1	3	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	43	Business travel	Business	0	4	0	4	5	3	satisfied	satisfied
Female	Loyal Customer	45	Personal Travel	Eco	3	5	3	2	2	3	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	24	Personal Travel	Eco	1	5	1	2	2	2	neutral or dissatisfied	neutral or dissatisfied
Female	disloyal Customer	22	Business travel	Business	2	2	2	5	3	2	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	28	Personal Travel	Eco	3	4	3	2	5	2	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	60	Personal Travel	Eco Plus	3	5	3	1	4	1	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	10	Personal Travel	Eco	3	4	3	3	5	3	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	34	Business travel	Business	1	1	1	5	3	3	satisfied	satisfied
Female	Loyal Customer	28	Personal Travel	Eco	2	4	2	5	5	5	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	58	Business travel	Business	2	2	2	5	5	3	satisfied	satisfied
Female	Loyal Customer	39	Business travel	Business	2	2	2	1	4	2	satisfied	satisfied
Female	Loyal Customer	48	Business travel	Business	2	2	2	5	5	2	satisfied	satisfied
Female	Loyal Customer	42	Personal Travel	Eco	3	1	3	3	1	1	neutral or dissatisfied	neutral or dissatisfied
Female	Loyal Customer	72	Business travel	Business	2	3	5	3	2	3	satisfied	satisfied
Male	Loyal Customer	56	Business travel	Eco	3	3	3	3	3	3	satisfied	satisfied
Male	Loyal Customer	51	Business travel	Business	1	1	1	5	4	3	satisfied	satisfied
Female	Loyal Customer	37	Business travel	Eco	2	3	3	2	2	2	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	30	Business travel	Business	4	4	4	4	4	4	satisfied	satisfied
Female	Loyal Customer	11	Personal Travel	Eco	3	2	3	4	3	4	neutral or dissatisfied	neutral or dissatisfied
Male	Loyal Customer	48	Personal Travel	Eco	3	5	3	4	4	4	neutral or dissatisfied	neutral or dissatisfied
Female	Loyal Customer	66	Business travel	Eco	3	4	4	2	3	4	satisfied	satisfied
Female	Loyal Customer	29	Personal Travel	Eco	3	5	3	4	5	4	neutral or dissatisfied	neutral or dissatisfied
Female	Loyal Customer	27	Business travel	Business	2	4	4	2	4	2	satisfied	satisfied

4. Logs

Error Handling In case of Errors, Error Logs & Screenshots are generated within Error Folder.

Each Bot folder contains the below hierarchy.

1 Error Folder

1.1 Logs

1.1.1 ErrorLogsMonth-Day-Year.txt: In case of any error, this file logs error message along with timestamp

1.2 Snapshots

1.2.1 Error SnapMonth-Day-Year-Hour-Minute-SecondMillisecond.png: In case of any error, this file captures screenshot of error.

Task Status of bot is set to failed in case of error.



5. Troubleshooting & Support

5.1 Support

Please Email bot.support@nextgeninvent.com for any support related questions.



Appendix A - Record of Changes

Version #	Date of Change	Author	Notes
V1.0	June 15 th 2020	Nextgen Invent Corporation	

Appendix B - Acronyms

#	Acronym	Description
1.	AA	Automation Anywhere
2.	API	Application Programming Interface
3.	RAM	Random Access Memory
4.	OS	Operating System

Appendix C - References

#	Topic	Reference Link
1.	Nextgen Invent Corporation	https://www.nextgeninvent.com/

