



NextGen
INVENT CORP
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Impact Analysis Using Correlation Model

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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

Apply Correlation Model as a Bot to your workflow and automate your business processes. This Bot measures, how two or more variables are related to one another. It establishes statistical parametric correlation operation among multiple numerical variables and provides the impact and degree of relationship.

1.2. Use cases

- Analyze the impact of weather on sales.
- Analyze the impact of marketing dollar investments on sales/revenue.
- Degree of change in relationship between social media brand campaign activity and visits to brand website.
- Exploratory data analysis and correlation among continuous variables for model building
- Analyzing the impact of weather on depressive disorder, Bipolar and Melancholia.
- Digital Marketing decisions for social media, paid search, email marketing and campaign design.



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

- The correlation Bot performs parametric 'Pearson correlation' and provides correlation coefficients (r) among numerical variables.
- Input CSV file is provided to the model, file is processed, and output is delivered in MS Excel format.
- Help in understanding extent of relationship among numerical variables to make data driven business decisions

3.2.Installation Hierarchy

1. Download the bot from Bot Store.
2. Double click on the .msi file.
3. On Welcome to Installation wizard, click Next to continue.
4. Click I agree to the terms in the license agreement radio button to accept the agreement.
5. Get/Copy the License key from Bot Store Downloads into License Key, click Next to continue.
6. Click Install to begin the installation.
7. Click Finish to complete the installation.
8. 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:\~\Housing.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: 'SNo','Price','Lotsize','Bedrooms','Bathrms', 'Stories','Driveway','Recroom','Fullbase', 'Gashw','Airco','Garagepl','Prefarea'
InputColumnDataType	String	Input	Data Type of columns being provided in CSV file in the same order as column names. For example: 'Numeric','Numeric','Numeric','Numeric',



			Numeric','Numeric','String','String','String','String','String','String','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: 'SNo', 'Driveway', 'Recroom', 'Fullbase', 'Gashw', 'Airco', 'Garagepl', 'Prefarea' which are of string data type

Input Sample:

Sno	Price	Lotsize	Bedrooms	Bathrms	Stories	Driveway	Recroom	Fullbase	Gashw	Airco	Garagepl	Prefarea
1	42000	5850	3	1	2	yes	no	yes	no	no		1 no
2	38500	4000	2	1	1	yes	no	no	no	no		0 no
3	49500	3060	3	1	1	yes	no	no	no	no		0 no
4	60500	6650	3	1	2	yes	yes	no	no	no		0 no
5	61000	6360	2	1	1	yes	no	no	no	no		0 no
6	66000	4160	3	1	1	yes	yes	yes	no	yes		0 no
7	66000	3880	3	2	2	yes	no	yes	no	no		2 no
8	69000	4160	3	1	3	yes	no	no	no	no		0 no
9	83800	4800	3	1	1	yes	yes	yes	no	no		0 no
10	88500	5500	3	2	4	yes	yes	no	no	yes		1 no
11	90000	7200	3	2	1	yes	no	yes	no	yes		3 no
12	30500	3000	2	1	1	no	no	no	no	no		0 no
13	27000	1700	3	1	2	yes	no	no	no	no		0 no
14	36000	2880	3	1	1	no	no	no	no	no		0 no
15	37000	3600	2	1	1	yes	no	no	no	no		0 no
16	37900	3185	2	1	1	yes	no	no	no	yes		0 no
17	40500	3300	3	1	2	no	no	no	no	no		1 no
18	40750	5200	4	1	3	yes	no	no	no	no		0 no
19	45000	3450	1	1	1	yes	no	no	no	no		0 no
20	45000	3986	2	2	1	no	yes	yes	no	no		1 no

Outputs:

- Output: the result in the form of the MS Excel
- Column "Field1" and "Field2" has the column names on which correlation has been processed.
- Column "Correlation" has the extent of relationship for each combination



Output Sample:

Column 1	Field1	Field2	Correlation
0	Price	Price	1
1	Price	Lotsize	0.535795672
2	Price	Bedroom	0.366447359
3	Price	Bathrms	0.516719254
4	Price	Stories	0.42119023
5	Lotsize	Price	0.535795672
6	Lotsize	Lotsize	1
7	Lotsize	Bedroom	0.151851492
8	Lotsize	Bathrms	0.193833484
9	Lotsize	Stories	0.083674995
10	Bedroom	Price	0.366447359
11	Bedroom	Lotsize	0.151851492
12	Bedroom	Bedroom	1
13	Bedroom	Bathrms	0.373768835
14	Bedroom	Stories	0.407973707
15	Bathrms	Price	0.516719254
16	Bathrms	Lotsize	0.193833484
17	Bathrms	Bedroom	0.373768835
18	Bathrms	Bathrms	1
19	Bathrms	Stories	0.324065595
20	Stories	Price	0.42119023
21	Stories	Lotsize	0.083674995
22	Stories	Bedroom	0.407973707
23	Stories	Bathrms	0.324065595
24	Stories	Stories	1

Output Insights

S.No.	Range	Insights
1.	exactly -1	a perfect downhill /negative linear relationship
2.	-(0.99-0.70)	a strong downhill/negative linear relationship
3.	-(0.69-0.50)	a moderate downhill/negative relationship
4.	-(0.49-0.30)	a weak downhill/negative linear relationship
5.	-(0.29-0.01)	a weakest downhill/negative linear relationship
6.	0	no relationship
7.	+(0.01-0.29)	a weakest uphill/positive linear relationship
8.	+(0.30-0.49)	a weak uphill/positive linear relationship
9.	+(0.50-0.69)	a moderate uphill/positive relationship
10.	+(0.70-0.99)	a strong uphill/positive linear relationship
11.	exactly +1	a perfect uphill/positive linear relationship



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	March 12 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/

