



NextGen
INVENT CORP
think. invent. solve.

Random Forest Classifier



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	8
5. TROUBLESHOOTING & SUPPORT	9
5.1 SUPPORT	9
APPENDIX A - RECORD OF CHANGES.....	10
APPENDIX B - ACRONYMS.....	10
APPENDIX C - REFERENCES	10



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 ‘Random Forest’ Classifier. The Bot takes in the input data in CSV file and performs Random Forest based classification to provide output in the MS excel

1.2.Use cases

- This bot could be used to solve user-defined analytics problems of classification domain
- Random Forest Classifier help organizations to view alternatives decisions
- Random Forest methodology is also commonly used data mining method for establishing classification systems
- This bot could predict the binary and multiclass classification problems



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

Data requirement-

Data should be pre-processed before feeding it to the bot and it should contain at least 4,500 rows for training with around 8-9 minimum features every time to obtain desired accuracy.



3. Getting Started

3.1. Skill Matrix

- The bot is based on Random Forest Classifier which is a supervised learning algorithm
- The bot is an essential companion for data driven stock selection strategy
- The Bot takes in the input data in CSV file and performs Random Forest Classifier methods to provide output in the MS excel

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:\~\ Stock Market.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: 'Share','Category','Sector','RM','Up','Last Traded Price','Percentage Change','High Price','Low Price','% High Movt','% Low movt','Yearly Gainer','27th Dec','1st Feb','1st March','1st April','TB','RH','Corr','PeRatio','New Pe','W52_High','Corre','latest','Annual_Pat Growth','Year End','Mar_17_ReportedPAT'



InputColumnDataType	String	Input	Data Type of columns being provided in CSV file in the same order as column names. For example, 'String','String','String','String','String','Numeric','Numeric','Numeric','Numeric','Numeric','Numeric','Numeric','Numeric','Numeric','Numeric','Numeric','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: 'Sector'
PredictionColumnName	String	Input	Header of the Column on which you want to predict Ex: 'Category'

Input Sample:

Input Ex:

The second column, "Category", gives a list of all the stocks that a user needs to buy, hold, or exit

Share	Category	Sector	RM	Up	Last Traded Price	Percentage Change	High Price	Low Price	% High Movt	% Low movt	Yearly Gainer	27th Dec	1st Feb
20MICRONS	Exit	CHEMICAL	#N/A	#N/A	43	#N/A	#N/A	#N/A	#N/A	#N/A	30%	36%	11
3IINFOTECH	BWL	IT	#N/A	#N/A	5.35	#N/A	#N/A	#N/A	#N/A	#N/A	26%	1%	-3
3MINDIA	Exit	DIVERSIFI	0	0	12219.65	1.23	12399.95	12115	0.014540381	0.008638052	13%	22%	8
63MOONS	RS	IT	#N/A	#N/A	75.6	0.26	76.7	75.6	0.014341591	0			
8KMILES	HWV	IT	0	0	623.9	0.17	640	624	0.02515625	-0.000160256	-37%	-1%	4
A2ZINFRA	Exit	INFRA-CO	0	0	47.85	2.93	50.5	47.8	0.052475248	0.001046025	126%	25%	19
Aarti Drugs	BWL	PHARMA	0	0	533.65	-0.31	543.75	531	0.018574713	0.004990584	30%	-6%	-12
AARTIIND	Buy	CHEMICAL CRUDE OIL Down			865	0.35	874.9	866	0.011315579	-0.001154734	48%	28%	22
AARVEEDEN	Exit	TEXTILES	#N/A	#N/A	71.05	#N/A	#N/A	#N/A	#N/A	#N/A	43%	-7%	-14
ABAN	Exit	ENERGY-C	0	0	219.3	0.55	222.9	220.1	0.01615074	-0.003634711	30%	1%	-9
ABB		INFRA-MA	0	0	1601.95	-4.06	1602	1526	3.12E-05	0.049770642	2%	57%	47
ABBOTINDIA		PHARMA	0	0	4206.45	2.56	4323	4206.45	0.026960444	0	1%	-7%	-4
ABFRL		TEXTILES	0	0	158.15	3.6	164.3	158.9	0.037431528	-0.00471995	24%	22%	7
ABIRLANUVO		DIVERSIFI	#N/A	#N/A	1692.6	-0.33	1713.45	1684.35	0.012168432	0.004898032	87%	46%	24
ABMINTLTD		REALTY-H	#N/A	#N/A	184.8	#N/A	#N/A	#N/A	#N/A	#N/A			806
ACC		CEMENTS	#N/A	#N/A	1690.35	0.43	1722.95	1690.1	0.018921037	0.00014792	6%	32%	20
ACCCELYA		IT	#N/A	#N/A	1488.2	#N/A	#N/A	#N/A	#N/A	#N/A	70%	6%	-7
ACE		INFRA-CO	#N/A	#N/A	68.3	-1.17	68.9	66.8	0.008708273	0.02245509	60%	58%	47
ADANIENT		INFRA-PO	#N/A	#N/A	122.8	-2.16	126.8	117.4	0.031545741	0.045996593	51%	79%	41
ADANIPORTS		TRANSPOR	#N/A	#N/A	351.9	1.25	358.9	350.5	0.01950404	0.003994294	43%	36%	20



Random Forest Classifier

1st March	1st April	TB	RH	Corr	PeRatio	New Pe	W52_Hig	Corre	latest	Annual_Pat	Cum PAT 3 Quarte	Pat Jump	Annual Growth	Year End	Mar_17_Re
19%	23%		49.4	13%	10.72	16.53846	49.4	13%	42775	11.0609	11.7275	0.6666			
5%	6% TB		5.8	8%	6.89	8	7.15	25%		-1059.27	60.76	1120.03 G			
9%	6% TB	12231	0%	66.29	81	15250	20%	42775	200.9298	150.3639	-50.5659				
		82.95	9%	213.4	630	96	21%	42767	0	0.1442	0.1442				
7%	3% TB	663.8	6%	23.2	18	1119	44%		53.2361	85.4227	32.1866 G				
18%	10%		52.65	9%	0	-7	52.65	9%	42779	-132.9649	-59.4669	73.498		December	
-11%	-7% TB	650	18%	16.26	18	686.45	22%	42873	68.72	59.86	-8.86 G				
12%	13%	884	2%	23.64	24	884	2%	42874	268.1	232.35	-35.75 G				
-3%	-4% TB	95.95	26%	28.61	-4	111	36%	42777	7.0265	2.4898	-4.5367				
-8%	-3% TB	259.45	15%	3.98	-1.29426	285.95	23%	42769	49.264	-703.627	-752.891				
34%	25%	1484	-8%	86.11	58	1620	1%		0	305.27	305.27 G				
-6%	-9% TB	4840	13%	30.54	26	5049	17%	42874	259.63	234.59	-25.04 G				
0%	3% TB	185.7	15%	0	-247.109	185.7	15%	42867	-104.14	31.67	135.81				
17%	11%	1743.3	3%	19.66	26.74779	1744.85	3%	42873	2033.05	682.33	-1350.72			New Listin	
505%	205%	168.05	-10%	90.9	84	202	9%	42758	0.761316619	0.8397	0.0783834				
20%	17%	1644.85	-3%	51.06	87	1756.7	4%		0	406.44	406.44 G				
0%	3%	1890	21%	23.8	25	1890	21%		0	70.6767	70.6767 G				
25%	14%	69.9	2%	48.19	47	70.6	3%	42874	8.6456	12.2708	3.6252				
25%	13%	160.7	24%	14.48	9.935275	160.7	24%	42780	1083.25	597.31	-485.94				
17%	4%	359.25	2%	19.69	21.45732	359.25	2%	42780	2829.94	2741.27	-88.67 G				
-19%	-22% TB	46.35	33%	17.01	-8.36022	46.35	33%	42755	488.48	-468.22	-956.7				
23%	18%	96.2	21%	20.07	21	96.2	21%	42779	357.73	321.53	-36.2 G				
79%	49%	241.95	-7%	55.67	41	273.2	5%	42867	6.6074	8.0169	1.4095				
-12%	-1% TB	9.3	27%	0	-0.23405	9.3	27%	42779	-463.797	-395.6749	68.1221				
-10%	5%	123.2	11%	193.6	548	160.8	32%	42779	2.2743	0.9149	-1.3594				

Outputs:

- Output: the result in the form of the Excel
- Predicts the suitable stock

Ex: The Below result shows the predicted category of stock and those predictions are made on the below class:

Gold_Class: This column is taken as the predicted target

Predicted_Class: This tells us the Category of the Share in which it falls

The below are the definition of the Categories:

- Exit- Sell the stock
- Buy- Buy the stock
- RS- (Relative Strength) It compares a stock's price performance versus the S&P 500 index
- NL-It states that the share belongs to no load fund

Share	Gold Class	Predicted Cls	Sector	RM	Up	Last Traded Price	Percentage Change	High Price	Low Price	% High Movt	% Low movt	Yearly Gainer	27th Dec
20MICRONS	Exit	Exit	CHEMICAL	#N/A	#N/A	43	#N/A	#N/A	#N/A	#N/A	#N/A	30%	36%
3INFOTECH	BWLVL	BWLVL	IT	#N/A	#N/A	5.35	#N/A	#N/A	#N/A	#N/A	#N/A	26%	1%
3MINDIA	Exit	Exit	DIVERSIFI	0	0	12219.65	1.23	12399.95	12115	0.014540381	0.008638052	13%	22%
63MOONS	RS	RS	IT	#N/A	#N/A	75.6	0.26	76.7	75.6	0.014341591	0		
8KMILES	HWV	HWV	IT	0	0	623.9	0.17	640	624	0.02515625	-0.000160256	-37%	-1%
A2ZINFRA	Exit	Exit	INFRA-CO	0	0	47.85	2.93	50.5	47.8	0.052475248	0.001046025	126%	25%
Aarti Drugs	BWLVL	BWLVL	PHARMA	0	0	533.65	-0.31	543.75	531	0.018574713	0.004990584	30%	-6%
AARTIIND	Buy	Buy	CHEMICAL CRUDE OIL Down	865		865	0.35	874.9	866	0.011315579	-0.001154734	48%	28%
AARVEEDEN	Exit	Exit	TEXTILES	#N/A	#N/A	71.05	#N/A	#N/A	#N/A	#N/A	#N/A	43%	-7%
ABAN	Exit	Exit	ENERGY-C	0	0	219.3	0.55	222.9	220.1	0.01615074	-0.003634711	30%	1%
ABB	Exit	Exit	INFRA-MA	0	0	1601.95	-4.06	1602	1526	3.12E-05	0.049770642	2%	57%
ABBOTINDIA	HWV	HWV	PHARMA	0	0	4206.45	2.56	4323	4206.45	0.026960444	0	1%	-7%
ABFRL	Exit	Exit	TEXTILES	0	0	158.15	3.6	164.3	158.9	0.037431528	-0.00471995	24%	22%
ABIRLANUVU	Buy	Buy	DIVERSIFI	#N/A	#N/A	1692.6	-0.33	1713.45	1684.35	0.012168432	0.004898032	87%	46%
ABMINTLTD	NL	NL	REALTY-H	#N/A	#N/A	184.8	#N/A	#N/A	#N/A	#N/A	#N/A		
ACC	Exit	Exit	CEMENTS	#N/A	#N/A	1690.35	0.43	1722.95	1690.1	0.018921037	0.00014792	6%	32%
ACCELYA	BWLVL	BWLVL	IT	#N/A	#N/A	1488.2	#N/A	#N/A	#N/A	#N/A	#N/A	70%	6%
ACE	HWV	HWV	INFRA-CO	#N/A	#N/A	68.3	-1.17	68.9	66.8	0.008708273	0.02245509	60%	58%
ADANIANT	Buy	Buy	INFRA-PO	#N/A	#N/A	122.8	-2.16	126.8	117.4	0.031545741	0.045996593	51%	79%
ADANIAPORTS	Buy	Buy	TRANSPOR	#N/A	#N/A	351.9	1.25	358.9	350.5	0.01950404	0.003994294	43%	36%



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 26 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/

