



Research Paper

State Of Art Data Science by Implementing Dax and Regression Models for Business Intelligence

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Abstract

The paper aims to evolve a business intelligence model by implementing regression analysis and the analysis reports are validated using dax programming the tools used are python, regression models, Test and train algorithm, classification algorithm and Power BI to perform the data science.

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I. Introduction

The research aims to implement Data Science algorithm to provide solutions to improve profit margin and turnover of a product based company , for which a kaggle based data set of Power Grid is been taken the analysis focus on improving their productivity , Since python is a powerful tool for data science we have used python and power BI as tools for the analytics

As a first step Descriptive analysis of the power Grid data is done the steps of data analysis are as follows

1.1 Descriptive analysis

Descriptive analysis examines data to gain insights into what happened or what is happening in the data environment.

1.2. Diagnostic analysis

Diagnostic analysis is a deep-dive or detailed data examination to understand why something happened.

1.3. Predictive analysis

Predictive analysis uses historical data to make accurate forecasts about data patterns that may occur in the future.

1.4. Prescriptive analysis

Prescriptive analytics takes predictive data to the next level. It not only predicts what is likely to happen but also suggests an optimum response to that outcome.

2)Power BI based Diagnostic Analysis

In this step the data set is loaded in Power BI and the data set is analyzed for Further solutions and basic DAX algorithm is analyzed using the data

Figure 1

Date	Symbol	Series	Prev Close	Open	High	Low	Last	Close	VWAP	Volume	Turnover	Trades	Deliverable Volum
Friday, October 5, 2007	POWERGRID	EQ	52	89.8	109.5	83.15	100.2	100.6	102.49	481058927	4.930560669525E+15	85	18
Monday, October 8, 2007	POWERGRID	EQ	100.6	104	104	94.85	95.3	95.45	98.12	71252858	699161551045000	85	2
Tuesday, October 9, 2007	POWERGRID	EQ	95.45	95.5	102.85	90.35	102.1	101.95	98.57	65658228	647178408115000	85	1
Wednesday, October 10, 2007	POWERGRID	EQ	101.95	104.6	105	102	102.65	102.9	103.66	38211410	396088698370000	85	1
Thursday, October 11, 2007	POWERGRID	EQ	102.9	120	120	102	114.85	114.4	110.78	59805552	662523526215000	85	1
Friday, October 12, 2007	POWERGRID	EQ	114.4	112	117.9	111	114.25	113.65	115.56	55918584	646171378605000	85	1
Monday, October 15, 2007	POWERGRID	EQ	113.65	116	116.7	114.15	115.4	115.15	115.71	23520928	272164614990000	85	1
Tuesday, October 16, 2007	POWERGRID	EQ	115.15	115.3	128.9	114.5	128.3	126.9	121.83	77970674	949884184829999	85	1
Wednesday, October 17, 2007	POWERGRID	EQ	126.9	114	140	106.1	135.35	136.8	127.86	115242925	1.47349284219E+15	85	1
Thursday, October 18, 2007	POWERGRID	EQ	136.8	139	149.45	126.35	128.2	132	142.53	82472533	1.175485545025E+15	85	2
Friday, October 19, 2007	POWERGRID	EQ	132	129	136.9	125	131.85	131.55	132.11	62024917	819381649980000	85	1
Monday, October 22, 2007	POWERGRID	EQ	131.55	128.9	133.85	125.5	129.65	129.8	130.85	40642551	531788084745000	85	1
Tuesday, October 23, 2007	POWERGRID	EQ	129.8	133	140.3	133	139.8	139.05	137.61	41959654	577415294530000	85	1
Wednesday, October 24, 2007	POWERGRID	EQ	139.05	142	143.5	135.35	136.5	136.9	139.72	35468542	495571157210000	85	1
Thursday, October 25, 2007	POWERGRID	EQ	136.9	132.25	139.8	120.65	137.3	136.6	137.47	19418905	266956626805000	85	1

The above chart shows the data of power grid the column are as follows the most important column for making turn over and deliverable volumes so using dax the sum and difference of both is been calculated the codes are as follows

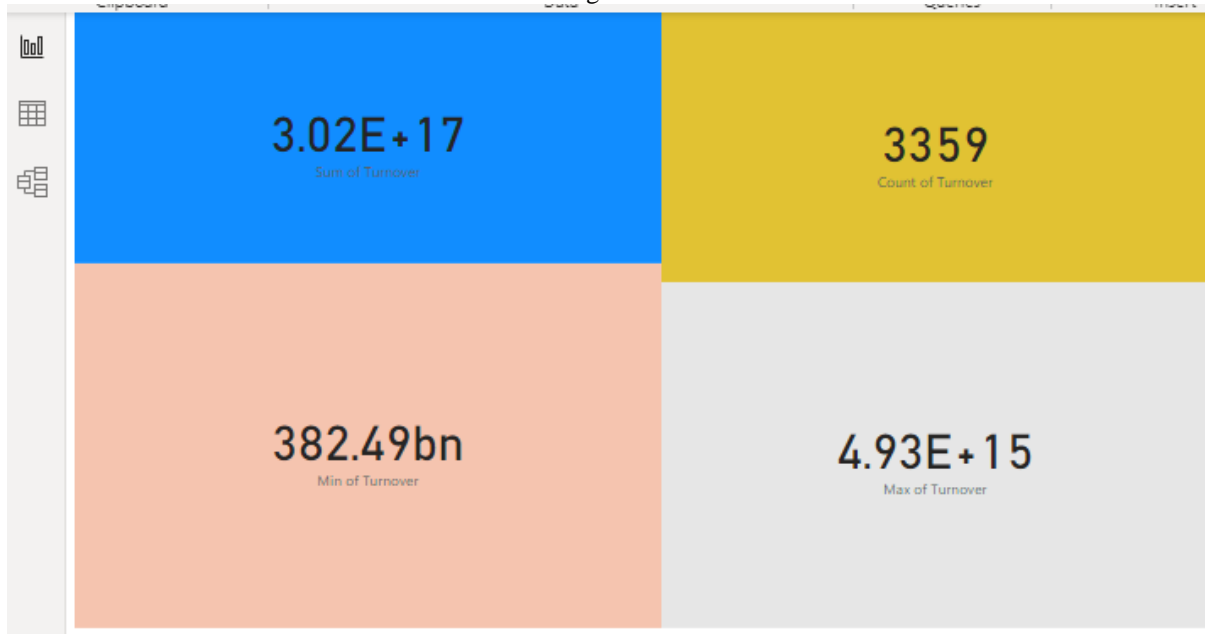
Volume+Turnover = {POWERGRID[Volume]+POWERGRID[Turnover]}
 Volume -turnover = {POWERGRID[Volume]-POWERGRID[Turnover]}

Figure 2

Volume+Turno	Volume -turnover
4.9305611505839	-4.93056018846607E+15
69916162229785	-699161479792142
64717847377322	-647178342456772
39608873658141	-396088660158590
66252358602055	-662523466409448
64617143452358	-646171322686416
27216463851092	-272164591469072
94988426280067	-949884106859325
1.4734929574329	-1.47349272694708E+15
1.1754856274975	-1.17548546255247E+15
81938171200491	-819381587955083
53178812538755	-531788044102449
57741533648965	-577415252570346
49557119267854	-495571121741458
26695664622390	-266956607386095
19173015000311	-191730000826852

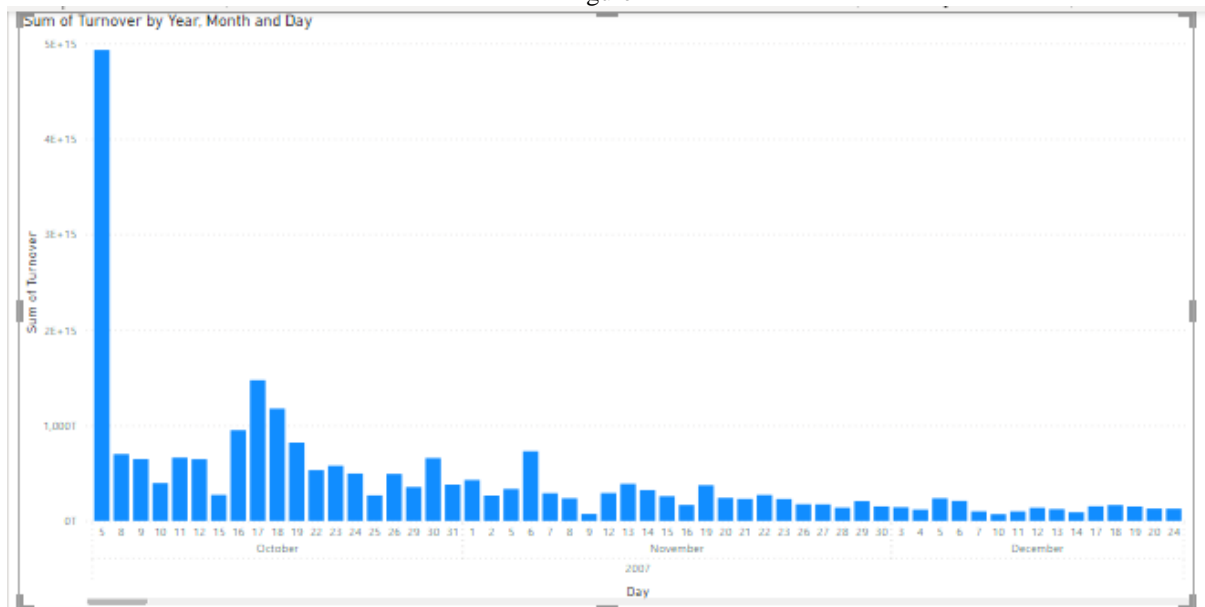
As part of Diagnostic analysis the Column volume and turnover are extracted and a data frame is formed using Power BI then the dashboard for Power BI is created using the data set of turnover for further analysis.

Figure 3



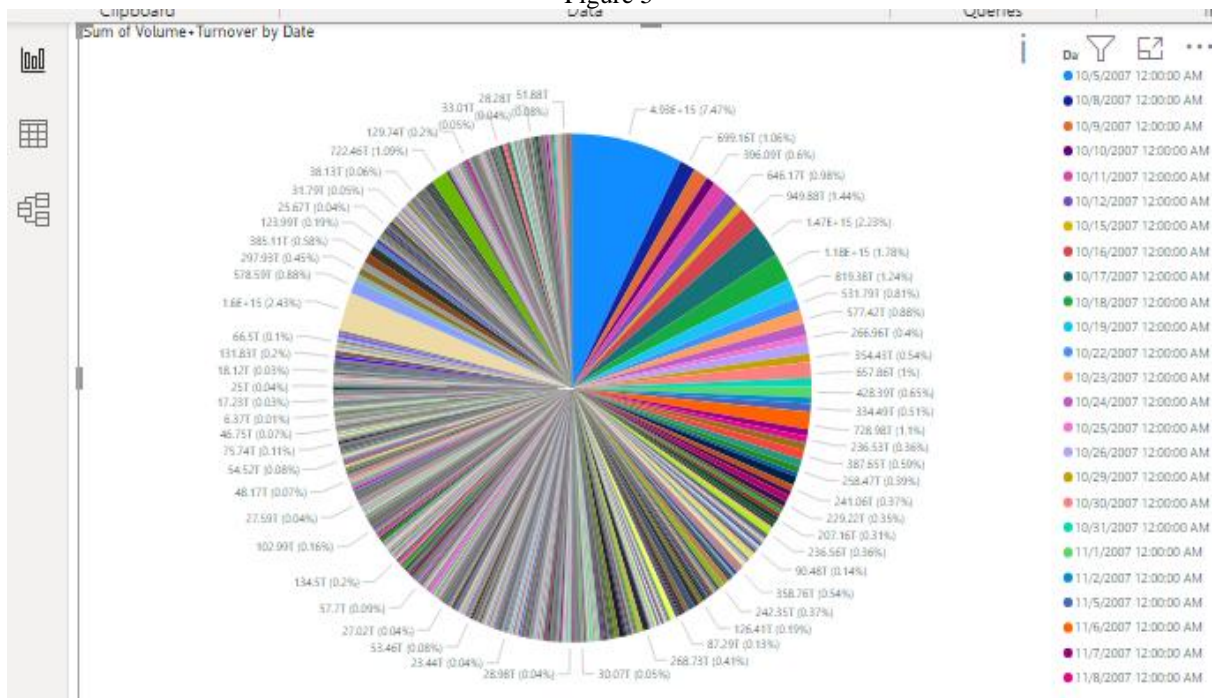
The Figure 3 shows the dash -board of power BI to analyze the data set of Turn over and next we try the same to represent graphically different graphical analysis of data will give a clear view the process is as follows

Figure 4



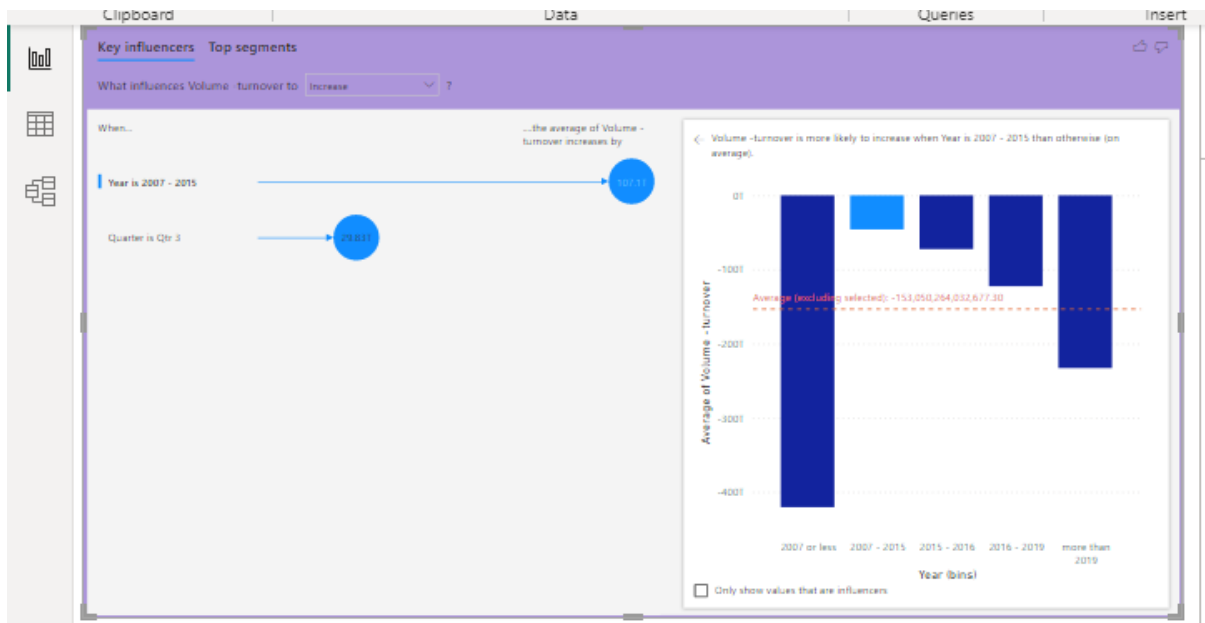
The analysis is made for turnover and time period in years it's been understood the gradual decrease in turn over the descriptive analysis shows a gradual and sharp decreases , so for a further complete analysis another chart was decoded

Figure 5



Further analysis are as follows

Figure 6



As a next step the key influence of the parameter is analysed and the output also shows a negative value in the growth in respect to years

Figure 7

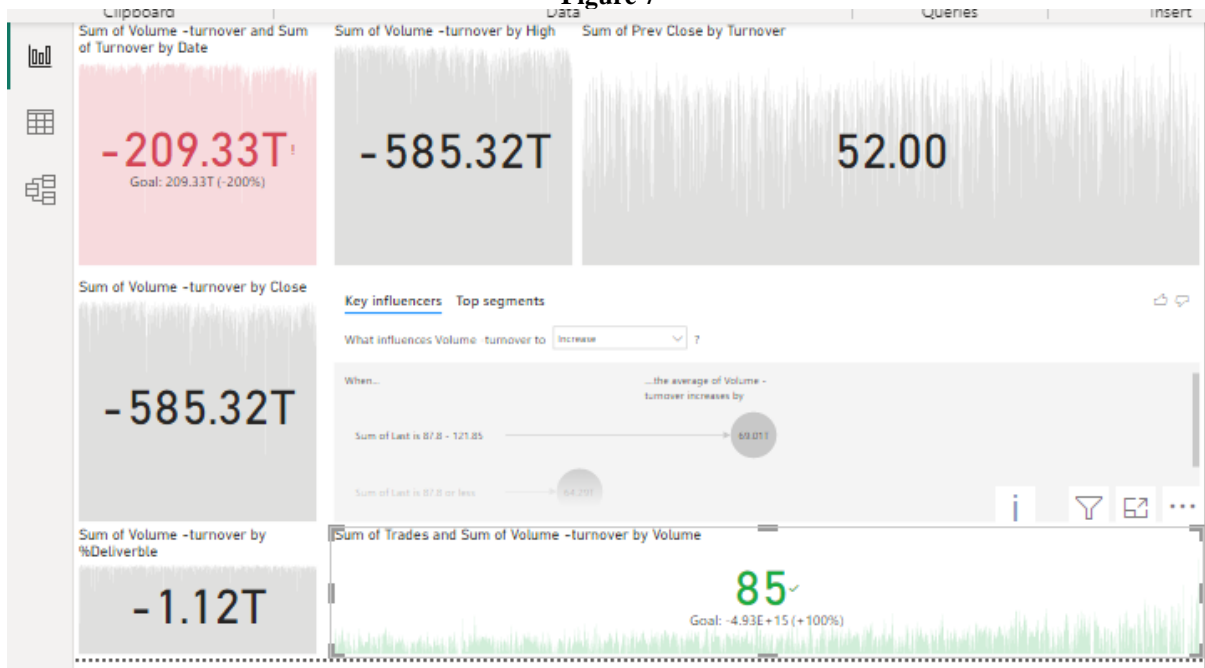


Figure 8 Turn over with respect to volume

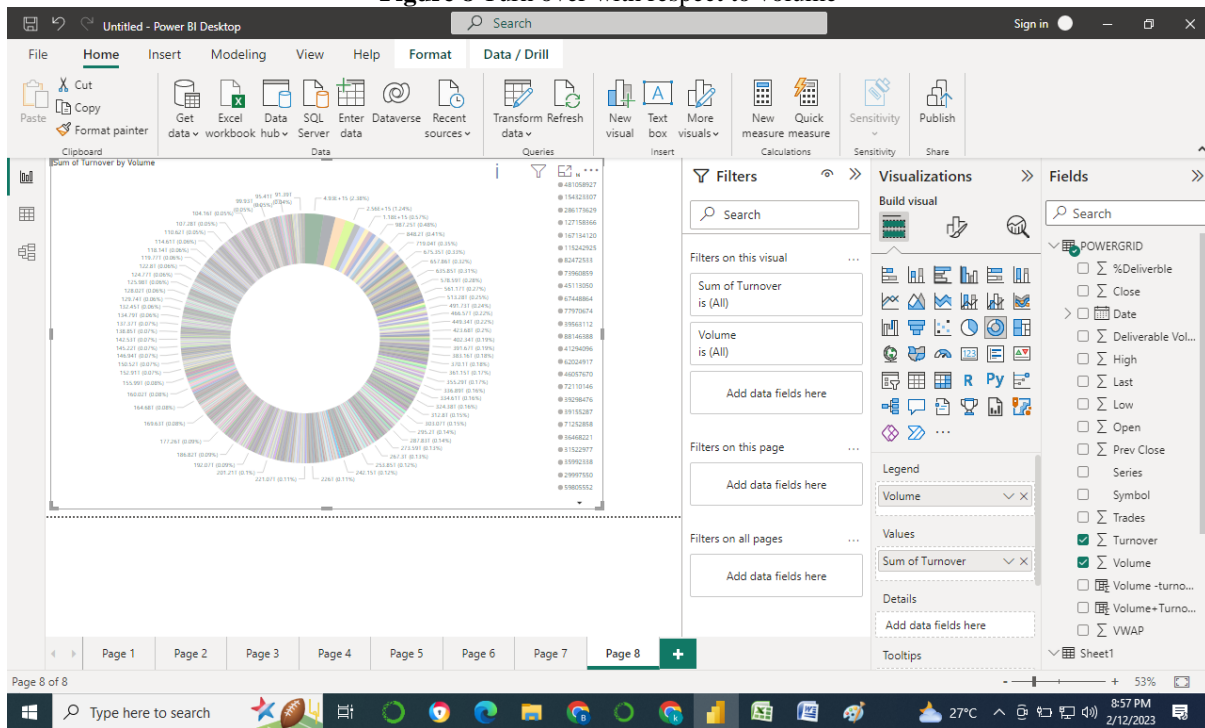


Figure 9 Volume with respect to Time

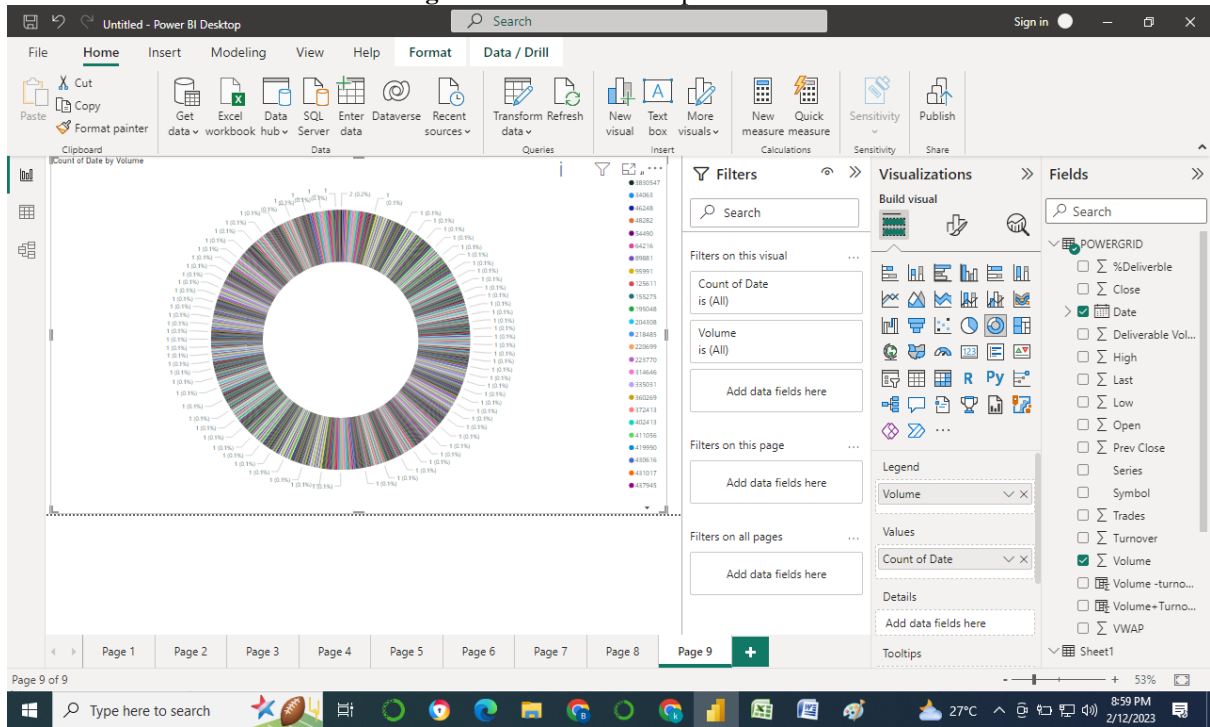


Figure 10 Analysis of trade and Deliverables

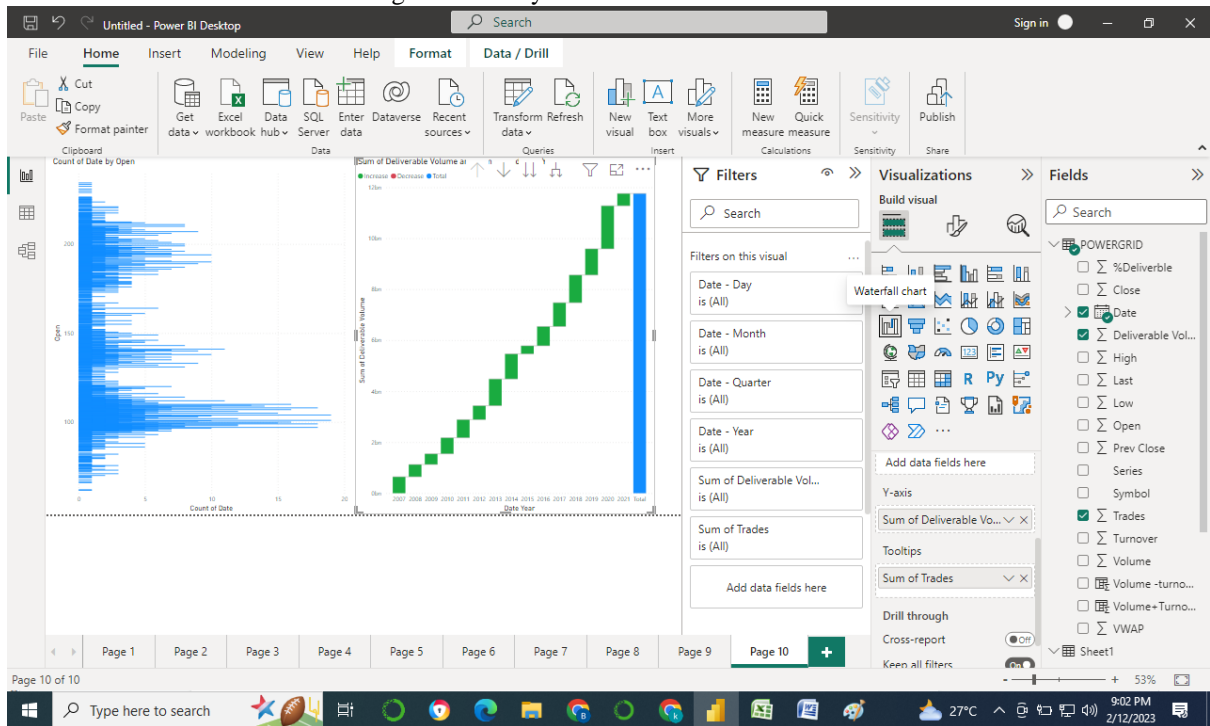


Figure 11 Descriptive analysis

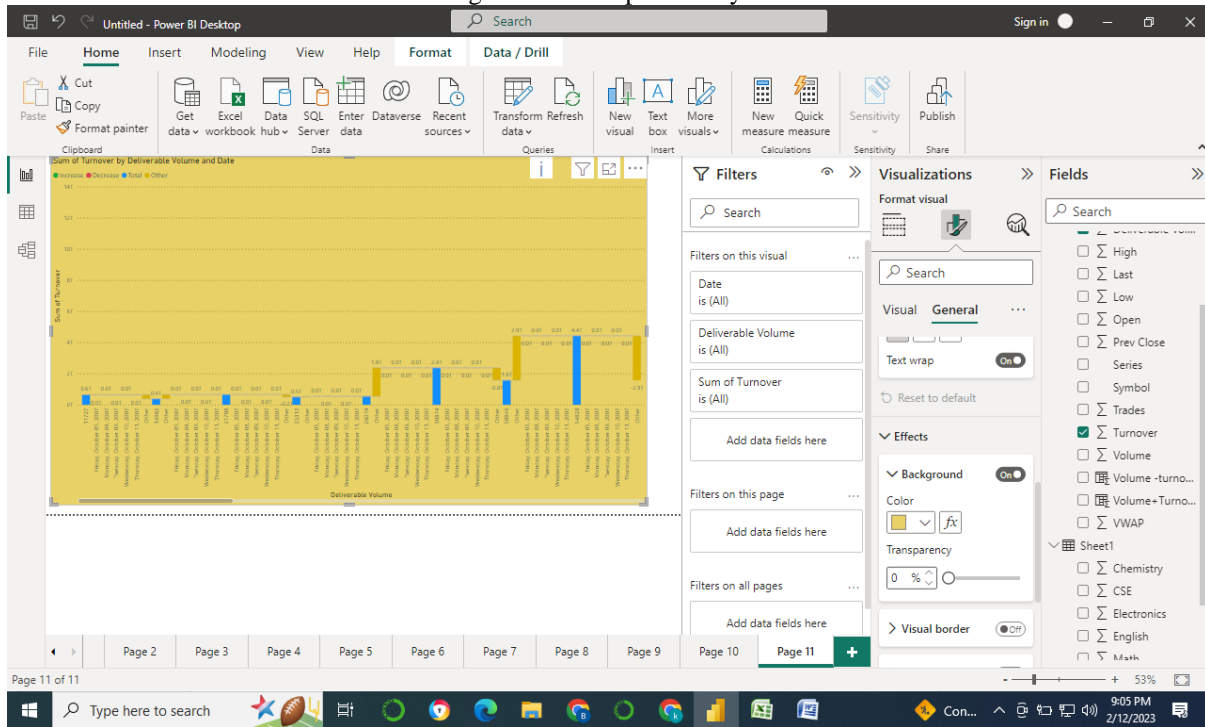
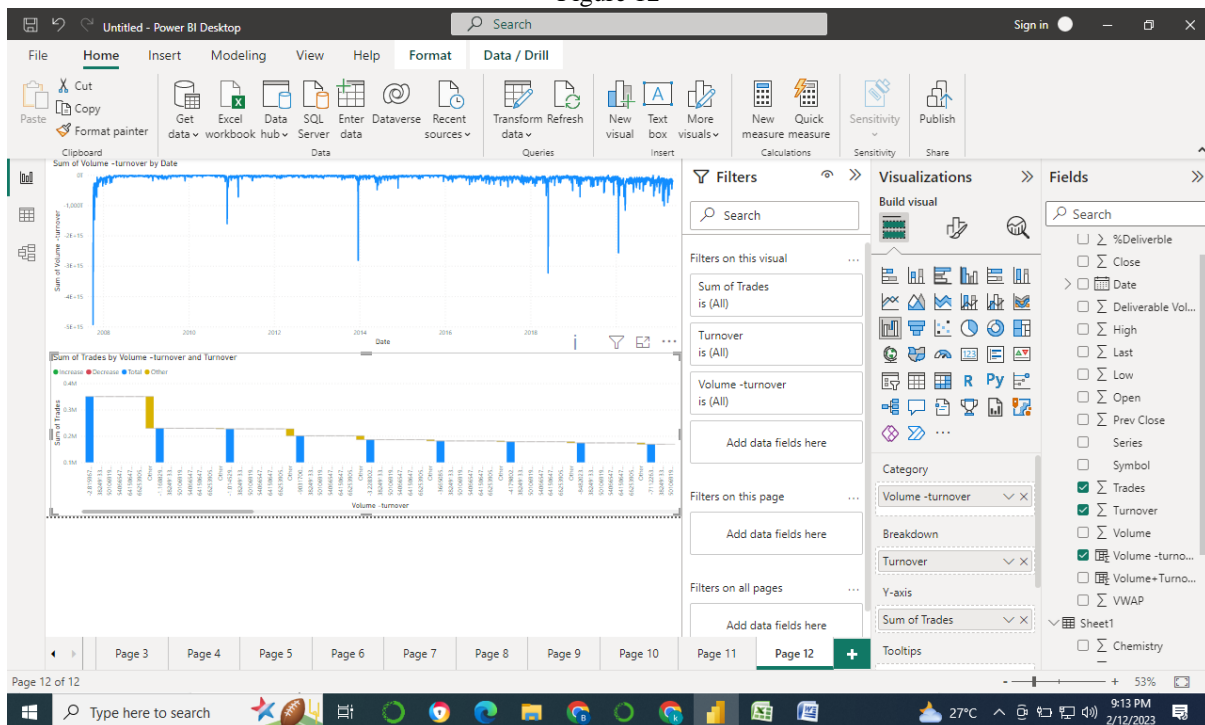


Figure 12



II. Findings

Using Figure 1 to 12 the descriptive analysis is been done and the findings are the turn over has a key influence by time period and previous close has a impact on High and low value the value of trades and volume need to be increased for better output and the predictive analysis shows a negative line with impact of time period

III. Conclusion

Using DAX codes and Power BI a data science operation is performed on power grid data set and findings are done based on Tree analytics and it's also logistic regression based predicted for a negative curve in the time period

References

- [1]. Sanjay Dixit, Ambreesh Tripathi, Vikas Chola, " 800VA pure sine wave inverter's reference design" Texas instruments, Application report SLAA602, June 2013.
- [2]. Ang, Simon S T; Balda, Juan Carlos; Chiacchiarini, Héctor G. "Harmonic distortion reduction in power inverters" Power Electronics Specialists Conference, IEEE 35th Annual, Page(s): 1226 - 1231 Vol.2 , June 2004.
- [3]. Timothy J. Ross, Fuzzy Logic with Engineering Applications, Third Edition, John Wiley & Sons, Ltd, 2010.
- [4]. Aleksey Trubitsyn "high efficiency DC/AC power converter for photovoltaic application" Master Thesis, Boston University, 2010.
- [5]. Rickard Ekström " Inverter System Design and Control for a Wave Power Substation" Master Thesis, Uppsala University, 2009.
- [6]. Keith Jeremy McKenzie "Eliminating Harmonics in a Cascaded H-Bridges Multilevel Inverter Using Resultant Theory" Master thesis, University of Tennessee, Knoxville, 2004.
- [7]. Robert A. Gannett "Control strategies for high power four-leg voltages source inverter" Master Thesis, Blacksburg Virginia, 2001.
- [8]. Obasohan I. Omozusi " Dynamics and Control of A Batory Inverter Single-Phase Induction Generator System" Master thesis, Tennessee Technological University, Cookeville, 1998.
- [9]. Yuqing Tang " High Power Inverter EMI characterization and Improvement Using Auxiliary Resonant Snubber Inverter" Master thesis, Virginia Polytechnic Institute and State University, Virginia, 1998.
- [10]. L. Hassaine E. Olías1, M. Haddadi and A. Malek, "Asymmetric SPWM used in inverter grid connected" Revue des Energies Renouvelables Vol. 10 N°3, 421 – 429, 2007.
- [11]. Surladi "Analysis Of Harmonic Current Minimization on Power Distribution System Using Voltage Phase Shifting Concepts " Master thesis, University of sains Malaysia,2006 [12] T. S. Perry. Lotfi A. Zadeh ,"Fuzzy Logic Inventor Biography " IEEE Spectrum, pp. 32- 35, June 1995.
- [12]. L. A. Zadeh. "Fuzzy sets", Information and Control, vol. 8, pp. 338-353, Berkeley California, 1965.