

DASHBOARD FOR RUSSIAN UKRAINE WAR

A PROJECT REPORT

Submitted by

BHAVATHARINI N	-	(21ADR008)
RITHANYA G	-	(21ADR039)
MADHAVAN T	-	(21DAR024)
BALAJI V	-	(21ADR007)

for

20ADC33 DATA ANALYSIS

DEPARTMENT OF ARTIFICIAL INTELLIGENCE



KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE – 638 060

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Department of Artificial Intelligence

20ADC33 – Data Analysis Project Report

Signature of course in-charge

Signature of the HOD

Submitted for the continuous Assessment viva voice examination held on _____

EXAMINER I

EXAMINER II

ABSTRACT

On 24 February 2022, Russia invaded Ukraine in a major escalation of the Russo-Ukrainian , which began in 2014. The invasion has likely resulted in tens of thousands of deaths on both sides and caused Europe's largest refugee crisis since World War II, with an estimated 8 million people being displaced within the country by late May as well as 7.8 million Ukrainians fleeing the country as of 8 November 2022.

On 21 February 2022, Russia recognized the Donetsk People's Republic and the Luhansk People's Republic, two self-proclaimed breakaway quasi-states in the Dombas. The next day, the Federation Council of Russia authorized the use of military force and Russian troops entered both territories. Ukraine, had seen open warfare that had cost more than 10,000 lives. This conflict between countries which have significant historical, cultural, religious, and political overlap has not only undermined the post- World War II order, but has also brought about dramatic changes in the religious configurations and landscape of the occupied territories, Ukraine, and Russia.

The Russia-Ukraine war has several detrimental socioeconomic effects that are currently being felt worldwide and might get worse, especially for global food security, as it is a confrontation between two significant agricultural powers. If the war intensifies, the food situation will get worse, providing a problem for many nations, especially those that depend on food imports, such those in the Middle East and North Africa (MENA) area. It is necessary to examine the fundamental causes of an occurrence with such significant ramifications from all angles. The goal of the study is to determine if this was the outcome of a common security concern or whether there were more profound considerations at play that have not been widely discussed. The three major international relations theories—realism, liberalism, and constructivism—are used to evaluate the Russo-Ukrainian War.

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION:

Russia and Ukraine have been at war with one another since February 2014. Russia invaded Ukraine that after Rebellion of Change in Ukrainian and aided pro-Russian separatists against Ukrainian government forces in the Donbas region. There were also maritime incidents, cyberattacks, and increased political turmoil within the first eight years of the conflict. When Russia initiated a sizable incursion of Ukrainian in February 2022, the crisis significantly worsened.

The pro-European Euromaidan and the Revolution of Solidarity led towards the overthrow of Victor Yanukovich, the top player ruler of Ukraine, in the initial part of 2014. Long after Yanukovich was toppled and put into flight in Russia, top player rioting continued to expand around eastern and southern Ukraine. Approximately the same time, unmarked Russian forces stormed Crimea in Ukrainian and took control of important sites and infrastructure, particularly administrative buildings.

Following a heated vote on Crimea's status, Russia conquered the country without delay. Pro-Russian rebels in eastern Ukraine's Donbas province announced the Donetsk Folk's Kingdom and the Luhansk Government of South in April 2014 with extensive but covert cooperation from Russia.



Figure 1.1 Russian – Ukraine map

A continuous warfare in the Donbas emerged as a function of Ukrainian operations to regain territory held by separatists midway in 2014. Russia began to fortify its paramilitary clogging around the Ukrainian borderline in 2021, particularly directly beyond Belarus, a bordering nation. Russian Premier Vladimir Putin argued against NATO's growth and requested that Ukraine never be allowed to enter the army organization.

He also expressed ultranationalist views and doubted Ukraine's rights to develop. On February 21, 2022, Russia acknowledged the Donetsk People's Government or the Luhansk People's States as sovereign states. Three days earlier, Putin announced a "special military operation" in Ukraine on tv news, signaling a start of a comprehensive attack. Numerous countries tightened and imposed fresh penalties towards Russia in response to the global rejection of the operation. Shortly in April 2022, Russia gave up trying to take Kiev because of fierce pushback. Throughout early September, Russia declared it had annexed significant portions of southern and eastern Ukraine, which sparked outrage around the world.

Ukrainian tactical strikes have lately reclaimed a sizable amount of land in the south and northeast. The protracted war of independence has resulted in tens of millions of fatalities and a massive refugee problem.



Figure.1.2 Dombas warfare

Military and weapon suppliers

Suppliers for Ukraine

US Potus Joe Biden requested an unprecedented \$33 billion from Lawmakers on April 28, 2022, including \$20 billion for arms, to assist Ukraine. Denys Shmyhal, the head of state of Ukraine, declared on May 5, 2022, that from the beginning of Russia's invasion on February 24, his country had gotten upwards of \$12 billion in budgetary and military assistance first from West. Reported to The Washington Post, new American armaments sent to the Ukrainian border indicate a somewhat more violent conflict with more losse

Despite expanded armament deployments and a historic \$3 billion arms sales agreement, the US hopes to create "longstanding presence in Ukraine."



Figure 1.3 Weapon supplies

Suppliers for Russia

- Upon investing huge sums in machine guns and materiel over quarters, the Russian Federation presumably arranged to bargain for icbms from Iran and North Korea as well as fight aircrafts and causing a nuisance war material from Iran.
- Belarus also delivered containers and many empires military vehicles to the Russian Federation.

About Power BI:

Microsoft's Power BI is an interactive data visualisation software programme with a main emphasis on business intelligence. The Microsoft Power Platform includes it. Power BI is a group of software services, applications, and connections that combine to transform disparate data sources into coherent, engaging visuals, and interactive insights.

A database, website, or structured files like spreadsheets, CSV, XML, and JSON can be directly read for data entry. Power BI offers desktop-based Power BI Desktop and cloud-based BI services collectively referred to as "Power BI Services". It provides interactive dashboards, data discovery, and data preparation tools for data warehouses. On its Azure cloud platform, Microsoft introduced a new service called Power BI Embedded in March 2016. The product's ability to load customised visuals is one of its key differentiators.

1.2 DATA COLLECTION

Data collection is the methodical method of acquiring experiences or samples. Obtaining statistics provides one to gain next understanding and distinctive views on the study topic. The generic data capture process is essentially similar in all industries, notwithstanding the possibility of multiple methodologies and aims. Prior to starting the data collection, take into account;

- The study's objective.
- The kind of data that will be been gathered.
- The techniques and steps utilized to gather, store, and evaluate information.

Dataset collection

Source

This dataset is collected from Kaggle.

Dataset 1

Equipment Losses & Death Toll & Military Wounded & Prisoner of War of Russians.

Source

<https://www.kaggle.com/>

Dataset 2

UA Ukraine Conflict Twitter dataset.

Source

<https://www.kaggle.com/datasets/foklacu/ukraine-war-tweets-dataset-65-days>

Dataset 3

Ukraine history

Source

<https://github.com/topics/ukraine-history-simulator-dataset>

Dataset 4

Ukraine refugees

Source

<https://data.europa.eu/en/publications/datastories/refugee-flows-ukraine>

Attributes

Equipment Losses & Death Toll & Military Wounded & Prisoner of War of Russians.

- DATE
- DAY
- AIRCRAFT
- HELICOPTER
- FUEL TANKS
- APC
- FIELD ARTILLERY
- MRL
- MILITARY AUTO
- TANKS
- DRONE
- NAVAL SHIP

UA Ukraine Conflict Twitter dataset.

- USERID
- USERNAME
- ACCTDESC
- LOCATION
- FOLLOWING
- TOTAL TWEETS
- HASHTAGS
- LANGUAGE

UKRAINE HISTORY

- SITUATION VIEW ID
- SITUATION VIEW NAME
- SITUATION VIEW DESCRIPTION

UKRAINE REFUGEES

- DATE
- REFUGEES

Step 1: Open Power BI and click “Get data” from the home tab and select the data Which we have downloaded and we will see the pop up.

Loading Russian – Ukraine Equipment dataset

The screenshot shows the Power BI 'Get Data' window for the file 'russia_losses_equipment.csv'. The 'File Origin' is '1252: Western European (Windows)' and the 'Delimiter' is 'Comma'. The 'Data Type Detection' is 'Based on first 200 rows'. A table preview is shown with columns: date, day, aircraft, helicopter, tank, APC, field artillery, MRL, military auto, fuel tank, drone, naval ship, and anti-air. The 'Visualizations' pane on the right shows various chart types and a 'Fields' list.

date	day	aircraft	helicopter	tank	APC	field artillery	MRL	military auto	fuel tank	drone	naval ship	anti-air
25-02-2022	2	10	7	80	516	49	4	100	60	0	2	
26-02-2022	3	27	26	146	706	49	4	130	60	2	2	
27-02-2022	4	27	26	150	706	50	4	130	60	2	2	
28-02-2022	5	29	29	150	816	74	21	291	60	3	2	
01-03-2022	6	29	29	198	846	77	24	305	60	3	2	
02-03-2022	7	30	31	211	862	85	40	355	60	3	2	
03-03-2022	8	30	31	217	900	90	42	374	60	3	2	
04-03-2022	9	33	37	251	939	105	50	404	60	3	2	
05-03-2022	10	39	40	269	945	105	50	409	60	3	2	
06-03-2022	11	44	48	285	985	109	50	447	60	4	2	
07-03-2022	12	46	68	290	999	117	50	454	60	7	3	
08-03-2022	13	48	80	303	1036	120	56	474	60	7	3	
09-03-2022	14	49	81	317	1070	120	56	482	60	7	3	
10-03-2022	15	49	81	335	1105	122	56	526	60	7	3	
11-03-2022	16	57	83	353	1165	125	58	558	60	7	3	
12-03-2022	17	58	88	362	1205	135	62	585	60	7	3	
13-03-2022	18	74	86	374	1276	140	62	600	60	7	3	
14-03-2022	19	77	90	389	1249	150	64	617	60	8	3	
15-03-2022	20	81	95	404	1279	150	64	640	60	9	3	
16-03-2022	21	84	108	430	1375	190	70	819	60	11	3	

Figure.1.4 Loading Russian – Ukraine dataset

Loading dataset for Russian – Ukraine Personnel dataset

The screenshot shows the Power BI 'Get Data' window for the file 'russia_losses_personnel.csv'. The 'File Origin' is '1252: Western European (Windows)' and the 'Delimiter' is 'Comma'. The 'Data Type Detection' is 'Based on first 200 rows'. A table preview is shown with columns: date, day, personnel, personnel*, and POW. The 'Fields' list on the right shows various categories like aircraft, anti-aircraft, APC, cruise missiles, date, day, drone, field artillery, fuel tank, greatest losses, helicopter, military auto, mobile SRBM, MRL, naval ship, special equipment, tank, and vehicles and fu...

date	day	personnel	personnel*	POW
25-02-2022	2	2800	about	0
26-02-2022	3	4300	about	0
27-02-2022	4	4500	about	0
28-02-2022	5	5300	about	0
01-03-2022	6	5710	about	200
02-03-2022	7	5840	about	200
03-03-2022	8	9000	about	200
04-03-2022	9	9166	about	200
05-03-2022	10	10000	about	216
06-03-2022	11	11000	about	282
07-03-2022	12	11000	more	259
08-03-2022	13	12000	about	284
09-03-2022	14	12000	about	360
10-03-2022	15	12000	more	371
11-03-2022	16	12000	more	389
12-03-2022	17	12000	more	389
13-03-2022	18	12000	more	389
14-03-2022	19	12000	more	389
15-03-2022	20	13500	about	389
16-03-2022	21	13800	about	389

Figure.1.5 Loading Russian – Ukraine Personnel dataset

Loading Ukraine history dataset

Table: ukraine_history (8 rows)

situation_view_id	situation_view_name	situation_view_description
54	Ukraine Refugee Situation	The escalation of conflict in Ukraine has caused destruction of civilian infrastructure and civilian casualties and has forced people to flee their homes seeking safety, protection and assistance. In the first week, more th
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Figure.1.6 Loading Ukraine dataset

Loading Ukraine refugee's dataset

Table: ukraine_refugees

Date	Refugees
24-02-2022	85382
25-02-2022	109146
26-02-2022	146852
27-02-2022	168597
28-02-2022	163079
01-03-2022	165793
02-03-2022	169951
03-03-2022	165249
04-03-2022	173318
05-03-2022	185233
06-03-2022	206876
07-03-2022	206915
08-03-2022	185184
09-03-2022	176618
10-03-2022	165891
11-03-2022	151416
12-03-2022	155842

Figure 1.7 Loading Ukraine Refugees dataset

Step 2: Click “Load” to load the data into Power BI.

Step 3: Similarly, we can repeat this process for our other tables, after loading all the tables in Power BI you can see the tables in the “Field” tab.

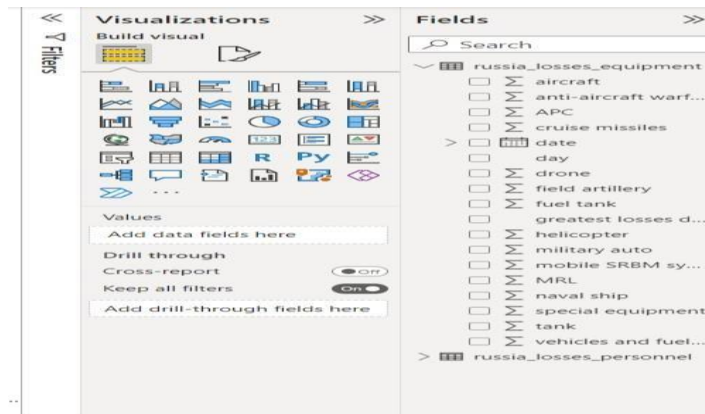


Figure.1.8 Visualizations & Fields

1.3. PROBLEM STATEMENT

Russia grabbed Crimea after the Movement of Freedom in Ukraine and supported pro-Russian separatists against Ukrainian security forces inside this Donbas region. These been other coastal encounters, cybercrime, and increased regional unrest during the initial eight years of the struggle. People suffered a lot due to this attack.



Figure 1.9 Ukraine territory

1.4. BUSINESS OBJECTIVE

1. To analyze the economic costs of campaign and crude prices.
2. To overview the exporting rate of Russia.
3. To compare the loss in economy with existing money troubles in Russia.

CHAPTER 2

DATA PREPARATION AND MODELLING

2.1 DATA CLEANING

To enhance the security of your data, data integrity entails identifying and correcting any probable contradictions or inaccuracies. Any result that differs from the actual worth is an error. The collection can be rendered "clean" by this procedure by evaluating, interpreting, identifying, altering, or eliminating "dirty" facts. Data cleaning and data scrubbing are other names for data cleansing.

Click on the Transform data option from the “Home” tab

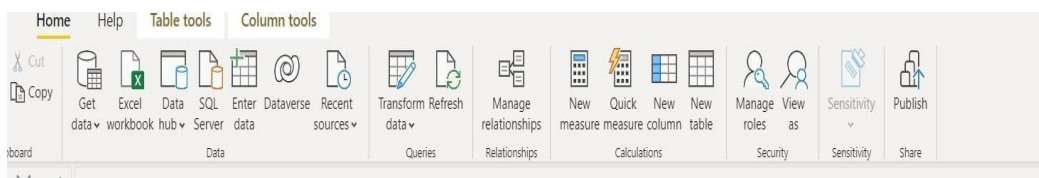


Figure 2.1 Home Tab

The data is altered by adding fresh dimensions, columns, classifying the data, and using plenty other pre-processing methods.

Sorting of the data

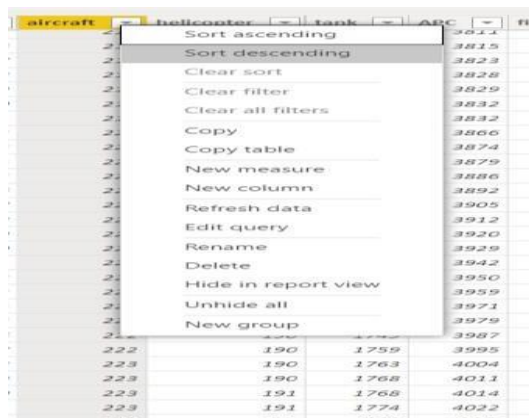


Figure 2.2 Data Sorting

Filtering options are also included to remove the unnecessary data.

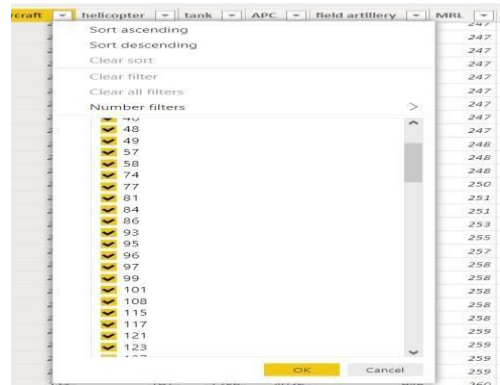


Figure 2.3 Data Filtering

Step 8: After removing the empty rows from all the tables and click on the top right most option “Close and Apply” to change those data in the table.

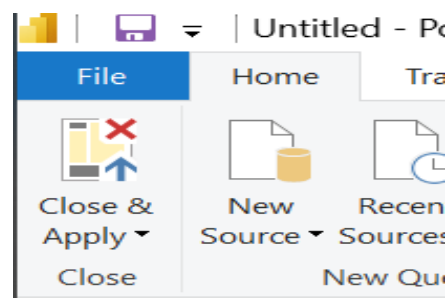


Figure 2.4 Close & Apply

Organizations might alter any kind of data into a version that can be employed in a variety of activities, including interaction, assessment, retention, etc., by transforming the data. The data can be transformed manually or automatically using any ETL tool and a computer program like Python.

Dax Comments:

Splitting the date month year into separate columns using split columns.

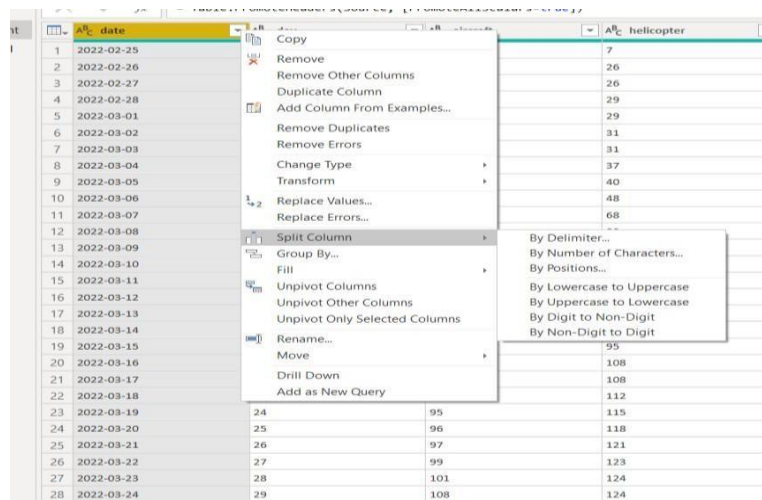


Figure.2.5 Data Splitting

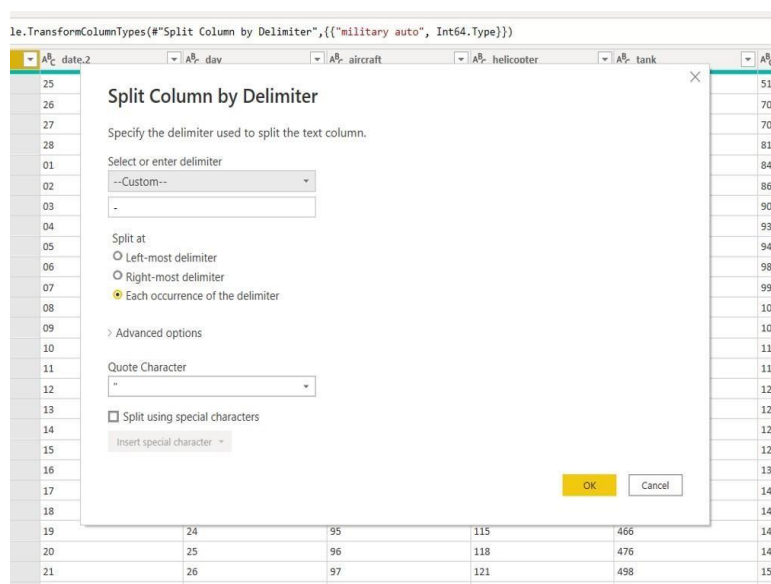


Figure.2.6 Splitting of Columns

The screenshot shows the Power Query Editor interface. The main area displays a table with the following columns: **date**, **aircraft**, **heliporter**, and **task**. The data is organized into 29 rows. The 'date' column is highlighted in yellow. The right-hand pane shows the 'Query Settings' for 'russia_losses_equipment', with the 'Applied Steps' list containing 'Source', 'Promoted Headers', 'Split Column by Delimiter', 'Changed Type', and 'Changed Type'.

Figure.2.7 Splitted Columns

Changing the data type of the attribute by change type

The screenshot shows the Power Query Editor interface. The main area displays a table with the following columns: **date**, **aircraft**, **heliporter**, and **task**. The data is organized into 29 rows. The 'date' column is highlighted in yellow. A 'Change Type' dialog box is open, showing options for 'Date' and 'Text'. The 'Date' option is selected. The right-hand pane shows the 'Query Settings' for 'russia_losses_equipment', with the 'Applied Steps' list containing 'Source', 'Promoted Headers', 'Split Column by Delimiter', 'Changed Type', and 'Changed Type'.

Figure.2.8 Datatype Conversion

Appending the queries . creating the relationships among the table

The screenshot shows the Power Query Editor interface. The main area displays a table with the following columns: **date**, **aircraft**, **heliporter**, and **task**. The data is organized into 29 rows. The 'date' column is highlighted in yellow. An 'Append' dialog box is open, showing options for 'Two tables' and 'Three or more tables'. The 'Two tables' option is selected. The right-hand pane shows the 'Query Settings' for 'russia_losses_equipment', with the 'Applied Steps' list containing 'Source', 'Promoted Headers', 'Split Column by Delimiter', 'Changed Type', and 'Changed Type'.

Figure.2.9 Appending of Data

123 APC	123 field artillery
80	516
146	706
150	706
150	816
198	846
211	862
217	900
251	939
269	945
285	985
290	999
303	1036
317	1070
335	1105
353	1165
362	1205
374	1226
389	1249
404	1279
430	1375
444	1435
450	1448
466	1470
476	1487
498	1535
509	1556
517	1578
530	1597
561	1625
575	1640

PROPERTIES
Name
russia_losses_equipment
All Properties

APPLIED STEPS
Source
Promoted Headers
Changed Type
Appended Query

PREVIEW DOWNLOADED AT 19:

Figure 2.10 Appended data

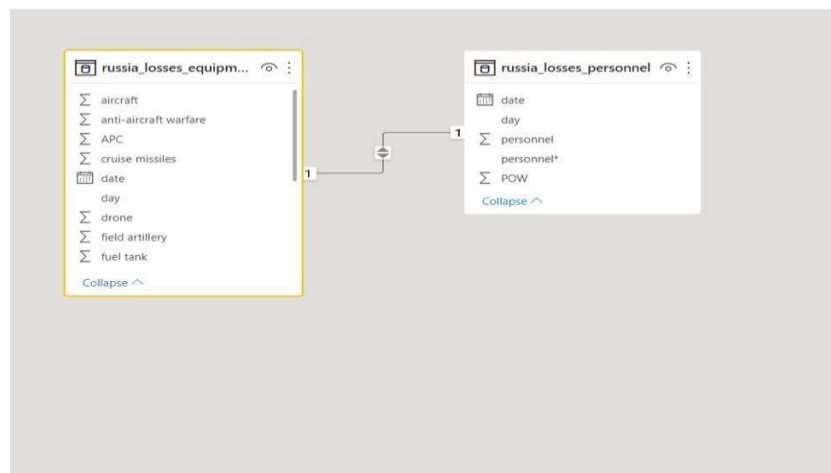


Figure 2.11 Table linkage

Hence various data preprocessing techniques are applied and the dataset is processed.

2.2 DATA TRANSFORMATION

Data discovery and profiling

- Data creation identifies connections throughout various data items, either in a central platform and even across networks, whereas data assessment gathers information regarding the veracity of the content.
- The capacity to continuously evaluate pertinent numbers is another benefit of info analysis.
- Data profiling gathers information regarding the accuracy of the data, whereas pattern mining identifies connections throughout various data items, either in a central platform and even across database.
- The capacity to continuously track pertinent facts also was made possible by data profiling.

Step 9: On the right side under fields all the attributes are displayed for visualization



Figure.2.12 Attribute Selection

Similarly, the attributes of all other table which is also included in the dataset.

Data Structring

In summary, data structuring approaches deal with just a machine that can accept obviously arbitrary, disorganized data is fed and perform a series of logistic or – antiactivities on it. The purpose among those processes is to investigate the kind of information and its significance in the overall structure of everything.

Explore all the database files available for modification by selecting the analysis box.

date	day	aircraft	helicopter	tank	APC	field artillery	MRL	military auto	fuel tank	drone	naval ship	anti-aircraft warfare	special equipment	mobile SRBM system	greatest losses	russia_losses_personnel
09 July 2022	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217
10 July 2022	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218
11 July 2022	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
12 July 2022	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220
13 July 2022	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221
14 July 2022	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222
15 July 2022	223	223	223	223	223	223	223	223	223	223	223	223	223	223	223	223
16 July 2022	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
17 July 2022	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
18 July 2022	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226
19 July 2022	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227
20 July 2022	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228
21 July 2022	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229
22 July 2022	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
23 July 2022	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231
24 July 2022	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232
25 July 2022	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233
26 July 2022	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234
27 July 2022	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
28 July 2022	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236
29 July 2022	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237
30 July 2022	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
31 July 2022	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239
01 August 2022	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
02 August 2022	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241
03 August 2022	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242
04 August 2022	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
05 August 2022	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244

Figure.2.13 Date table

2.4 DATA MODELLING:

Data modelling:

- Data modelling is really the act of producing a pictorial portrayal of a proper info system or specific parts of it in order to express relationships across data items and architectures.
- The goal is to give samples of the many data kinds that are accessed and maintained within the system, as well as their connections, potential categories and institutional arrangements, types, and attributes.
- Data models are developed to satisfy corporate needs. Standards and criteria are developed with inputs from interested parties prior to starting the development of a new technology or an increment of an existent ones.
- It is possible at many levels ". Now at start of the process, the, investors and enterprise customers are polled to better understand the commercial demands.
- The conversion of all these corporate strategy into database systems is the first step in the creation of a single database infrastructure.
- A actual data can really be linked to a strategy, an inventor's blueprint, and any other systematic description that encourages a fuller insight of the product currently built.

Types of data modelling:

- Conceptual data model
- Logical data model
- Physical data model

Conceptual data model

A organized commercial representation of the material required to assist business functions, document corporate events, and monitor associated quality indicators is provided by the database model.

Logical data model

A collection item's features can be described in depth using a logical information model. A logical design, for instance, might define the type of a component, such as existing account.

Physical data model

A data modelling is a repository architecture that depicts structural metadata and their associations (such as tables, columns, primary keys, and foreign keys).

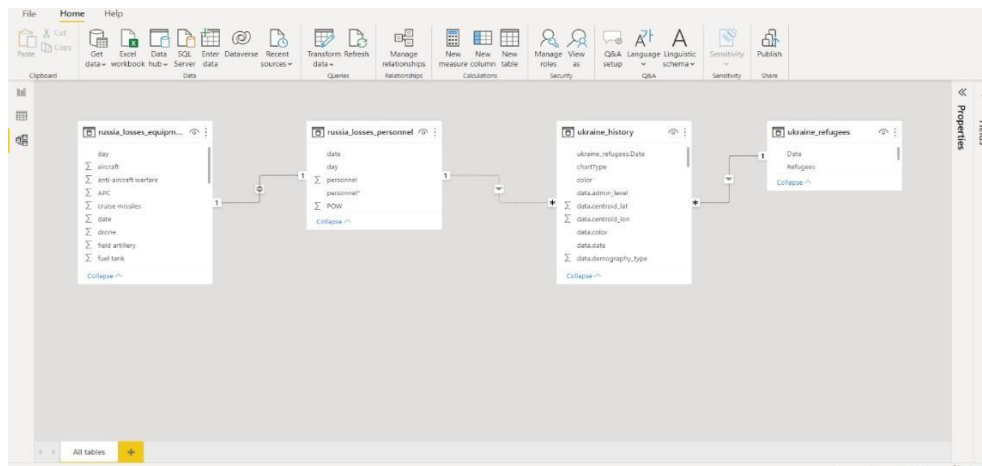
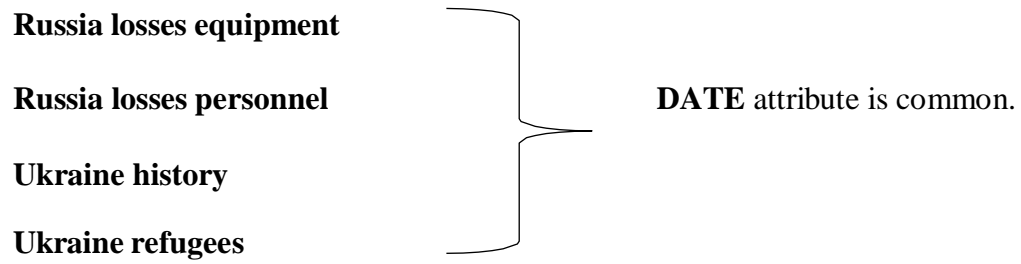


Figure2.14 Model Linkage

CHAPTER 3

DATA ANALYSIS AND INTERPRETATION

3.1. DATA ANALYSIS

- Data analysis is the procedure of cleaning, transforming, and analyzing info in order to discover pertinent information for commercial judgement.
- The objectives of data analysis are to retrieve useful info from the data and take actions based on that evaluation.
- As a basic illustration of data processing, whenever time people make a selection in ordinary routine, we take the past or the potential future into account.
- This is anything more than making decisions based on an evaluation of the history or the future.
- We put together our background experience or our desired futures for that. Data analysis is what all of it is. Now, the term "data analysis" refers to the technique a scientist use to achieve business objectives.



Figure.3.1 Data analysis

Dax measure

Measures are dynamic calculation algorithms that vary their conclusions based on the surrounding circumstances. In reporting, measures are used to assist merging and filtering model data using numerous attributes. Examples of such measures are Power BI reports, Excel PivotTables, and Pivot Charts.

SUM

The column where the numbers to be added are located.

SUM = sum (russia_losses_equipment [military auto]);

MAXIMUM

Identifies the greatest value inside a column or between two scalars expressions.

MAXIMUM OF FUEL TANKS = MAX (russia_losses_equipment [fuel tank]);

MINIMUM

Returns the smaller of two scalar expressions or the value within a column.

MINIMUM OF HELICOPTER = MIN (russia_losses_equipment [helicopter]);
MINIMUM OF NAVAL SHIP = MIN (russia_losses_equipment [naval ship]);

AVERAGE

The column that includes the data points for which you're looking for an average.

AVERAGE OF DRONE = AVERAGE (russia_losses_equipment [drone]);

Charts using data analysis

1. Compare the count of naval ship and helicopter in the month of July.

Step 1: In the Visualizations field select->Clustered column chart.

Step 2: Select Month in X-axis.

Step 3: Select Minimum of Naval ship and Minimum of helicopter in Y-axis.

Step 4: In the Filter field, apply filter for month as 7 (July).

Output:

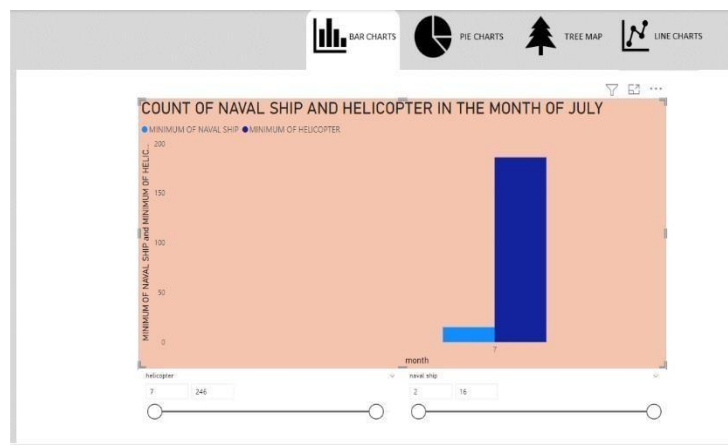


Figure.3.2 Count of helicopter

2. Analyse the month in which the drone usage is maximum.

Step 1: In the visualizations field Select->Pie charts.

Step 2: Select Month in Legend column.

Step 3: Select Average of Drones in Values column

Output:

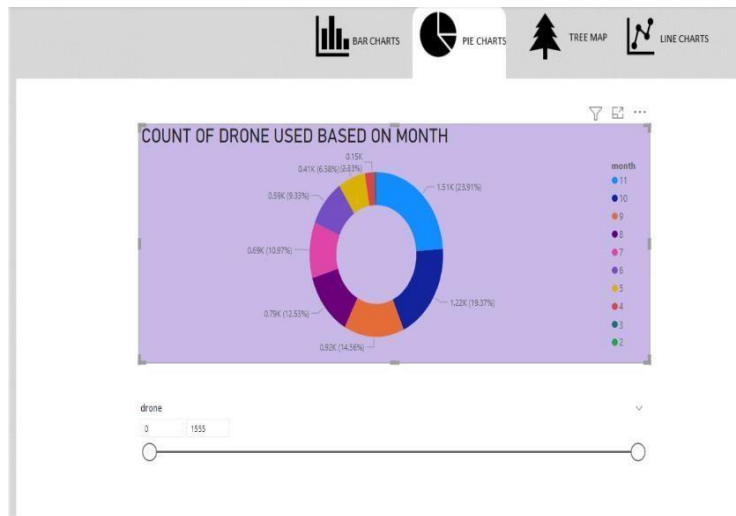


Figure.3.3 Count of Drone

3. In which month people have used the maximum number of Special equipment?

Step 1: In the Visualizations column select Tree map.

Step 2: Select month in Category column.

Step 3: Select Values in Special Equipment column.

Output:

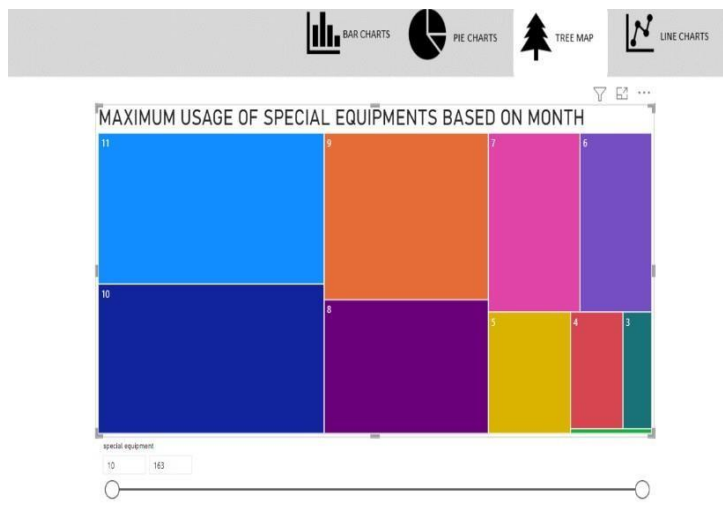


Figure.3.4 Special Equipment usage

4. Compare the count of vehicles and fuel tanks based on the greatest losses direction.

Step 1: In Visualizations column Select Stacked Bar chart.

Step 2: Select greatest losses direction in Y-axis.

Step 3: Select Maximum of fuel tanks in X-axis.

Output:

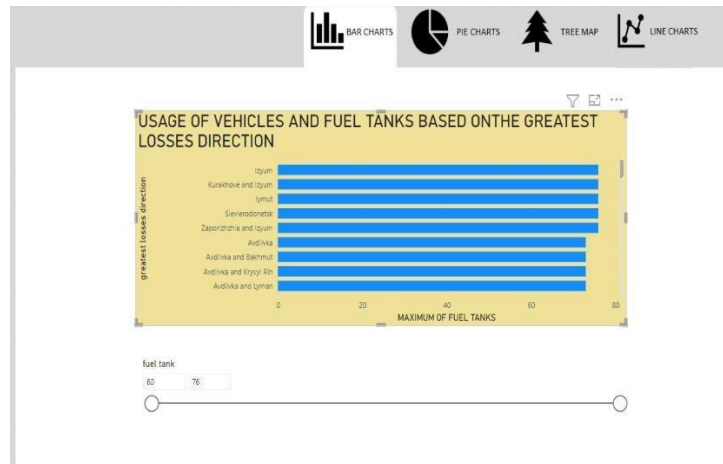


Figure.3.5 People belonging to Iymut

5. Analyse whether helicopter or aircraft is used in the highest count in the month of September.

Step 1: In the Visualizations column select Clustered column chart.

Step 2: Select month in X-axis.

Step 3: Select helicopter and aircraft in Y-axis.

Step 4: In the Filter field, apply filter to the month as 9 (September)

Output:

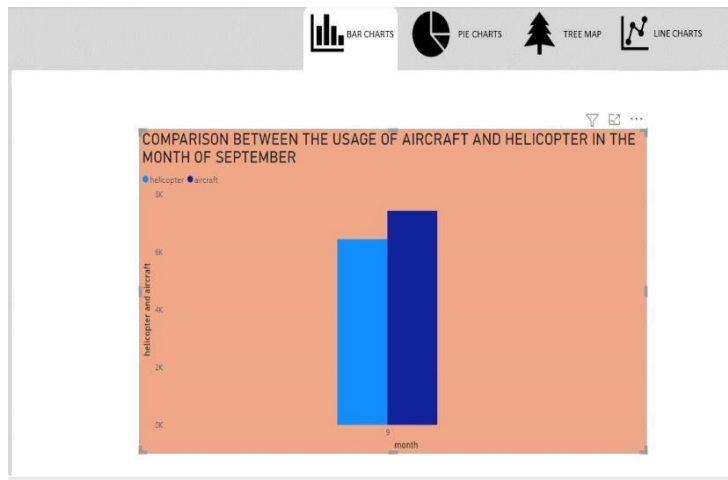


Figure.3.6 Aircraft & helicopter comparison

6. In which month people have used the maximum number of mobile SRBM system?

Step 1: In the visualizations field select Line and Clustered column chart.

Step 2: Select month in X-axis.

Step 3: Select mobile SRBM system in Column y-axis.

Output:

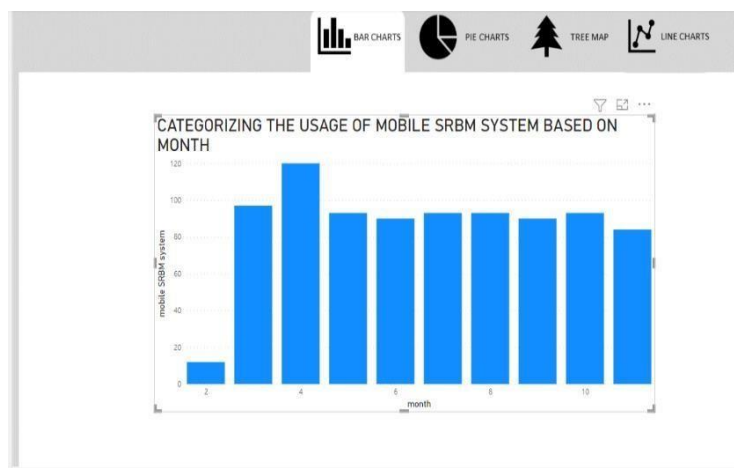


Figure.3.7 Mobile SRBM system usage

7. In which month people used the greatest number of armoured personnel carriers (APC)?

Step 1: In visualizations column select Pie chart.

Step 2: Select month in Legend field.

Step 3: Select APC in values column.

Output:

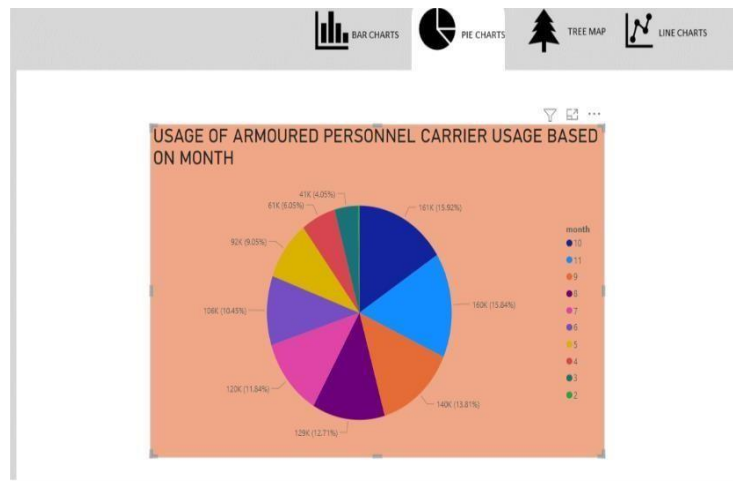


Figure.3.8 Armoured vehicles usage

8. Analyse the usage of military auto based on month.

Step 1: In the visualizations field Select Stacked area chart.

Step 2: Select month in X-axis.

Step 3: Select sum in Y-axis.

Output:

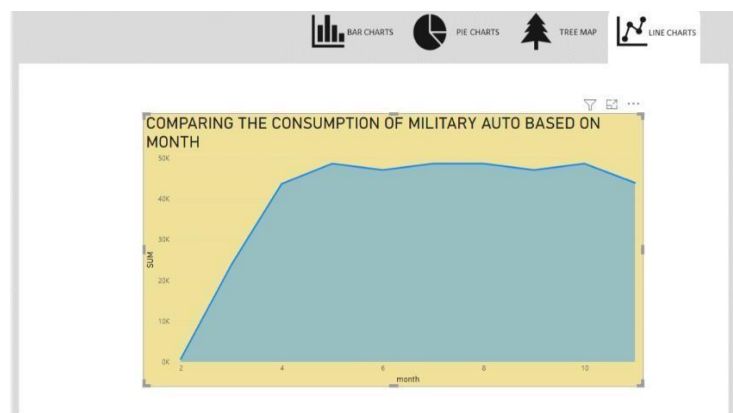


Figure.3.9 Military auto consumption

9. Compare the count of usage of tank based on the greatest losses direction.

Step 1: In visualizations column select Tree map.

Step 2: Select greatest losses direction in Category column.

Step 3: Select tank in values column.

Output:



Figure.3.10 Tanks usage on Greatest losses direction

10. Compare the usage of anti-aircraft warfare based on the field artillery used.

Step 1: In the visualization column select Clustered column chart.

Step 2: Select Field artillery in Y-axis.

Step 3: Select anti-aircraft warfare in Y-axis.

Output:

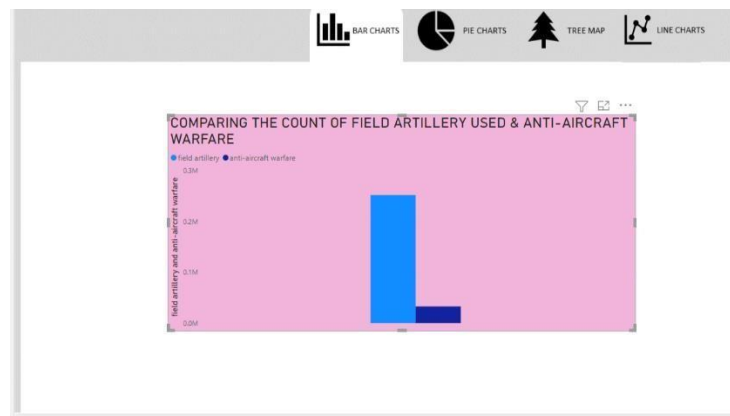


Figure.3.11 Count of filed artillery

11. Compare the count of MRL & APC used by the people in the month of last half of the year.

Step 1: In the visualization column select stacked bar chart.

Step 2: Select month in X-axis.

Step 3: Select MRL in Y-axis.

Step 3: Select APC in Y-axis.

Step 4: In the Filter field, apply filter to the month from July to December.

Output

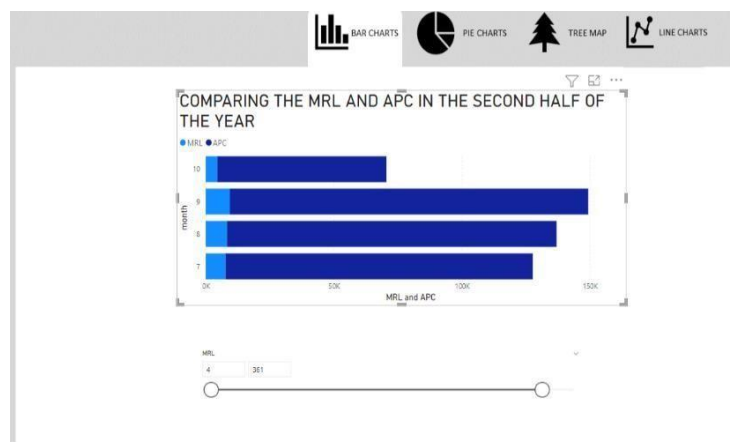


Figure.3.12 MRL & APC

12. In which month people have used the maximum number of MRL.

Step 1: In the visualization column select Ribbon chart.

Step 2: Select month of X-axis.

Step 3: Select count of MRL in Y-axis.

Output:

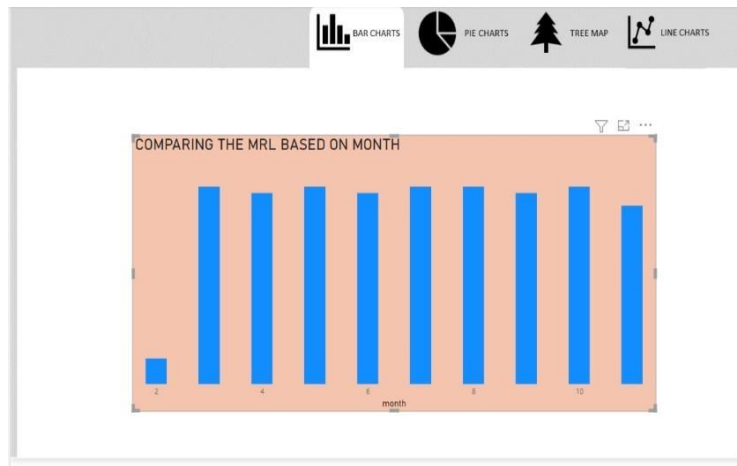


Figure.3.13 MRL based on month

13. Compare the usage of naval ship with the usage of aircraft.

Step 1: In the visualizations field select Pie chart.

Step 2: Select aircraft in values column.

Step 3: Select naval ship in values column.

Output:

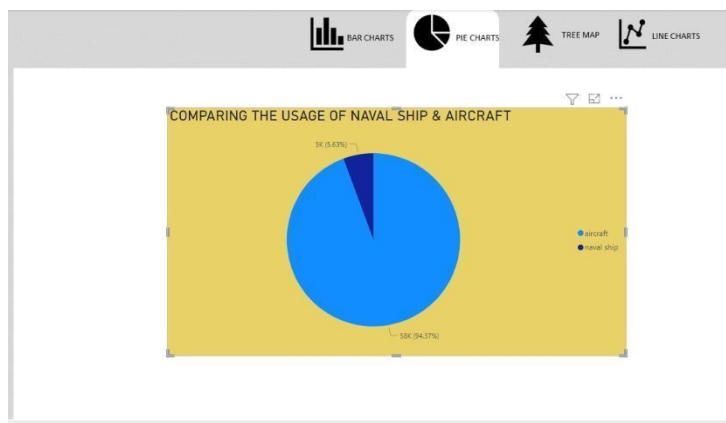


Figure.3.14 Naval ship usage

14. Does there is any relation between Usage of mobile SRBM system and Cruise missiles?

Step 1: In the visualization column select Clustered column chart

Step 2: Select Mobile SRBM system and cruise missiles in Y-column axis.

Output:

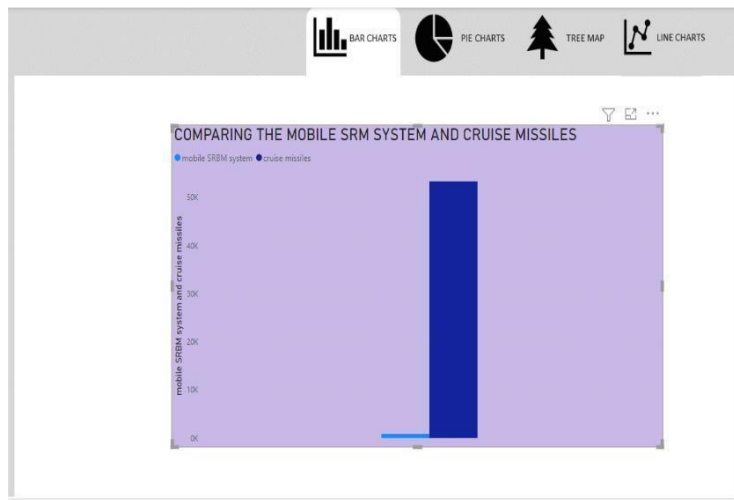


Figure.3.15 Mobile SRM system

CHARTS FOR IMPACT IN LIVES OF PEOPLE

15. Count the number of refugees in the month of February.

Step 1: In the visualizations field select Funnel chart.

Step 2: Select Date in category column

Step 3: Select Sum of refugees in values column

Step 4: In the Filter field, apply filter to the month as 2.

Output

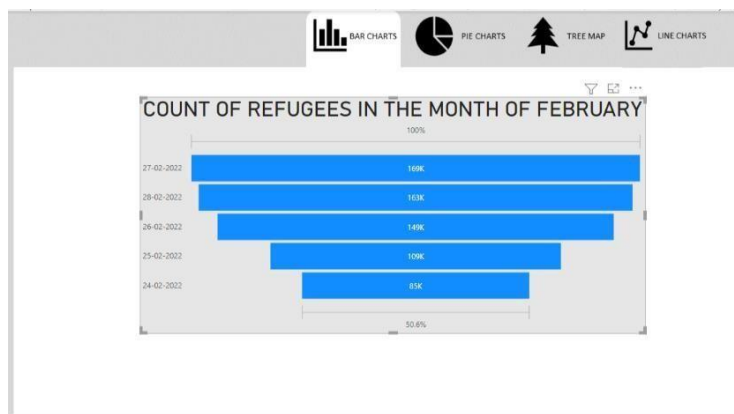


Figure.3.16 Count of refugees

16. Compare the count of Prisoner of War (POW) between the month of April to June.

Step 1: In the visualizations field select Pie chart.

Step 2: Select month in Legend column

Step 3: Select Personnel in values column

Step 4: In the Filter field, apply filter to the month from 4 to 6.

Output:

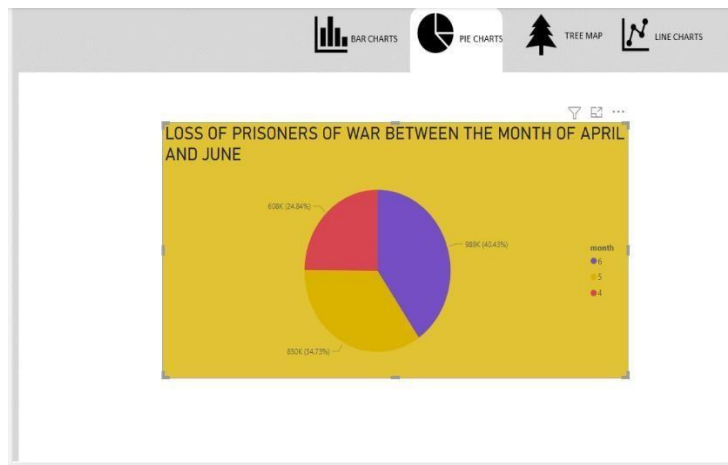


Figure.3.17 Loss of prisoners

17. Visualize the change in refugees count between the month of July and October.

Step 1: In the visualization column select Line clustered column and chart

Step 2: Select cruise missiles in column Y-axis.

Step 3: Select month in Column Legend column

Step 4: In the filter field , apply filter to the month from 7 to 10.

Output:

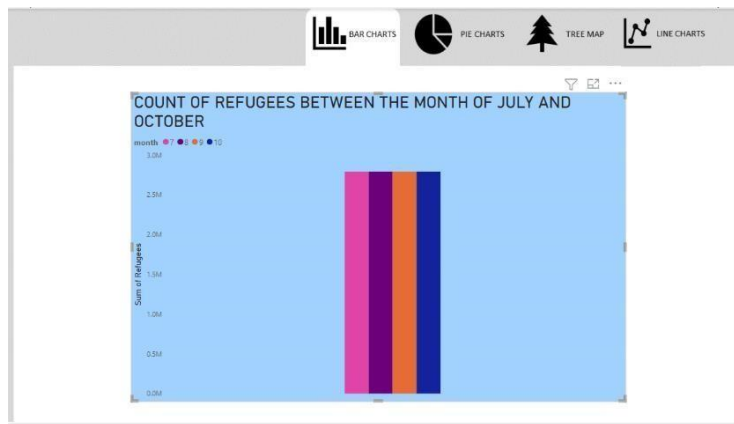


Figure.3.18 Count of refugees

18. Compare the count of Personnel losses between the month of August and December.

Step 1: In the visualization column select Funnel chart.

Step 2: Select month in category column

Step 3: Select Personnel in values column

Step 4: Filter the month between August and December using the filter field.

Output:

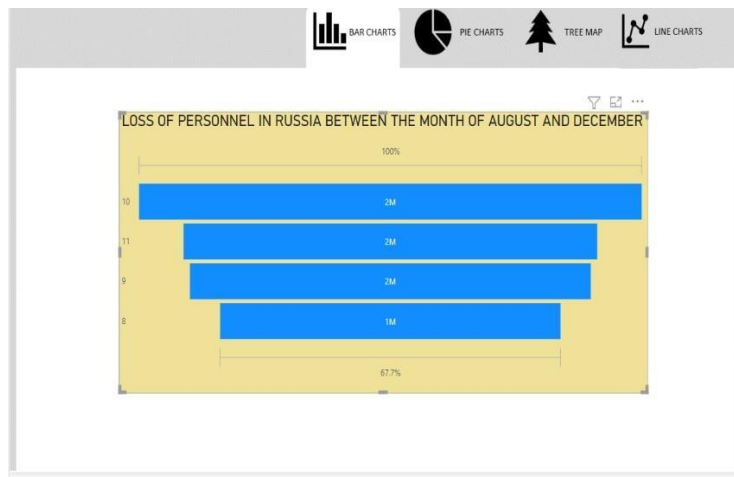


Figure.3.19 Loss of personnel in Russia


19. Compare the Refugee losses and Personnel losses in the first half of the month.

Step 1: In the visualization column select Table column

Step 2: Select month, count of refugees and personnel losses in the columns field.

Step 3: Filter the month category between January to June for the first half of the month.

Output:



A table visualization with a yellow background. The title is "LOSS OF REFUGEES & LOSS OF PERSONNEL IN THE FIRST HALF OF THE YEAR". The table has three columns: "month", "COUNT OF REFUGEES", and "russia_losses_personnel/personnel". The data is as follows:

month	COUNT OF REFUGEES	russia_losses_personnel/personnel
2	17	16000
3	17	410116
4	17	607600
5	17	849700
6	17	989150
Total	17	2873466

Figure.3.20 Loss of refugees & Personnel

20. Compare the count of Personnel losses based on the field artillery usage.

Step 1: In the visualization column select stacked column chart

Step 2: Select field artillery in X-axis

Step 3: Select personnel in Y-axis

Output:

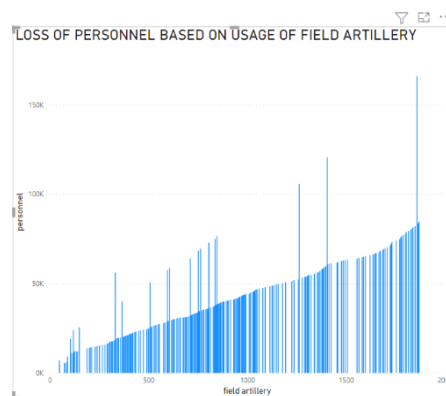


Figure.3.21 Loss of Personnel based on field artillery

3.2 PUBLISHING DASHBOARDS

Dashboards

Data is displayed on dashboards. Proper dashboard designing is needed. Assist the individual will be easily accessible and will be adequately explained to users by an excellent knowledge strategy Formulated to enhance like panels and visualization increase your "span of management" over a big volume of company data. These technologies help users discover tendencies, correlations, and anomalies visually so they can make intelligent decisions. As a result, the solutions must make use of users' visual skills.

Given the increasing use of balanced scorecard, widgets, and some other toolset that are now widely accessible for corporate customers to assess their statistics, this same topic of visual input layout seems to be more important than before.

Dashboards has high features include:

- Explaining how a corporation performed in accordance to its objectives.
- Increasing everybody's sensitivity to reality
- Arranging management information so that it is predictable
- There are numerous dashboards dependent on the BI platform for representing complicated interconnections in an intelligible way.
- analytical dashboard

Equipment usage dashboard

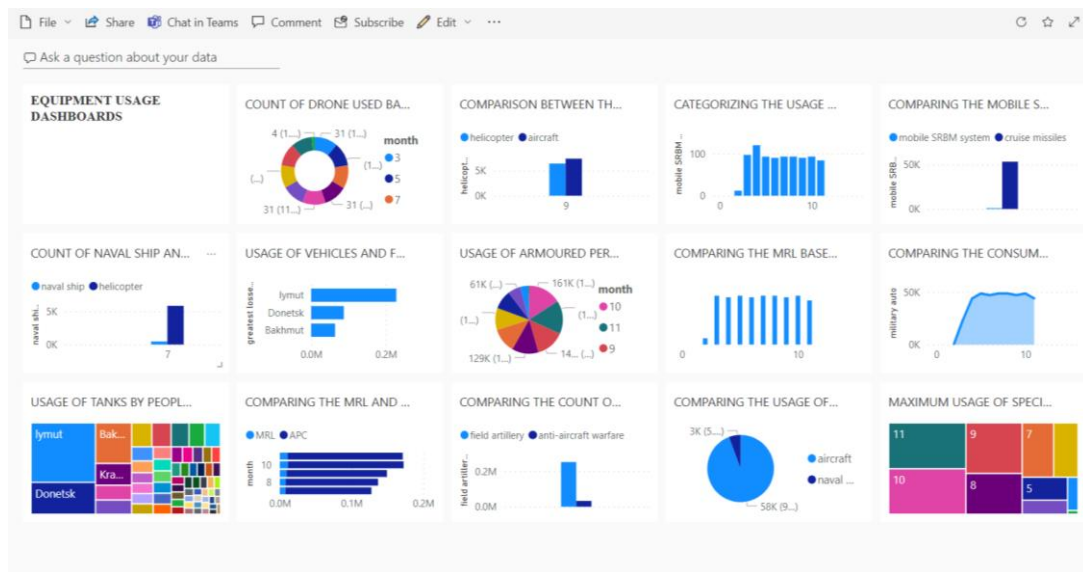


Figure.3.22 Equipment usage dashboard

Refugees Dashboard

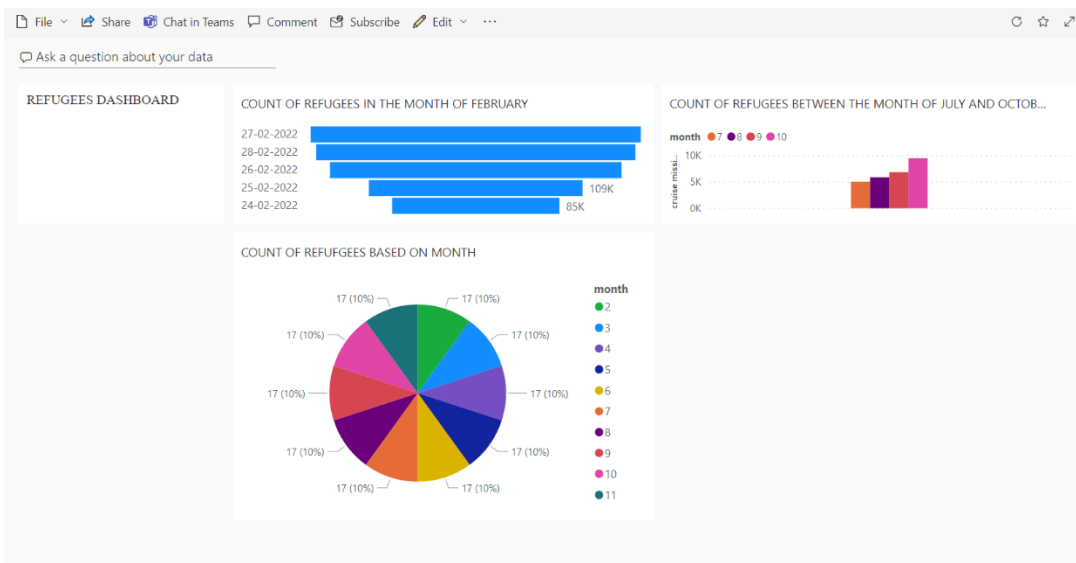


Figure 3.23 Refugees dashboard

Losses of people dashboard

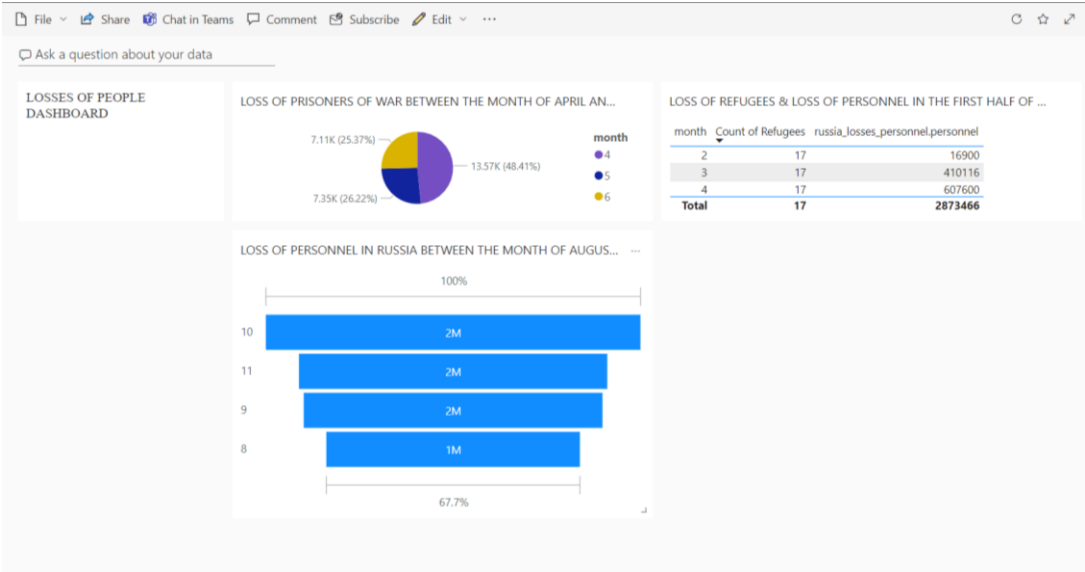


Figure.3.24 Losses of people dashboard

3.3 INFERENCES:

1. Compare the count of naval ship and helicopter in the month of July.

The count of helicopter is found to be maximum in the month of July – 186.

2. Analyse the month in which the drone usage is maximum.

The usage of Drone is maximum in the November – 1507.

3. In which month people have used the maximum number of Special equipment?

In the month of November people have used the maximum number of special equipment – 4460.

4. Compare the count of vehicles and fuel tanks based on the greatest losses direction.

People belonging to the Iymut has used the maximum number of vehicles and fuel tanks – 75.

5. Analyse whether helicopter or aircraft is used in the highest count in the month of September.

Aircraft– 7428 Helicopter - 6442 The aircraft is used in highest count in the month of September.

6. In which month people have used the maximum number of mobile SRBM system?

The maximum number of mobile SRBM system is used in the month of April – 120.

7. In which month people used the greatest number of armoured personnel carriers (APC)?

The greatest number of personnel carriers is used in a maximum count by the people in the month of October – 16,135.

8. Analyse the usage of military auto based on month.

The military auto is used maximum in the month of May and October – 48670.

9. Compare the count of usage of tank based on the greatest losses direction.

The usage of tanks is higher in the area of Iymut – 100104.

10. Compare the usage of anti-aircraft warfare based on the field artillery used.

The usage of anti-aircraft warfare is maximum than the field artillery usage – 252114.

11. Compare the count of MRL & APC used by the people in the month of last half of the year.

Hence the usage of MRL and APC is compared and visualized using stacked bar chart.

12. In which month people have used the maximum number of MRL.

The maximum number of MRL is consumed in the month of March, May, July, August & October – 31.

13. Compare the usage of naval ship with the usage of aircraft.

Usage of naval ship – 3440 Usage of Aircraft – 57613.

14. Does there is any relation between Usage of mobile SRBM system and Cruise missiles?

There is no relation between the Mobile SRM system used and the cruise missiles consumed.

15. Count the number of refugees in the month of February.

In the month of February the refugees counts are compared and visualised.

16. Compare the count of Prisoner of War (POW) between the month of April to June.

The loss of Prisoners of War (POW) is maximum in the month of June – 989150.

17. Visualize the change in refugees count between the month of July and October.

The count of refugee's losses remains the same between the four months – 17.

18. Compare the count of Personnel losses between the month of August and December.

From the analysis it is found that the count of Personnel losses is same for the month of August and October – 10.

19. Compare the Refugee losses and Personnel losses in the first half of the month.

Hence the refugee losses and the personnel losses are compared.

20. Compare the count of Personnel losses based on the field artillery usage.

The count of personnel losses based on field artillery usage is visualised.

CHAPTER 4

CONCLUSION

Many analyses have been done on the Russian Ukraine war dataset and the analysis gave us many pros and cons, which will help us to choose the best analysis for conclusion. Various pre- processing techniques were performed on the chosen dataset. This analysis gave us the summary report about the weapons and loss of lives of the people during the Russian Ukraine war.

The prolonged war in Donbas and its effects on politics, society, the economy, and stability are the most important risk factor for Ukraine. The government and public opinion cannot be hindered from thinking of strategies to revitalize turmoil regions authority and the potential reunification of the NGCA with whole of Ukraine by the ongoing low conflict.

Being robust in huge share just entails being mindful of and accepting these threats. Another component is the ability to cross gaps and create adaptable structures that involve a variety of viewpoints for both the benefit of the community, as shown by the published studies in this study article. The current resilience capital of Ukraine is priceless. In times of military crisis and national political upheaval, it continues to be one of the nation's most valuable assets, and it should be fostered to make it possible to create the European guideline democracy so many Ukrainians want to.

REFERENCES

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3. MacKinnon, Mark; Morrow, Adrian (18 February 2022). ["Biden 'convinced' Putin will invade Ukraine as Donbas region ordered evacuated"](#). *The Globe and Mail*. Retrieved 11 September 2022.
4. ["Russian-backed separatists announce civilian evacuation from eastern Ukraine as escalation stokes Russian invasion fears"](#). *NBC News*. 18 February 2022. [Archived](#) from the original on 23 February 2022. Retrieved 23 February 2022.
5. [Ukraine's envoy says Russia 'declared war'"](#). *The Economic Times*. 24 February 2022.