

World Population Data Analytics using IBM Cognos

A PROJECT REPORT

**Submitted by
RACHITA JHA
19BCE10283**

in partial fulfilment for the award of the degree
of

BACHELOR OF TECHNOLOGY
in
PROGRAM OF STUDY



SCHOOL OF COMPUTING SCIENCE AND ENGINEERING
VIT BHOPAL UNIVERSITY
KOTRIKALAN, SEHORE
MADHYA PRADESH – 466114

MAY 2022

LIST OF FIGURES

Fig No.	Title	Page No.
1	IBM Cognos Analytics Architecture	4
2	Flowchart	5
3	IBM Cloud Creation	6
4	IBM Cognos Analytics	6
5	Understand the dataset	7
6	Loading the dataset	7
7	Prepare the datasets	8
8	Top10 Pop Total by Location Using Tree Map	8
9	Pop Total by Time Using Line Chart	9
10	Pop Male by Location and Pop Female by Location using Pie Charts	9
11	Pop Male by Time and Pop Female Using Packed Bubble Charts	10-11
12	Building of Dashboard	11
13	Pop Male, Pop Female and Pop Total using Summary	12

TABLE OF CONTENTS

	TITLE	PAGE NO.
1	INTRODUCTION 1.1 Overview	4
2	THEORETICAL ANALYSIS 3.1 Block Diagram	6
3	FLOWCHART	7
4	PROCESS	
5	RESULT	8-12
6	ADVANTAGES AND DISADVANTAGES	13
7	APPLICATIONS	14
8	CONCLUSION	15

1. INTRODUCTION

1.1 Overview

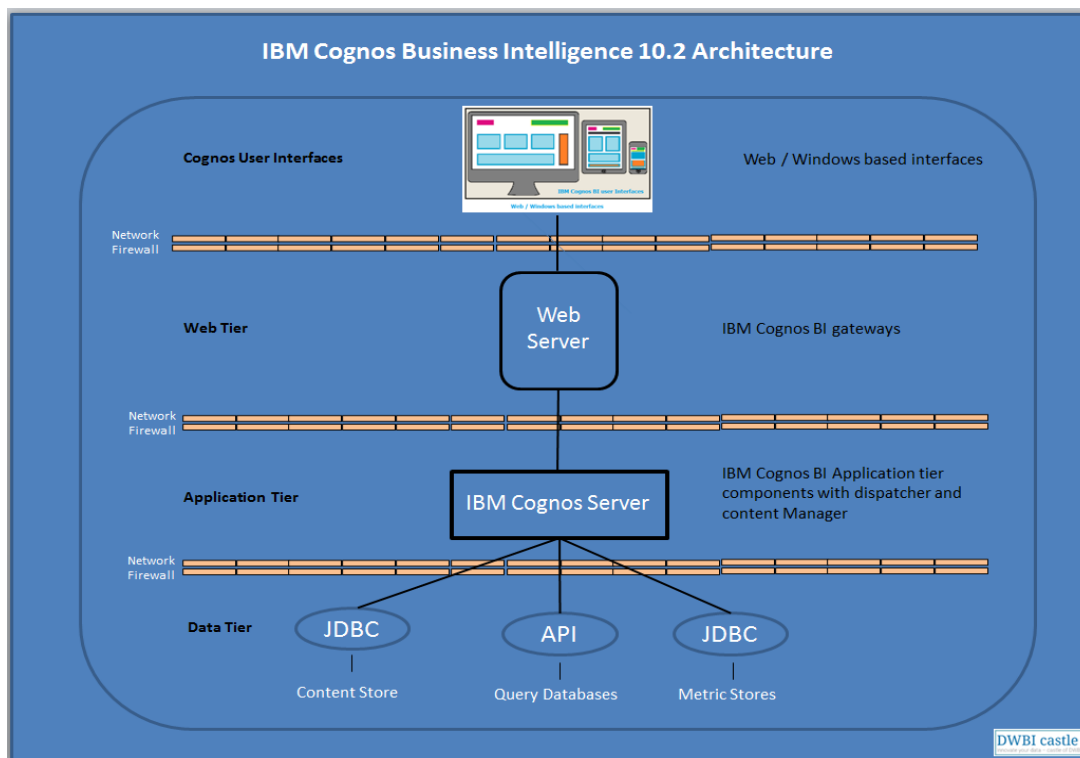
This interactive data query offers data for selected indicators from the medium variant of World Population Prospects 2019. A set of Excel files containing all available indicators and other projection variants (see Definition of Projection Variants for further details), including probabilistic results, is available from the Download Center. For advanced users who need to use these data in a database form or statistical software, we recommend to use the CSV format for bulk download.

On 28 August 2019 a minor technical correction was made to the population projected after 2050 for selected countries and regions, and to the population interpolated by single year and single age for both sexes, see release note for further details. Interactive Data, Excel and CSV files have been updated accordingly.

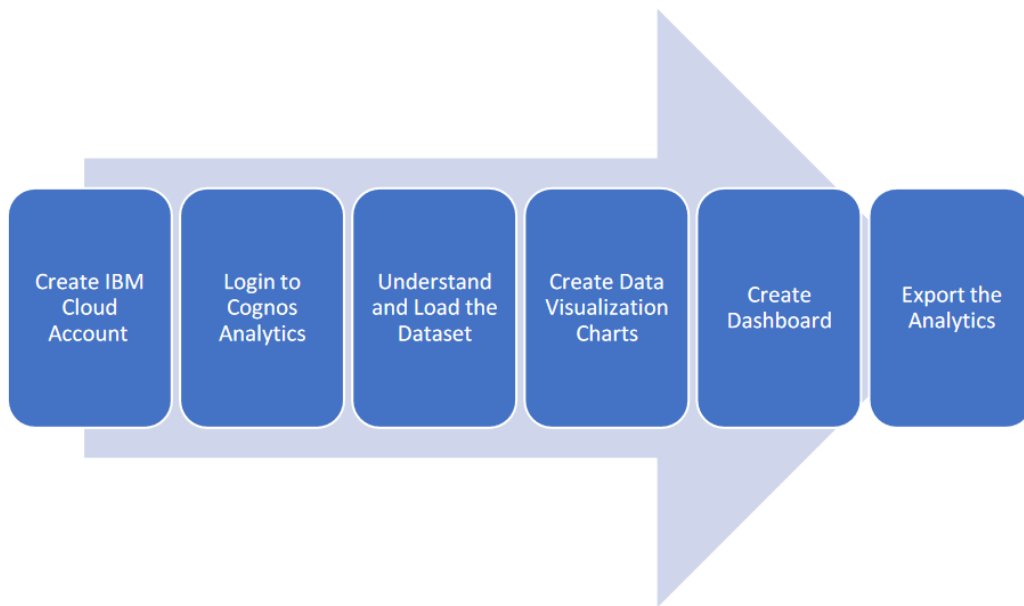
2. THEORETICAL ANALYSIS

2.1 BLOCK DIAGRAM

IBM Cognos Analytics Architecture (High Level)

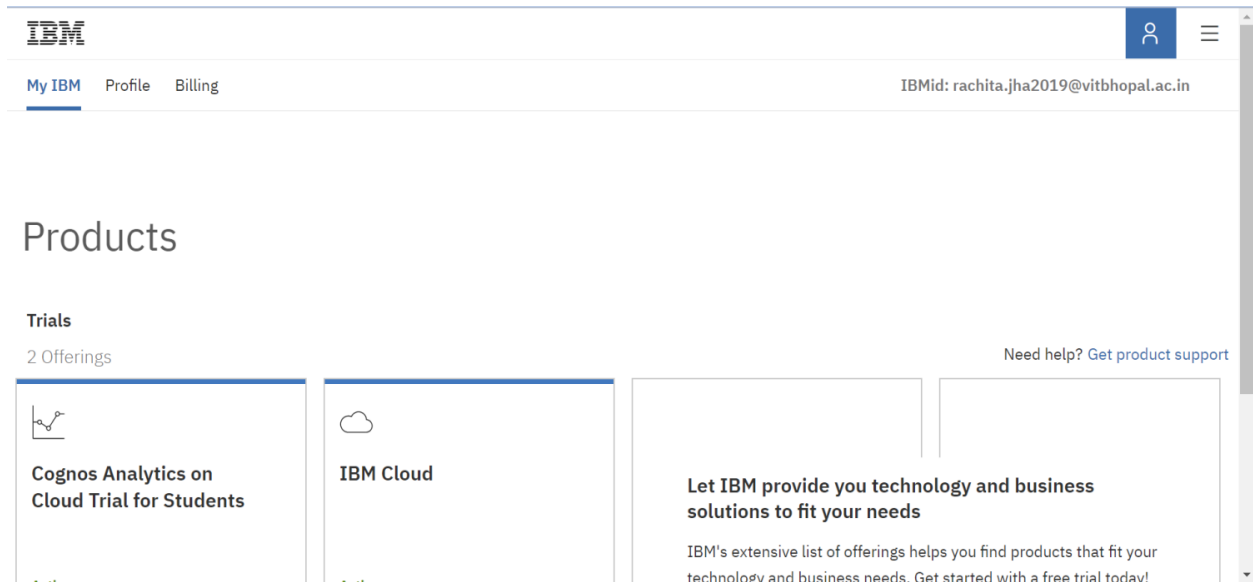


3. FLOWCHART

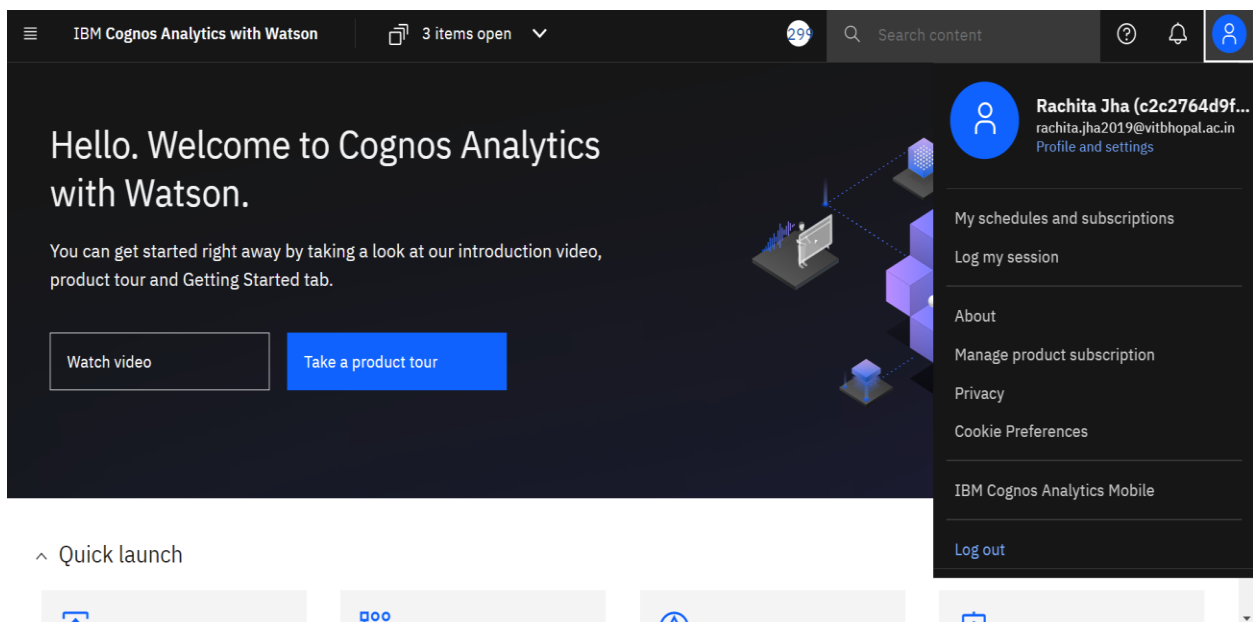


4. PROCESS

4.1 IBM Cloud Creation



4.2 IBM Cognos Analytics



4.3 Working with the dataset

4.3.1 Understand the dataset

WPP2019_TotalPopulationBySex - Microsoft Excel (Product Activation Failed)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	LocID	Location	VarID	Variant	Time	MidPeriod	PopMale	PopFemale	PopTotal	PopDensity									
2	4	Afghanistan	2	Medium	1950	1950.5	4099.243	3652.874	7752.117	11.874									
3	4	Afghanistan	2	Medium	1951	1951.5	4134.756	3705.395	7840.151	12.009									
4	4	Afghanistan	2	Medium	1952	1952.5	4174.45	3761.546	7935.996	12.156									
5	4	Afghanistan	2	Medium	1953	1953.5	4218.336	3821.348	8039.684	12.315									
6	4	Afghanistan	2	Medium	1954	1954.5	4266.484	3884.832	8151.316	12.486									
7	4	Afghanistan	2	Medium	1955	1955.5	4318.945	3952.047	8270.992	12.669									
8	4	Afghanistan	2	Medium	1956	1956.5	4375.8	4023.073	8398.873	12.865									
9	4	Afghanistan	2	Medium	1957	1957.5	4437.157	4098	8535.157	13.073									
10	4	Afghanistan	2	Medium	1958	1958.5	4503.156	4176.941	8680.097	13.295									
11	4	Afghanistan	2	Medium	1959	1959.5	4573.914	4260.033	8833.947	13.531									
12	4	Afghanistan	2	Medium	1960	1960.5	4649.573	4347.394	8996.967	13.781									
13	4	Afghanistan	2	Medium	1961	1961.5	4730.25	4439.156	9169.406	14.045									
14	4	Afghanistan	2	Medium	1962	1962.5	4816.05	4535.392	9351.442	14.324									
15	4	Afghanistan	2	Medium	1963	1963.5	4907.03	4636.17	9543.2	14.618									
16	4	Afghanistan	2	Medium	1964	1964.5	5003.245	4741.527	9744.772	14.926									
17	4	Afghanistan	2	Medium	1965	1965.5	5104.765	4851.553	9956.318	15.25									
18	4	Afghanistan	2	Medium	1966	1966.5	5210.122	4964.718	10174.84	15.585									
19	4	Afghanistan	2	Medium	1967	1967.5	5319.123	5080.813	10399.94	15.93									
20	4	Afghanistan	2	Medium	1968	1968.5	5434.458	5202.606	10637.06	16.293									
21	4	Afghanistan	2	Medium	1969	1969.5	5559.836	5333.936	10893.77	16.686									
22	4	Afghanistan	2	Medium	1970	1970.5	5697.024	5476.63	11173.65	17.115									
23	4	Afghanistan	2	Medium	1971	1971.5	5845.351	5630.099	11475.45	17.577									
24	4	Afghanistan	2	Medium	1972	1972.5	6000.805	5790.227	11791.03	18.061									

4.3.2 Loading the dataset

IBM Cognos Analytics with Watson 3 items open 29° Search content

Quick launch

WPP2019_TotalPopulationBySex.csv was uploaded successfully. [Hide Details](#)

Upload data

Upload or drag and drop spreadsheets, csv files, and other data s...

Prepare data

Use data modules to clean and connect data from multiple resourc...

Exploration

Quickly find unbiased answers by identifying trends in your data wit...

Present data

Create sophisticated, multi-page, multi-query dashboards, reports, o...

Get started **Recent**

1 item selected | Cancel

4.3.3 Prepare the datasets

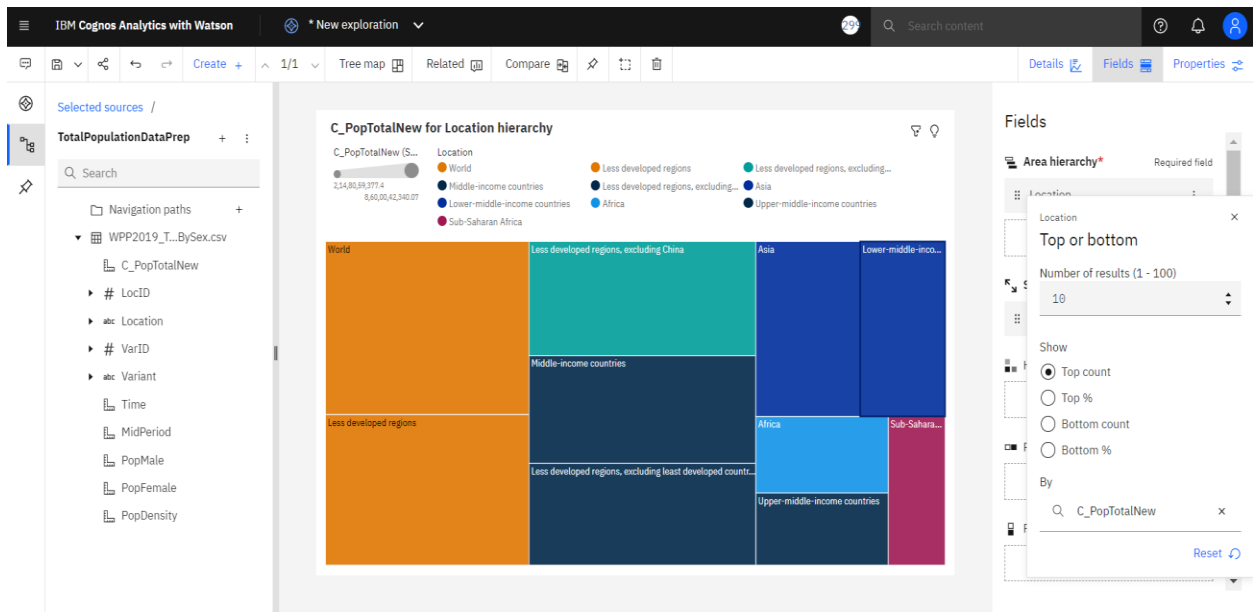
The screenshot shows the IBM Cognos Analytics interface. On the left, the 'Data module' pane displays a search bar and a list of data sources. The 'WPP2019_T...ySex.csv' file is selected, showing a hierarchy of fields: # Row Id, # LocID, abc Location, # VarID, abc Variant, Time, and MidPeriod. The main area shows a table with the following data:

Row Id	LocID	Location	VarID	Variant
1	4	Afghanistan	2	Medium
2	4	Afghanistan	2	Medium
3	4	Afghanistan	2	Medium
4	4	Afghanistan	2	Medium
5	4	Afghanistan	2	Medium
6	4	Afghanistan	2	Medium
7	4	Afghanistan	2	Medium
8	4	Afghanistan	2	Medium

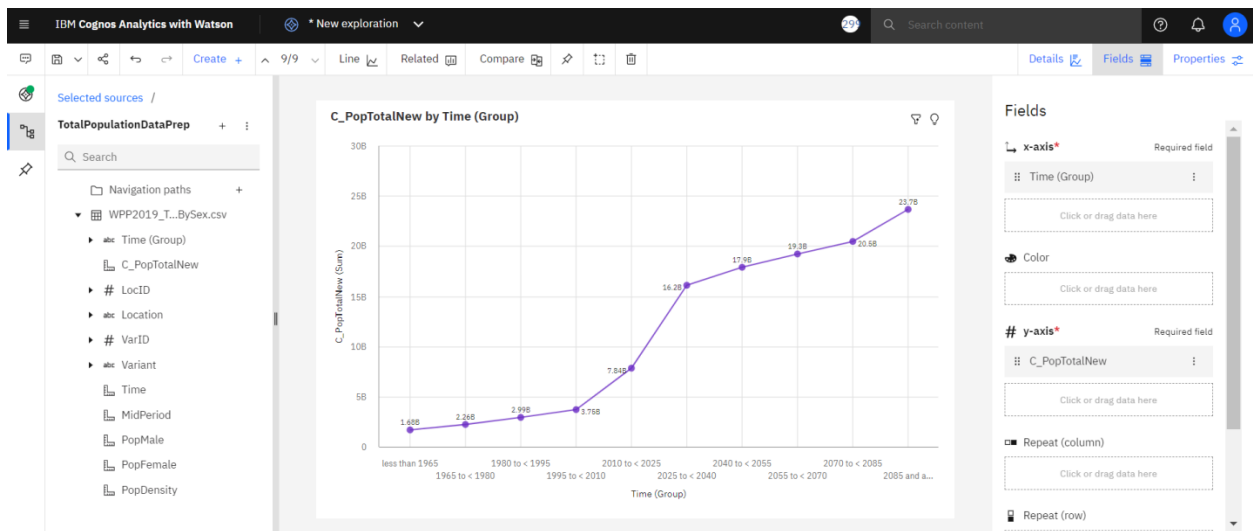
5. RESULT

Data Visualization Chart

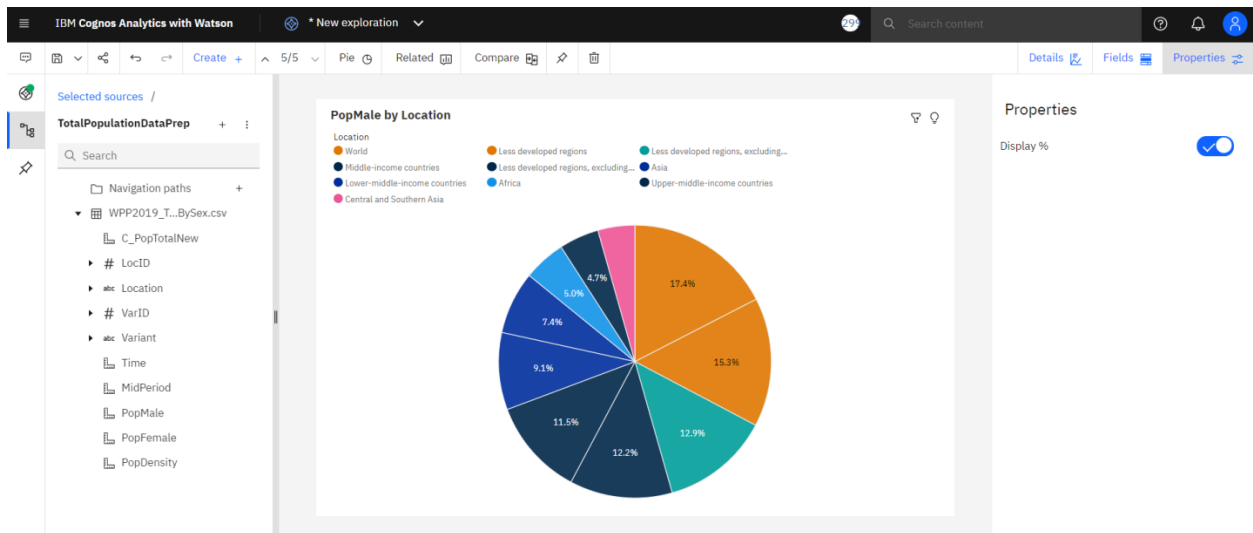
5.1 Top10 Pop Total by Location Using Tree Map

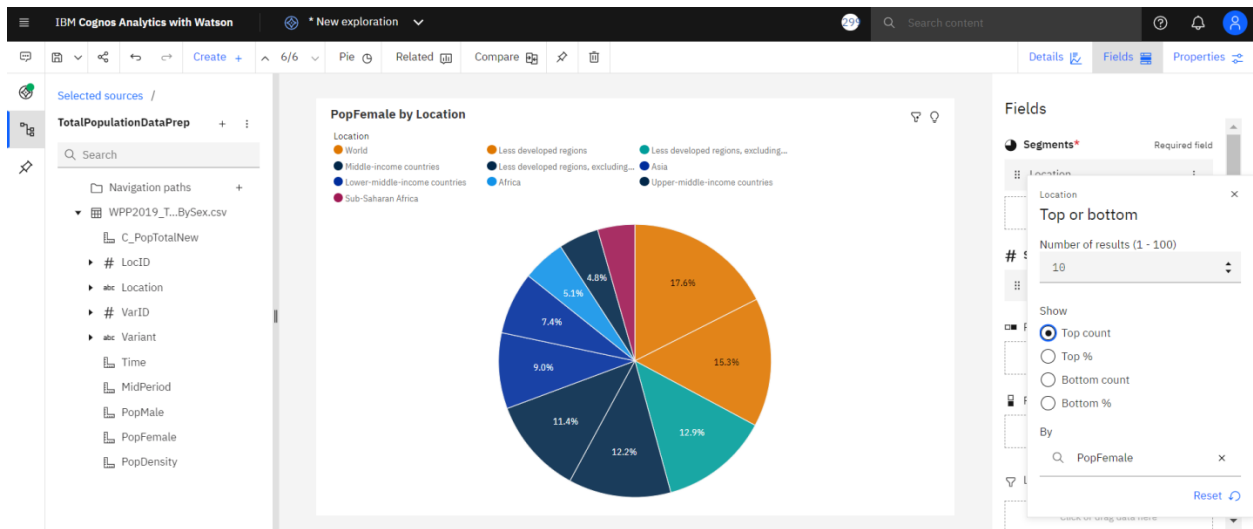


5.2 Pop Total by Time Using Line Chart

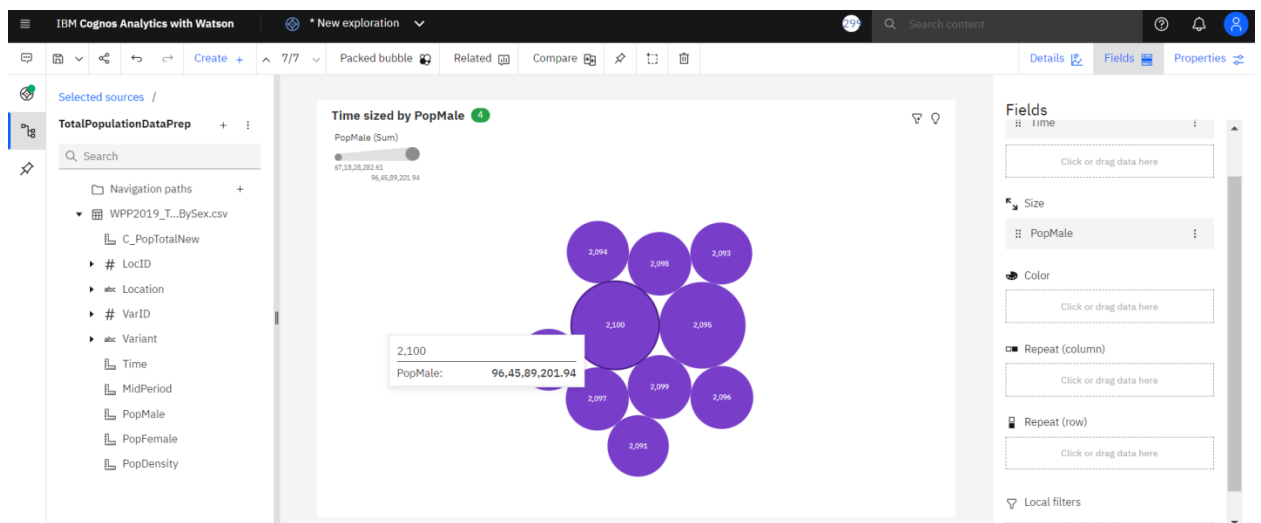


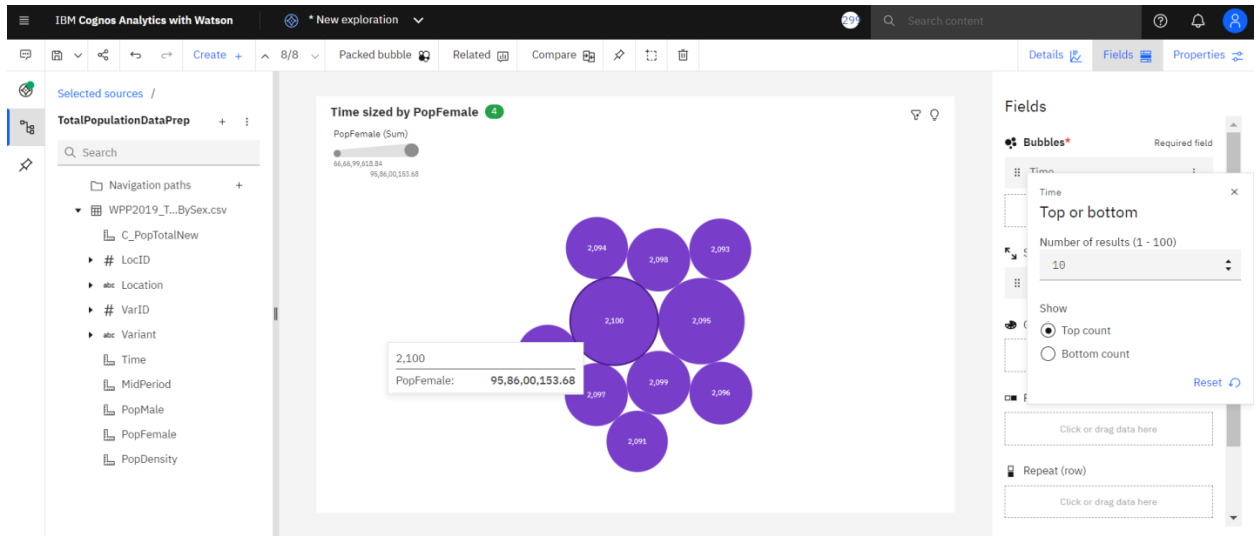
5.3 Pop Male by Location and Pop Female by Location using Pie Charts



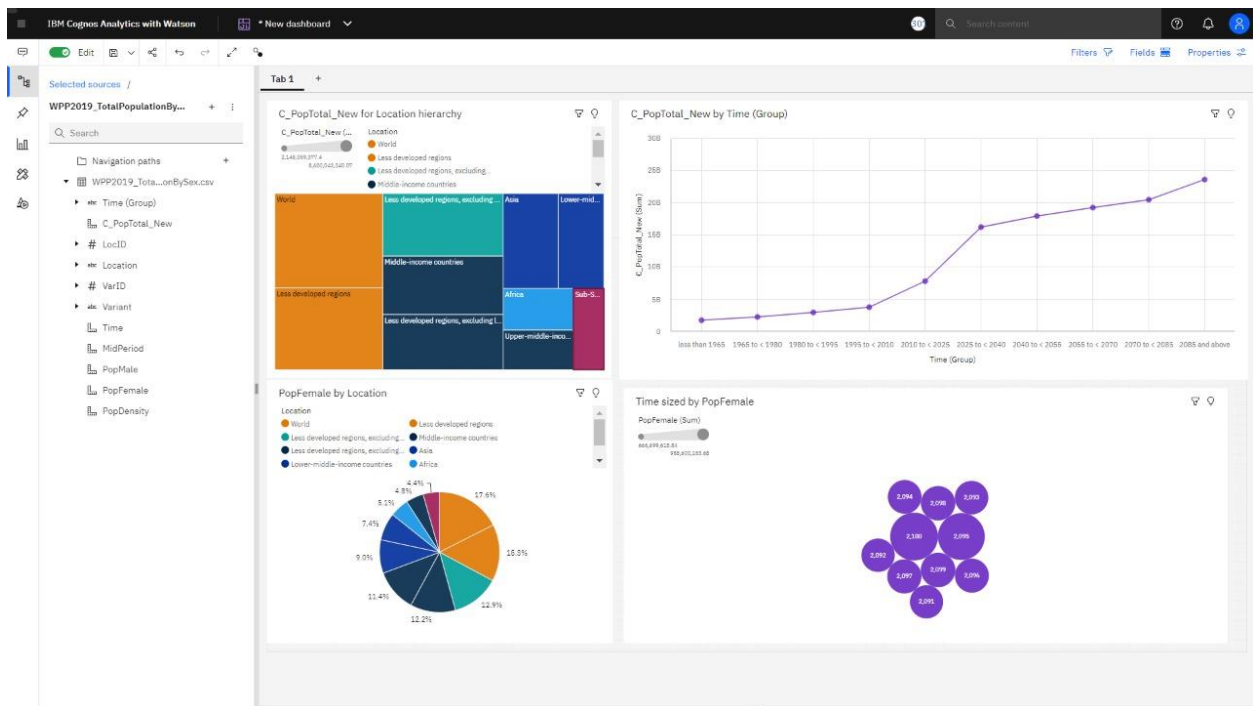


5.4 Pop Male by Time and Pop Female Using Packed Bubble Charts

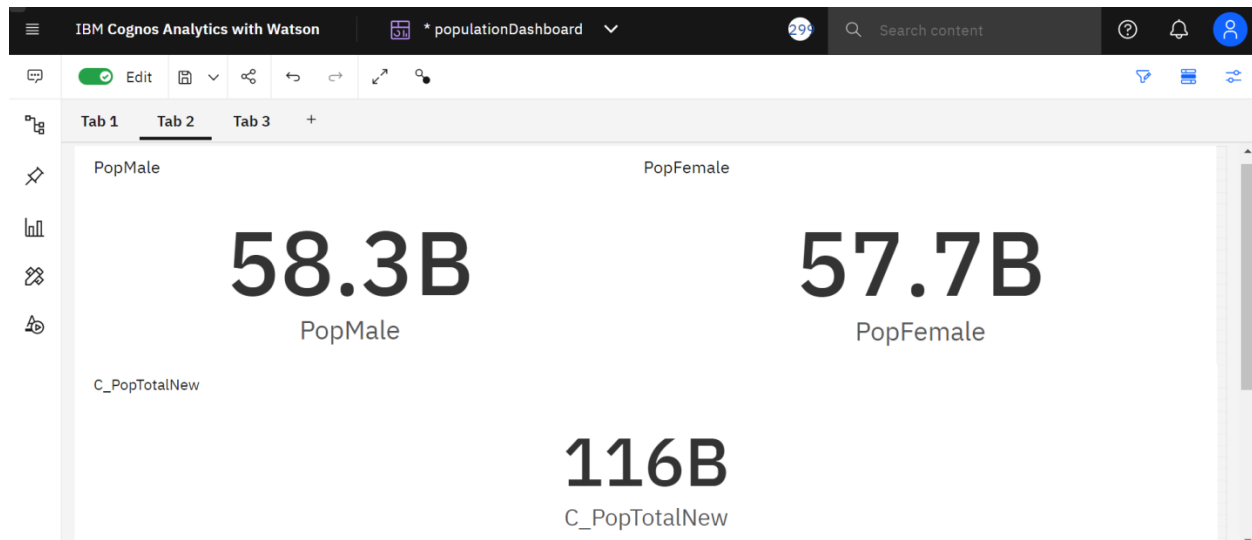




5.5 Building of Dashboard



5.6 Pop Male, Pop Female and Pop Total using Summary



6. ADVANTAGES AND DISADVANTAGES

Advantages of dashboard visualisation

1. Visualized data is processed faster- Visual content is processed much faster and easier than text. Data visualization taps into this concept of how quickly our brains can recognize images and make sense of them.
2. Data visualization dashboards support visual learners- While 90% of information submitted to the brain is visual, learning styles vary among the population. Some learn kinesthetically, while others are auditory learners. The majority of the population however, 65% to be exact, are visual learners. Data visualization and online data visualization tools help make it possible to quickly comprehend the information presented. Moving past the spreadsheet era, modern technology has transformed information from generic spreadsheets into appealing and easy-to-read charts and graphs. Online data visualization is a tool to present data visually and gain insights from that data.
3. Data visualization tools show insights, causes, and trends that may be missed in traditional reports.
4. Data visualization gives actionable items- Data visualization may help your organization see where there's room for improvement or where performance is high. Actionable items can result by identifying successes and areas for improvement.
5. Data visualization increases productivity and sales- Being able to visualize data produces real results. The time saved in creating up-to-date reports means greater efficiency companywide.

Disadvantages of dashboard visualisation

1. Dashboards are a popular tool for data visualization, but they have some distinct disadvantages.
2. Dashboards can be overwhelming, particularly if they try to pack in too much information. It can be difficult for users to know where to look and what is most important.
3. Dashboards are often static, meaning that they don't update in real-time as data changes. This can make them less useful for tracking fast-moving trends.
4. Dashboards can get difficult to customize, meaning that users may not be able to tailor them to their specific needs. For these reasons, dashboards should be used carefully and only when they offer the best way to visualize the desired data.

5. Dashboards can also be misleading if they are not used correctly. It is easy to cherry-pick data (data bias) that supports a particular argument while ignoring data that does not. This is also called confirmation bias. As a result, dashboards should be used carefully and only as one part of a broader analytical approach.

7. APPLICATIONS

1. If you manage complex campaigns, you usually end up having several analytics solutions for each platform and needing to consult them separately, which hinders the overall view. Instead, the dashboard displays data from different sources, like web analytics solutions, social media metrics. This way, makes it much easier to compare them and see how they develop.

2. A good dashboard clearly shows you a number of key metrics so you don't need to be an analytics expert to understand them. If you want to look further into a particular data set, you always have the option of employing more specific tools.

3. If you synchronize your dashboard automatically in the cloud, you can create different users so that your entire team can access the same information from anywhere. It's even possible to project the dashboard onto a screen in your office so that the whole team can see what is going on in real time.

4. Having a centralized dashboard will save you a lot of time. Instead of collecting data from different sources and making charts on your own, dashboards do all this work for you. You just need to invest some time at the beginning to set up the metrics and decide how to present them. From that point on, the reports are created automatically.

8. CONCLUSION

It was a wonderful learning experience for me while working on this project and vizualising charts of World Population Analytics using IBM Cognos. This project took me through the various phases of project development and gave me real insight into the world of data analysis. The joy of working and the thrill involved while tackling the various problems and challenges gave me a feel of the analytics' industry.

From this project, we have successfully:

1. Created multiple analysis charts / graph.
2. Used the analysed chart creation of dashboard
3. Saved and visualized the final dashboard in the IBM Cognos Analytics

It was due to this project I came to know how data analyst is designed.

Demo Link:

https://drive.google.com/file/d/1r1x-1AaPNnAQ6WPCl5VUP9QL-8rptfr_/view?usp=sharing