**Name: Sanjana Singh**

**Registration No.: 19BCE10274**

**Mentor's Name: Uma Rani**

# World Population Data Analytics using IBM Cognos

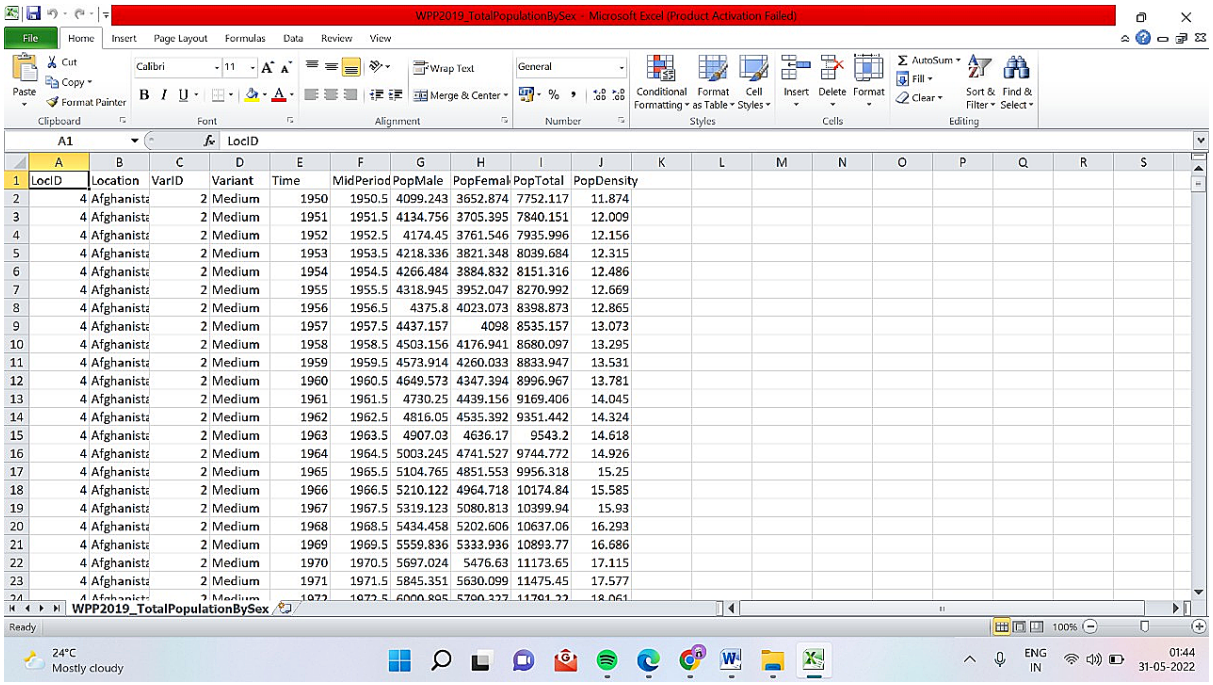
## Table of Content


| CHAPTER NO. | TITLE | PAGE NO. |
|---|---|---|
| 1 | About the Dataset | 1 |
| 2 | System Architecture | 2 |
| 3 | Flowchart: Steps to create visualiztion with IBM cognos | 3 |
| 4 | Project Fow | 3-13 |
| 5 | Advantages and Disadvantages | 14 |
| 6 | CONCLUSION | 14 |


- **ABOUT THE DATASET**

  A description of the empirical data used and the methods applied in revising past estimates of population and components of demographic change (fertility, child, adult and overall mortality, international migration) is available here for each country or area for the period 1950-2020. For the countries with less than 90,000 inhabitants in 2019, only the data sources for total population are made available.

  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. Interactive Data, Excel and CSV files have been updated accordingly.



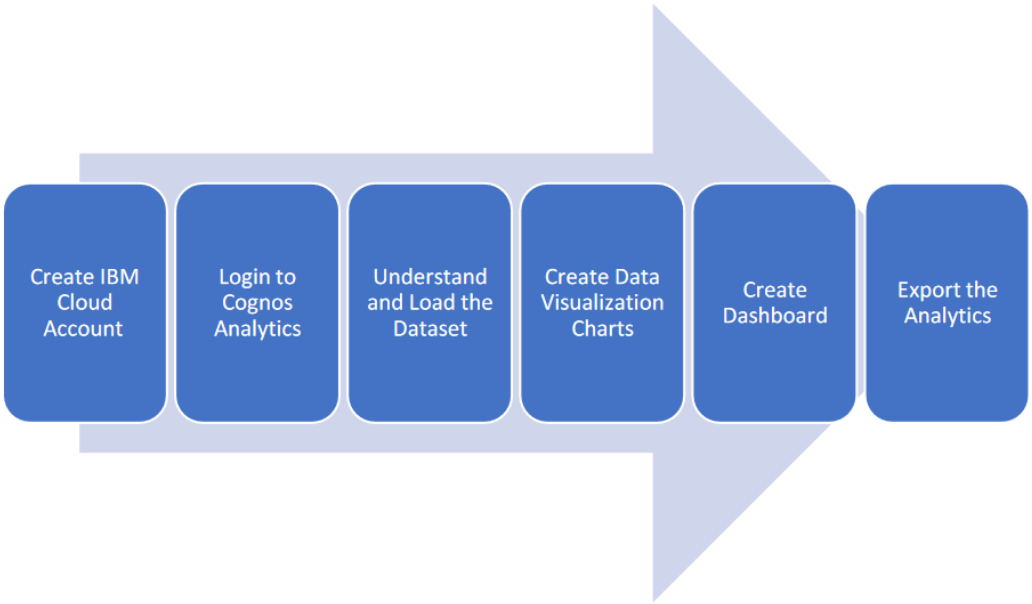
| LocID | Location | VarID | Variant | Time | MidPeriod | PopMale | PopFemale | PopTotal | PopDensity |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Afghanista | 2 | Medium | 1950 | 1950.5 | 4099.243 | 3652.874 | 7752.117 | 11.874 |
| 4 | Afghanista | 2 | Medium | 1951 | 1951.5 | 4134.756 | 3705.395 | 7840.151 | 12.009 |
| 4 | Afghanista | 2 | Medium | 1952 | 1952.5 | 4174.45 | 3761.546 | 7935.996 | 12.156 |
| 4 | Afghanista | 2 | Medium | 1953 | 1953.5 | 4218.336 | 3821.348 | 8039.684 | 12.315 |
| 4 | Afghanista | 2 | Medium | 1954 | 1954.5 | 4266.484 | 3884.832 | 8151.316 | 12.486 |
| 4 | Afghanista | 2 | Medium | 1955 | 1955.5 | 4318.945 | 3952.047 | 8270.992 | 12.669 |
| 4 | Afghanista | 2 | Medium | 1956 | 1956.5 | 4375.8 | 4023.073 | 8398.873 | 12.865 |
| 4 | Afghanista | 2 | Medium | 1957 | 1957.5 | 4437.157 | 4098 | 8535.157 | 13.073 |
| 4 | Afghanista | 2 | Medium | 1958 | 1958.5 | 4503.156 | 4176.941 | 8680.097 | 13.295 |
| 4 | Afghanista | 2 | Medium | 1959 | 1959.5 | 4573.914 | 4260.033 | 8833.947 | 13.531 |
| 4 | Afghanista | 2 | Medium | 1960 | 1960.5 | 4649.573 | 4347.394 | 8996.967 | 13.781 |
| 4 | Afghanista | 2 | Medium | 1961 | 1961.5 | 4730.25 | 4439.156 | 9169.406 | 14.045 |
| 4 | Afghanista | 2 | Medium | 1962 | 1962.5 | 4816.05 | 4535.392 | 9351.442 | 14.324 |
| 4 | Afghanista | 2 | Medium | 1963 | 1963.5 | 4907.03 | 4636.17 | 9543.2 | 14.618 |
| 4 | Afghanista | 2 | Medium | 1964 | 1964.5 | 5003.245 | 4741.527 | 9744.772 | 14.926 |
| 4 | Afghanista | 2 | Medium | 1965 | 1965.5 | 5104.765 | 4851.553 | 9956.318 | 15.25 |
| 4 | Afghanista | 2 | Medium | 1966 | 1966.5 | 5210.122 | 4964.718 | 10174.84 | 15.585 |
| 4 | Afghanista | 2 | Medium | 1967 | 1967.5 | 5319.123 | 5080.813 | 10399.94 | 15.93 |
| 4 | Afghanista | 2 | Medium | 1968 | 1968.5 | 5434.458 | 5202.606 | 10637.06 | 16.293 |
| 4 | Afghanista | 2 | Medium | 1969 | 1969.5 | 5559.836 | 5333.936 | 10893.77 | 16.686 |
| 4 | Afghanista | 2 | Medium | 1970 | 1970.5 | 5697.024 | 5476.63 | 11173.65 | 17.115 |
| 4 | Afghanista | 2 | Medium | 1971 | 1971.5 | 5845.351 | 5630.099 | 11475.45 | 17.577 |

Fig. Dataset of the project

- **System Architecture**


Fig. System architecture for IBM cognos

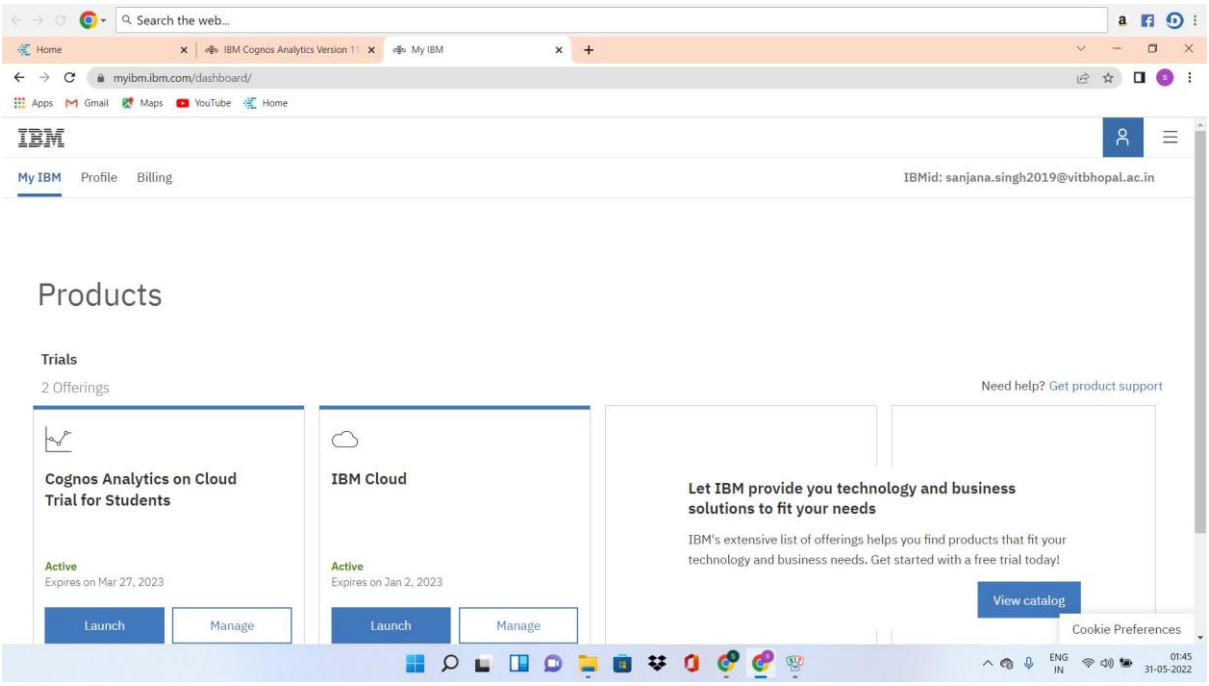
- **Steps to create visualization with IBM cognos**



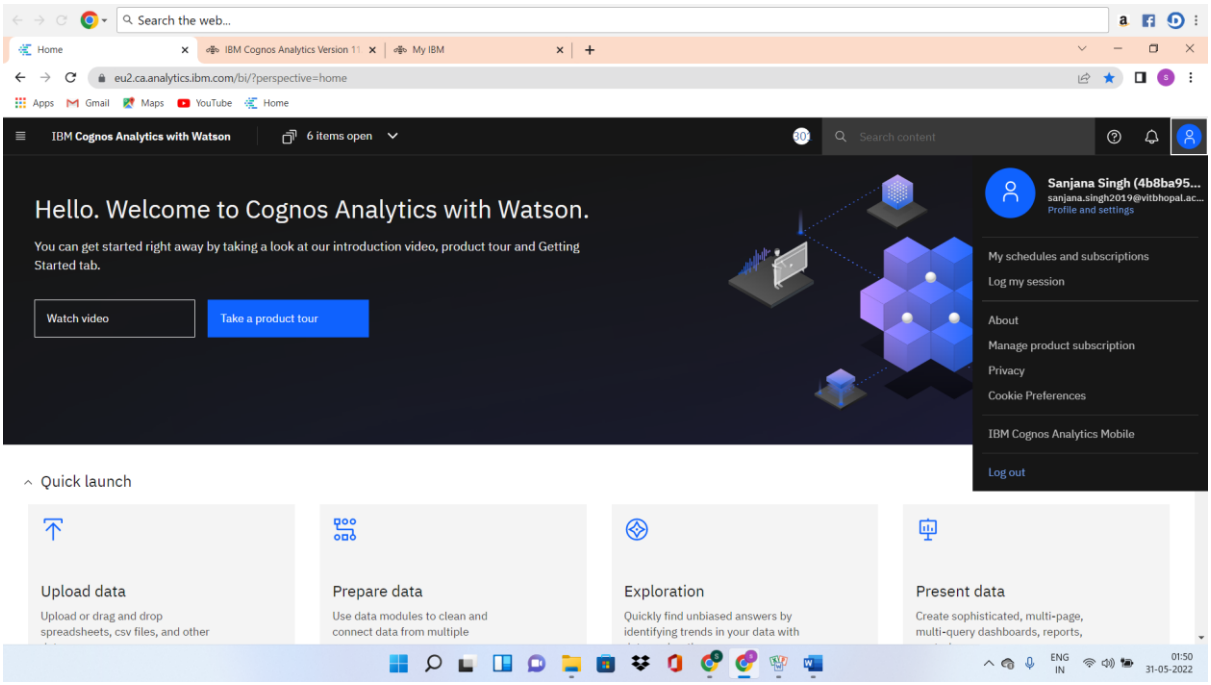

---

- **Project Flow**

## 1. IBM Cloud Creation

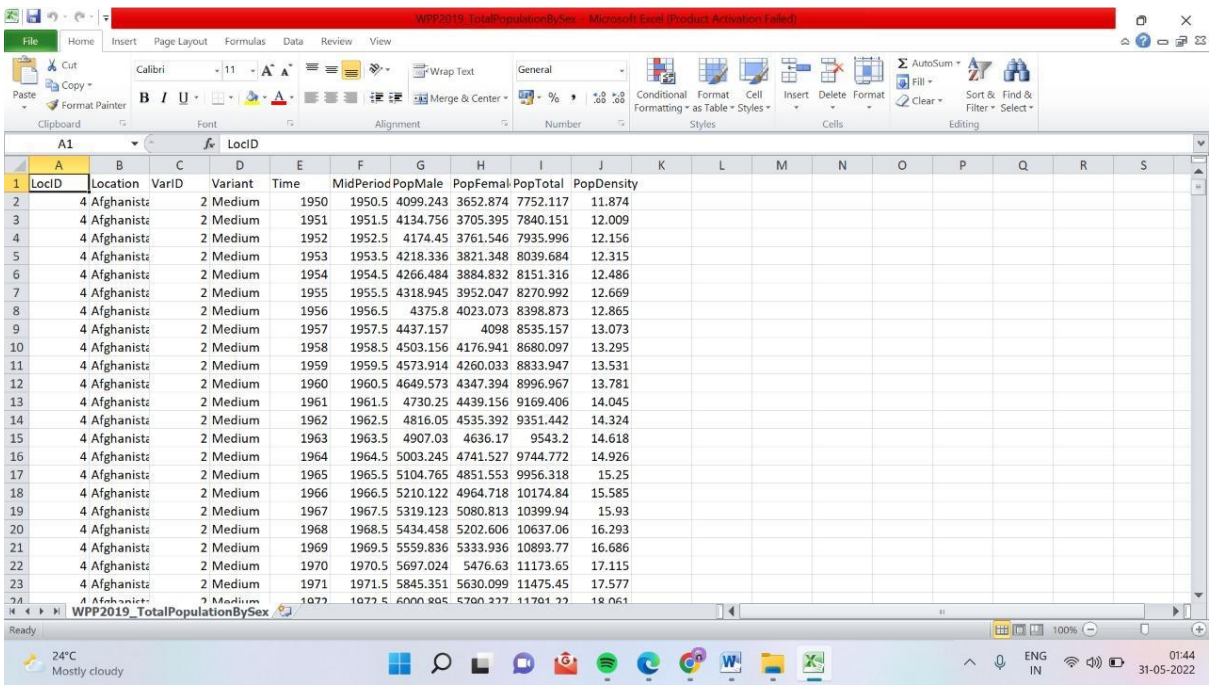



## 2. IBM Cognos Analytics



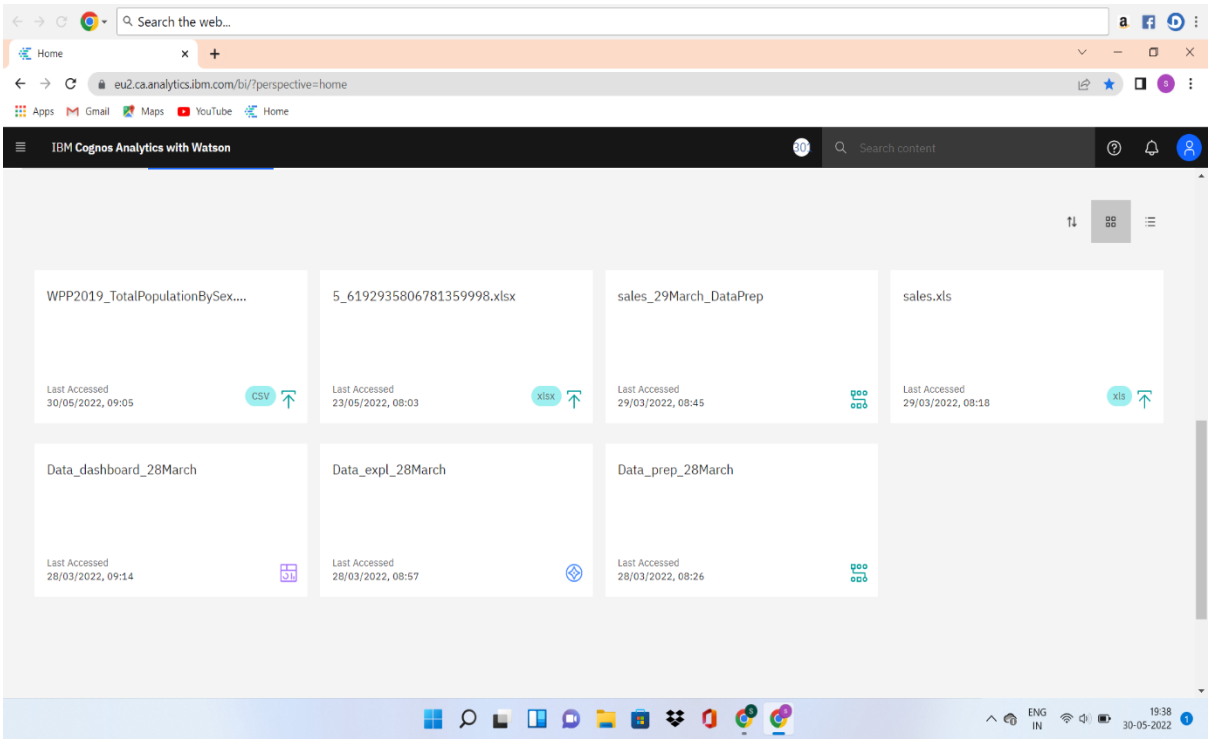

# 3. Working with the dataset

## 3.1 Understand the dataset

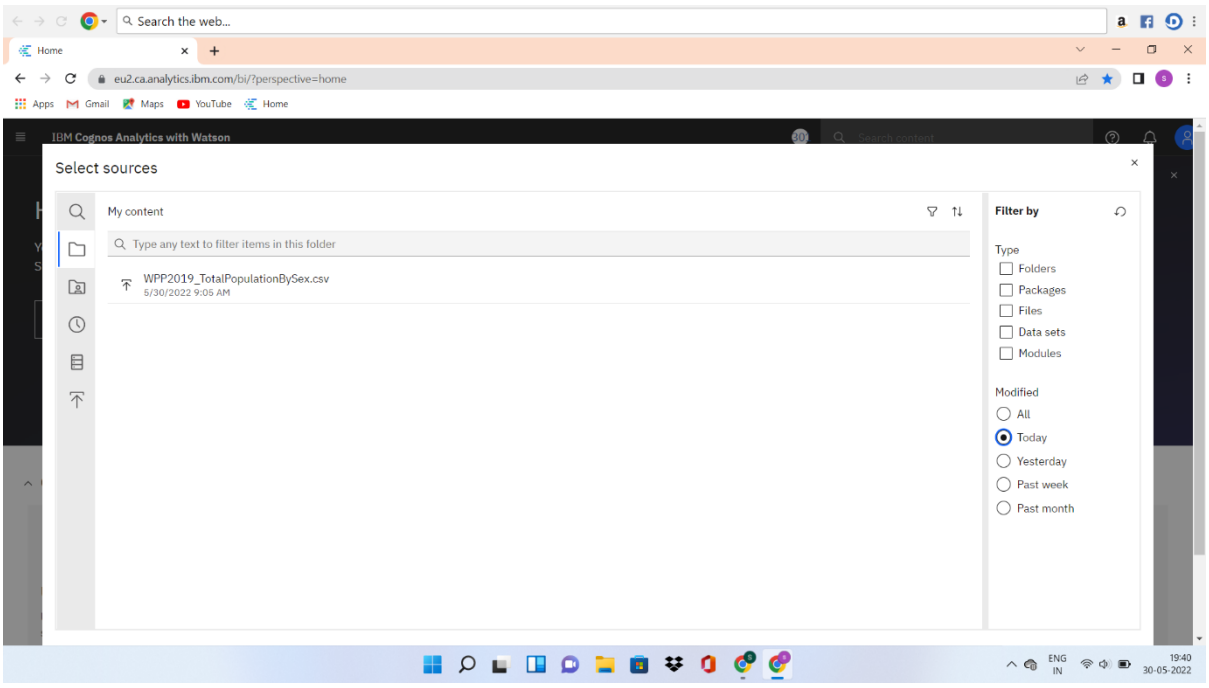


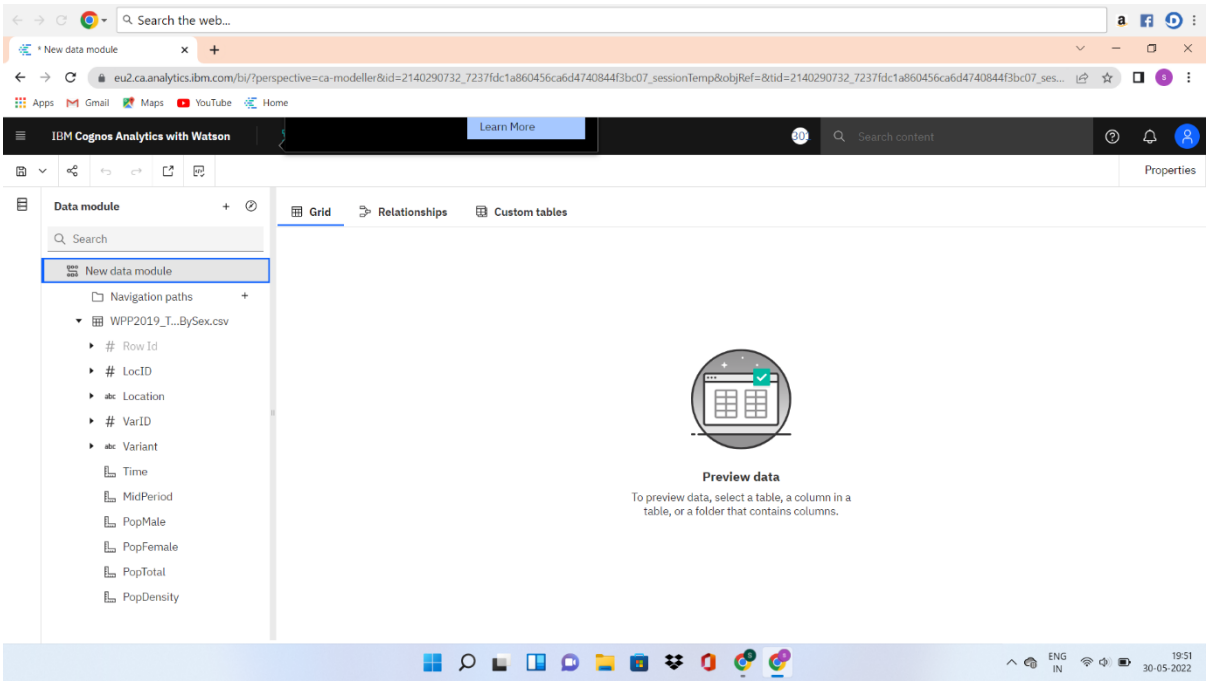

| LocID | Location | VarID | Variant | Time | MidPeriod | PopMale | PopFemal | PopTotal | PopDensity |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Afghanista | 2 | Medium | 1950 | 1950.5 | 4099.243 | 3652.874 | 7752.117 | 11.874 |
| 4 | Afghanista | 2 | Medium | 1951 | 1951.5 | 4134.756 | 3705.395 | 7840.151 | 12.009 |
| 4 | Afghanista | 2 | Medium | 1952 | 1952.5 | 4174.45 | 3761.546 | 7935.996 | 12.156 |
| 4 | Afghanista | 2 | Medium | 1953 | 1953.5 | 4218.336 | 3821.348 | 8039.684 | 12.315 |
| 4 | Afghanista | 2 | Medium | 1954 | 1954.5 | 4266.484 | 3884.832 | 8151.316 | 12.486 |
| 4 | Afghanista | 2 | Medium | 1955 | 1955.5 | 4318.945 | 3952.047 | 8270.992 | 12.669 |
| 4 | Afghanista | 2 | Medium | 1956 | 1956.5 | 4375.8 | 4023.073 | 8398.873 | 12.865 |
| 4 | Afghanista | 2 | Medium | 1957 | 1957.5 | 4437.157 | 4098 | 8535.157 | 13.073 |
| 4 | Afghanista | 2 | Medium | 1958 | 1958.5 | 4503.156 | 4176.941 | 8680.097 | 13.295 |
| 4 | Afghanista | 2 | Medium | 1959 | 1959.5 | 4573.914 | 4260.033 | 8833.947 | 13.531 |
| 4 | Afghanista | 2 | Medium | 1960 | 1960.5 | 4649.573 | 4347.394 | 8996.967 | 13.781 |
| 4 | Afghanista | 2 | Medium | 1961 | 1961.5 | 4730.25 | 4439.156 | 9169.406 | 14.045 |
| 4 | Afghanista | 2 | Medium | 1962 | 1962.5 | 4816.05 | 4535.392 | 9351.442 | 14.324 |
| 4 | Afghanista | 2 | Medium | 1963 | 1963.5 | 4907.03 | 4636.17 | 9543.2 | 14.618 |
| 4 | Afghanista | 2 | Medium | 1964 | 1964.5 | 5003.245 | 4741.527 | 9744.772 | 14.926 |
| 4 | Afghanista | 2 | Medium | 1965 | 1965.5 | 5104.765 | 4851.553 | 9956.318 | 15.25 |
| 4 | Afghanista | 2 | Medium | 1966 | 1966.5 | 5210.122 | 4964.718 | 10174.84 | 15.585 |
| 4 | Afghanista | 2 | Medium | 1967 | 1967.5 | 5319.123 | 5080.813 | 10399.94 | 15.93 |
| 4 | Afghanista | 2 | Medium | 1968 | 1968.5 | 5434.458 | 5202.606 | 10637.06 | 16.293 |
| 4 | Afghanista | 2 | Medium | 1969 | 1969.5 | 5559.836 | 5333.936 | 10893.77 | 16.686 |
| 4 | Afghanista | 2 | Medium | 1970 | 1970.5 | 5697.024 | 5476.63 | 11173.65 | 17.115 |
| 4 | Afghanista | 2 | Medium | 1971 | 1971.5 | 5845.351 | 5630.099 | 11475.45 | 17.577 |

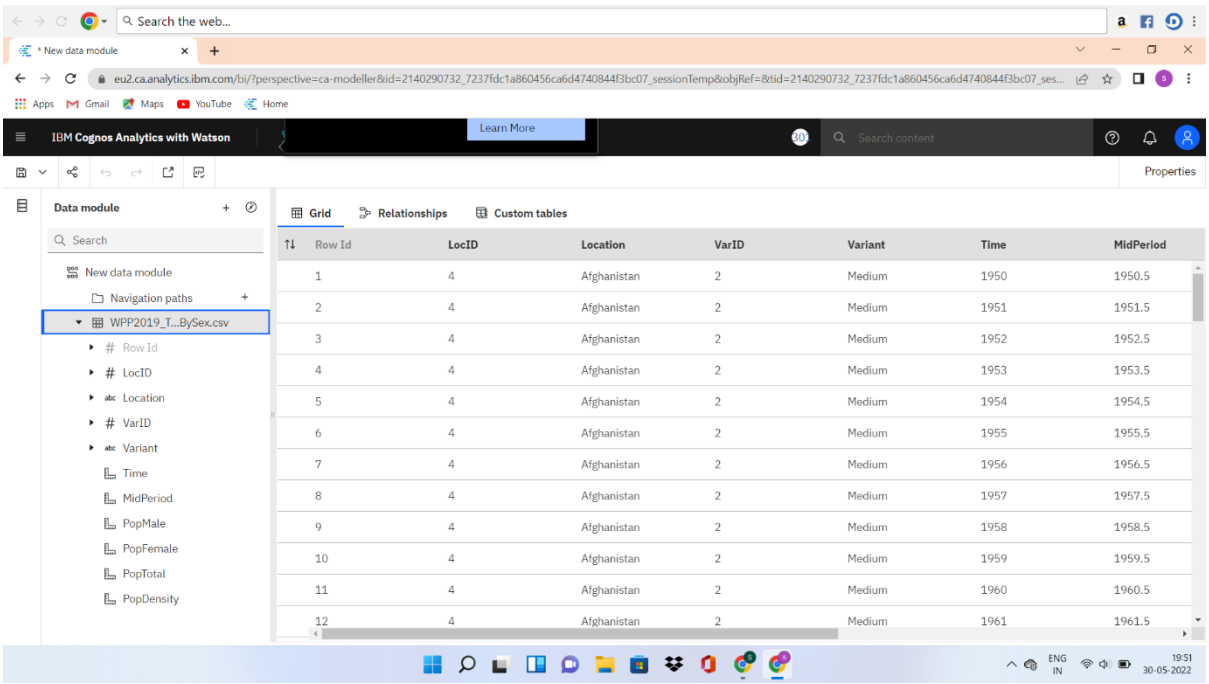
## 3.2 Loading the dataset



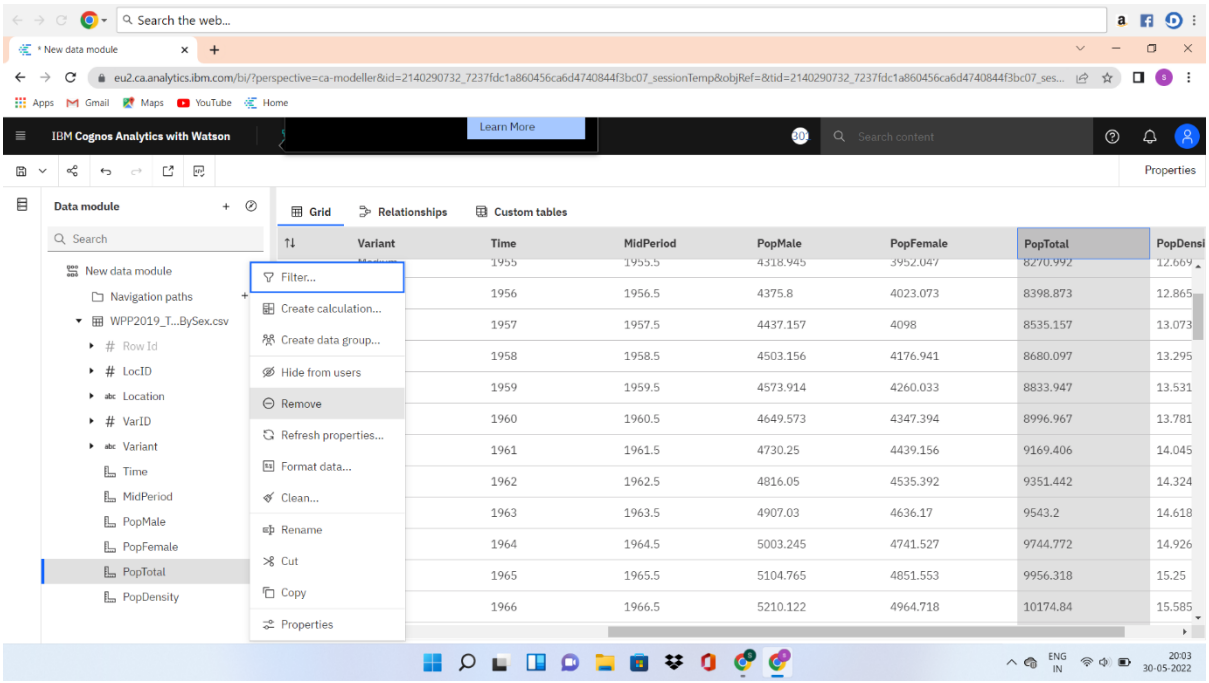

## 3.3 Prepare the datasets



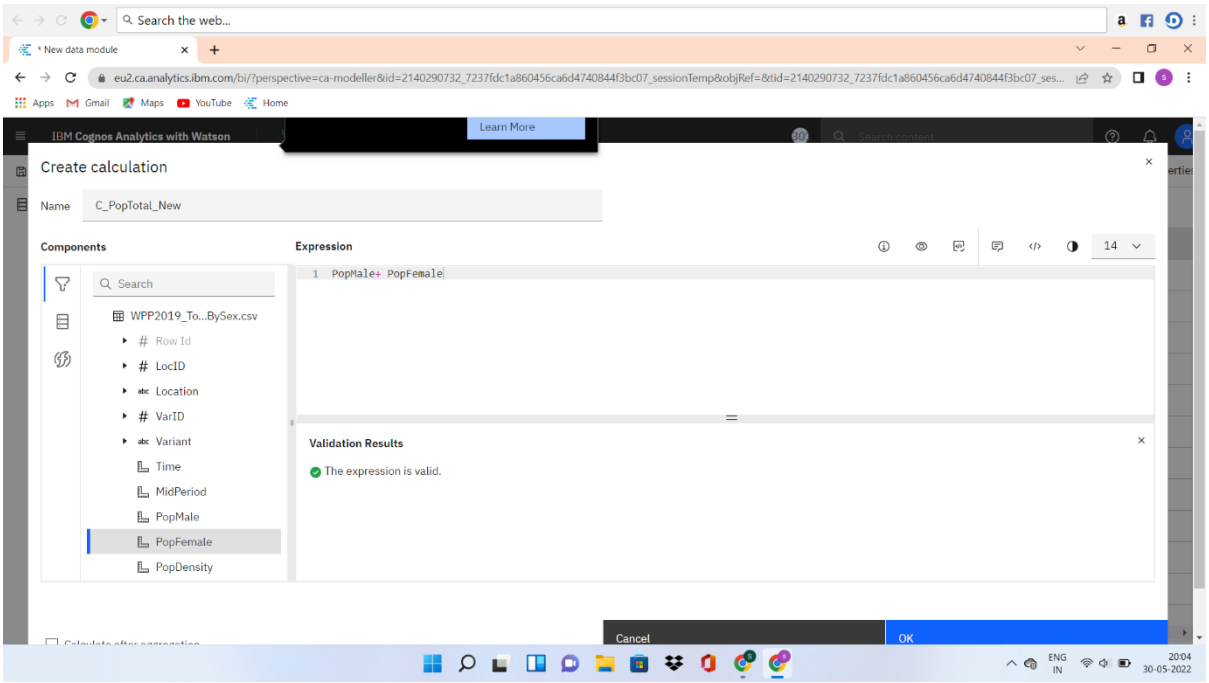


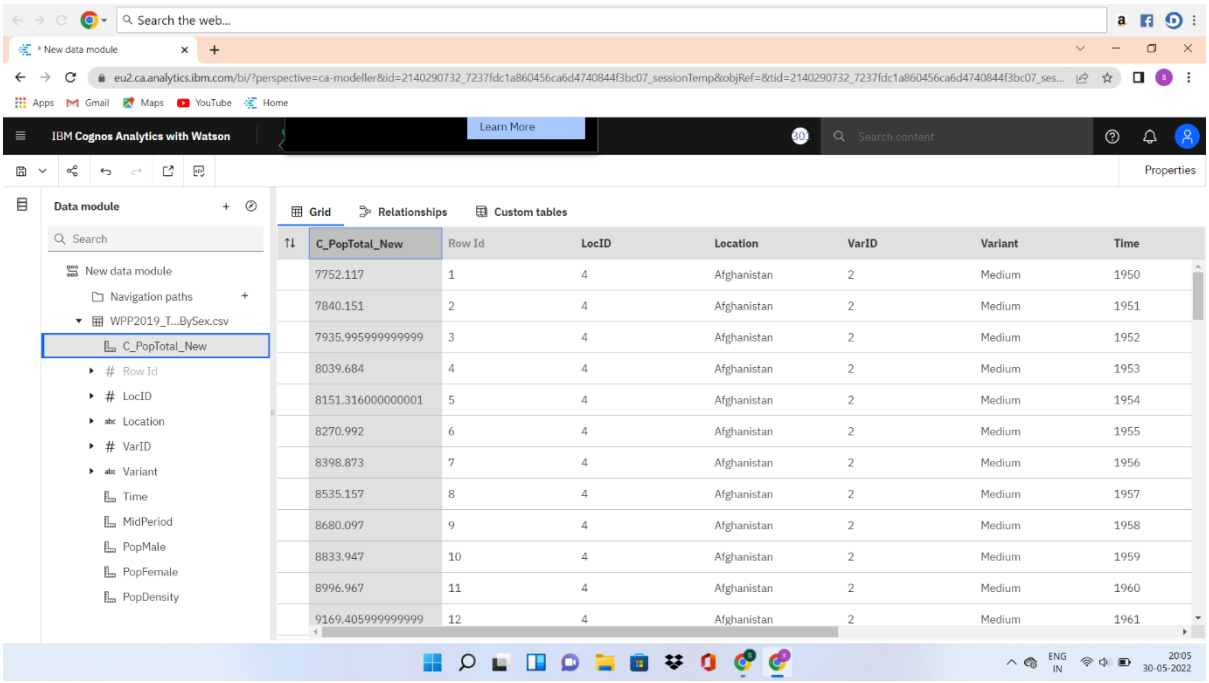

- Removing the existing PopTotal column



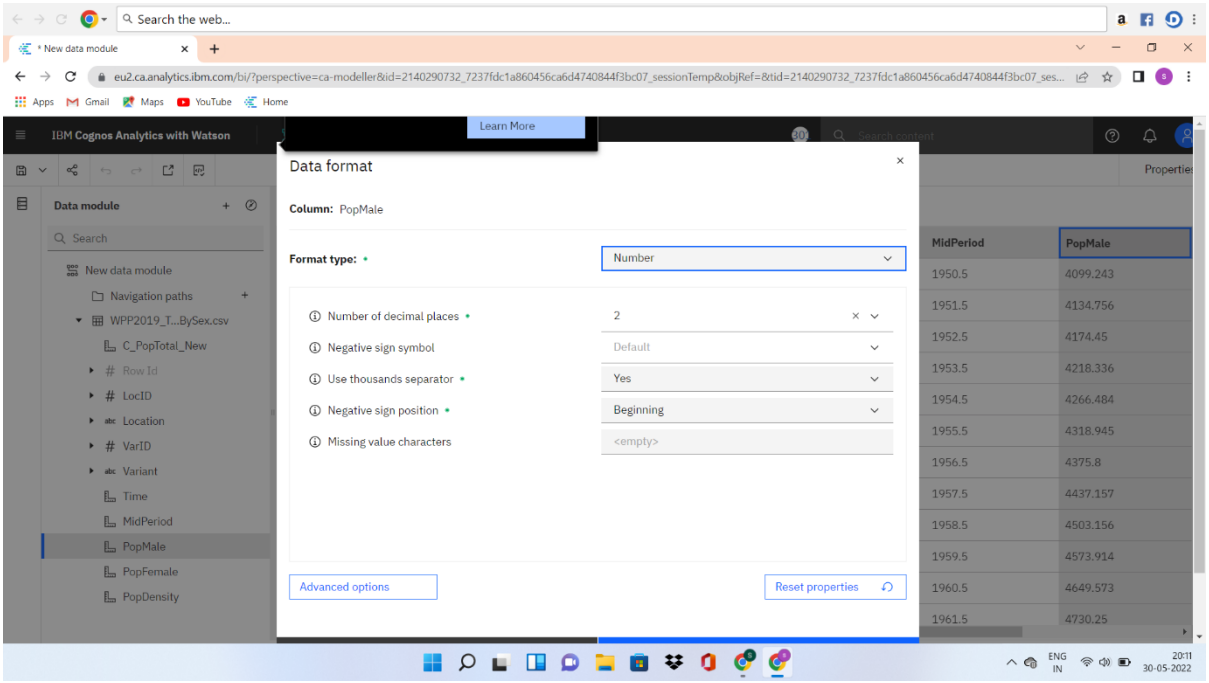

- Calculating the new PopTotal column. PopTotal = PopMale+PopFemale and validate the expression to formate the data.



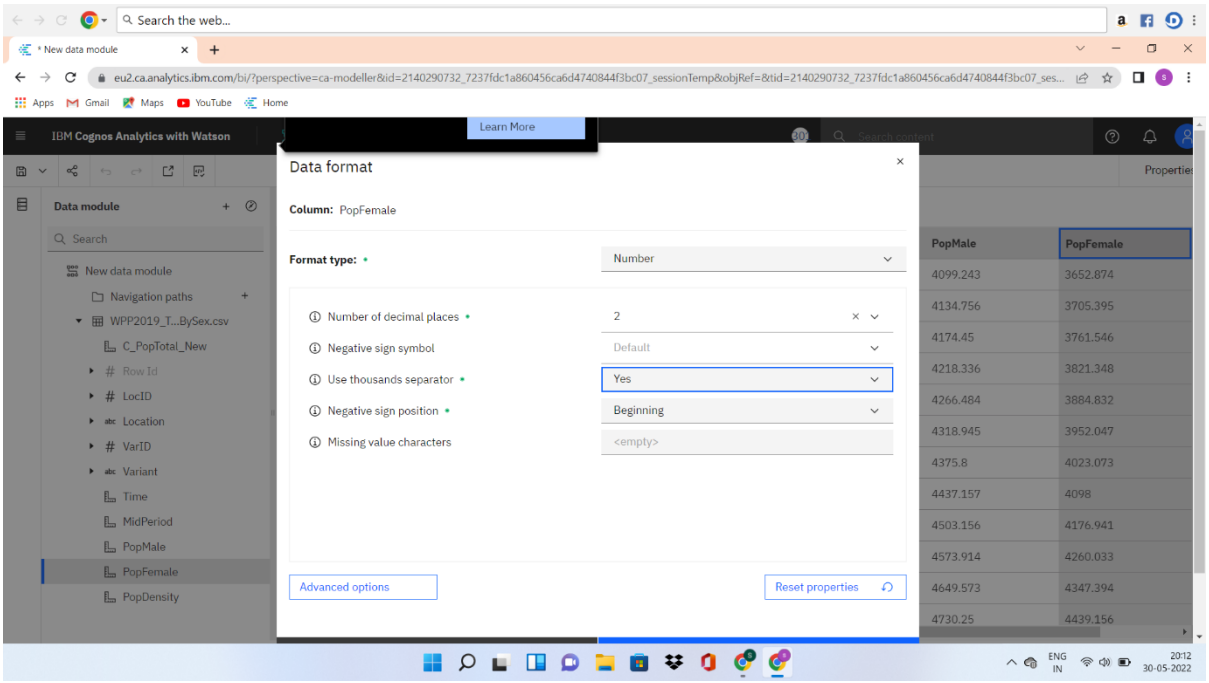

- Creation of new PopTotal column




- Formate the PopMale data type

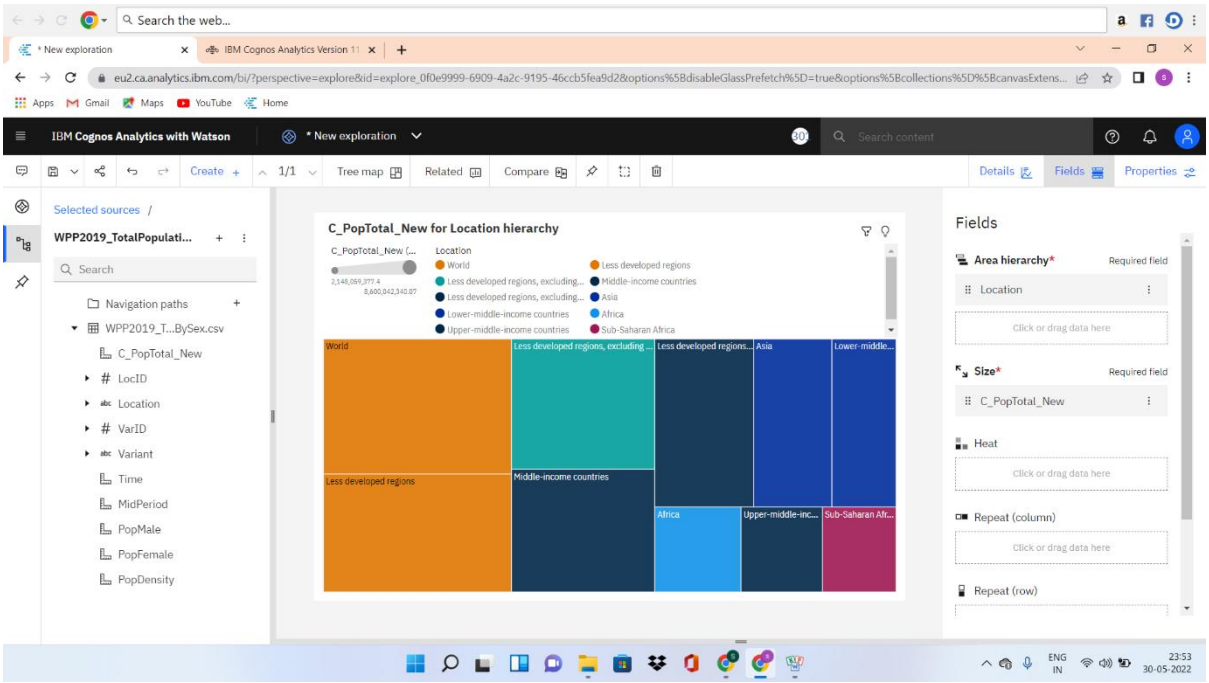



- Formate the PopFemale data type

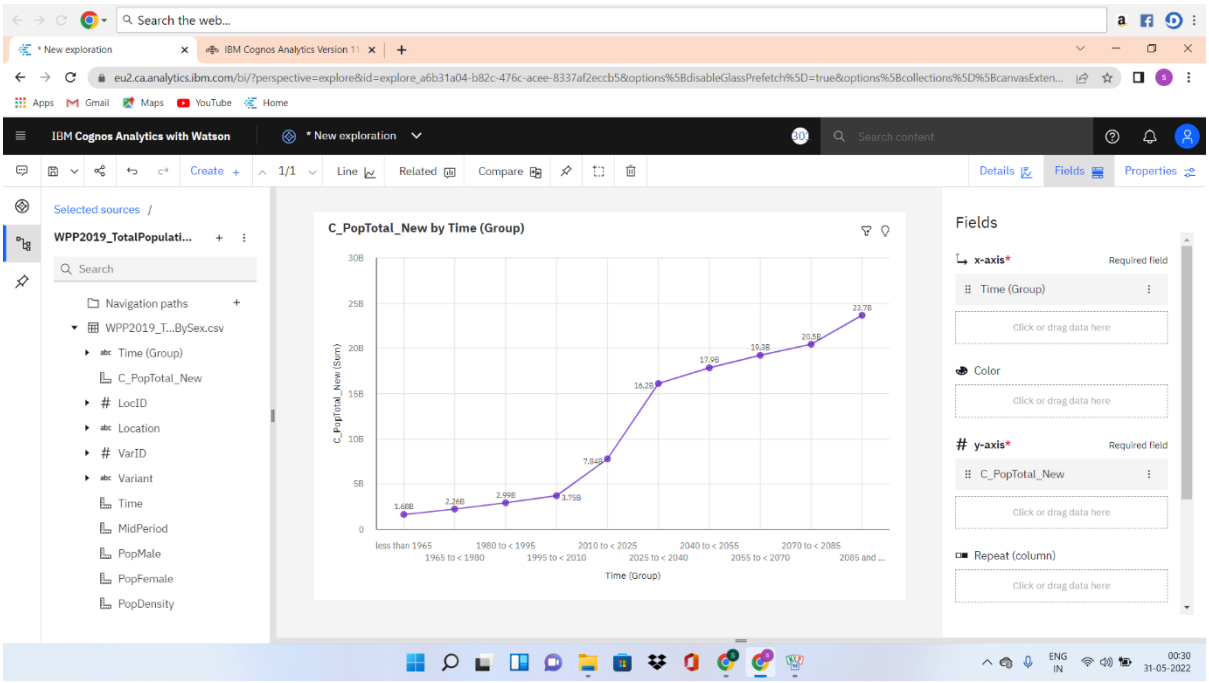



## 2. Data Visualization Chart

### 4.1 Top10 Pop Total by Location Using Tree Map

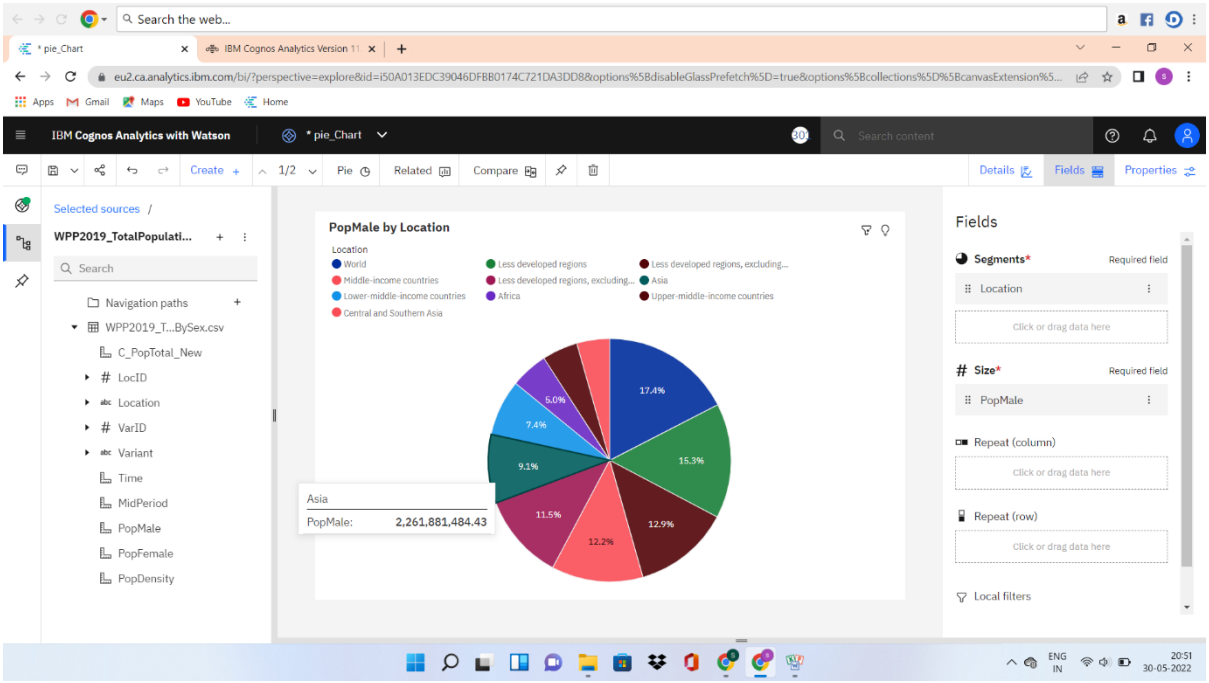



### 4.2 Pop Total by Time Using Line Chart

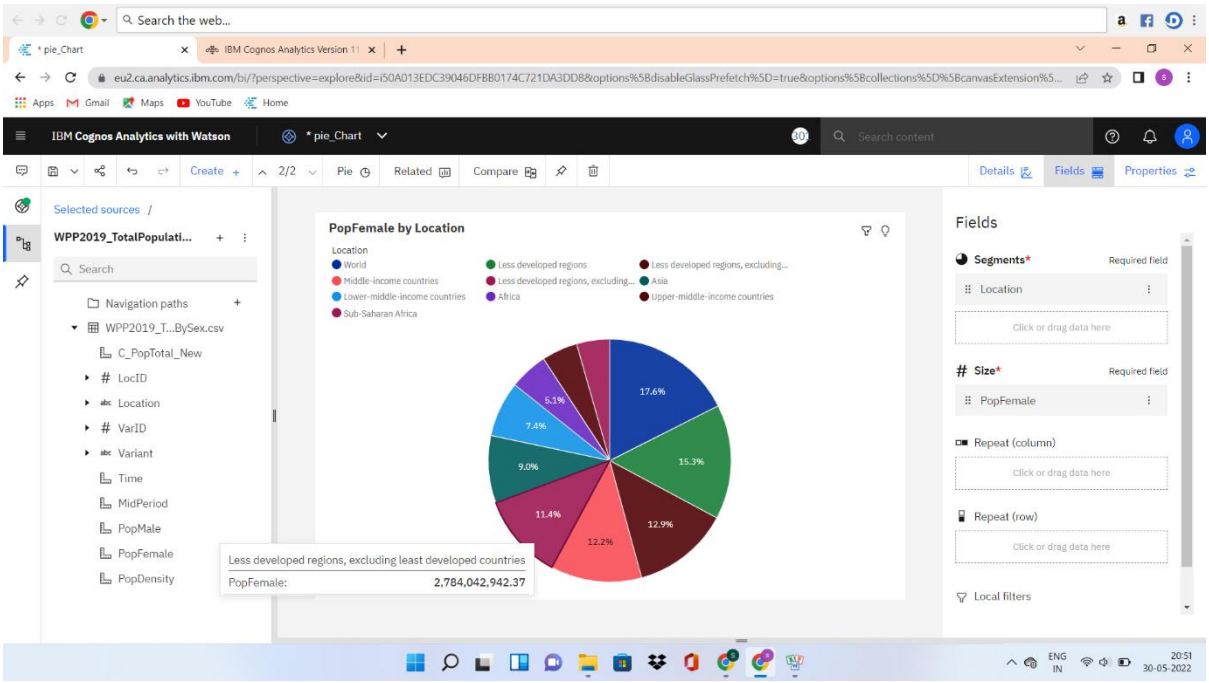



## 4.3 Pop Male by Location and Pop Female by Location using Pie Charts

- PopMale by Location

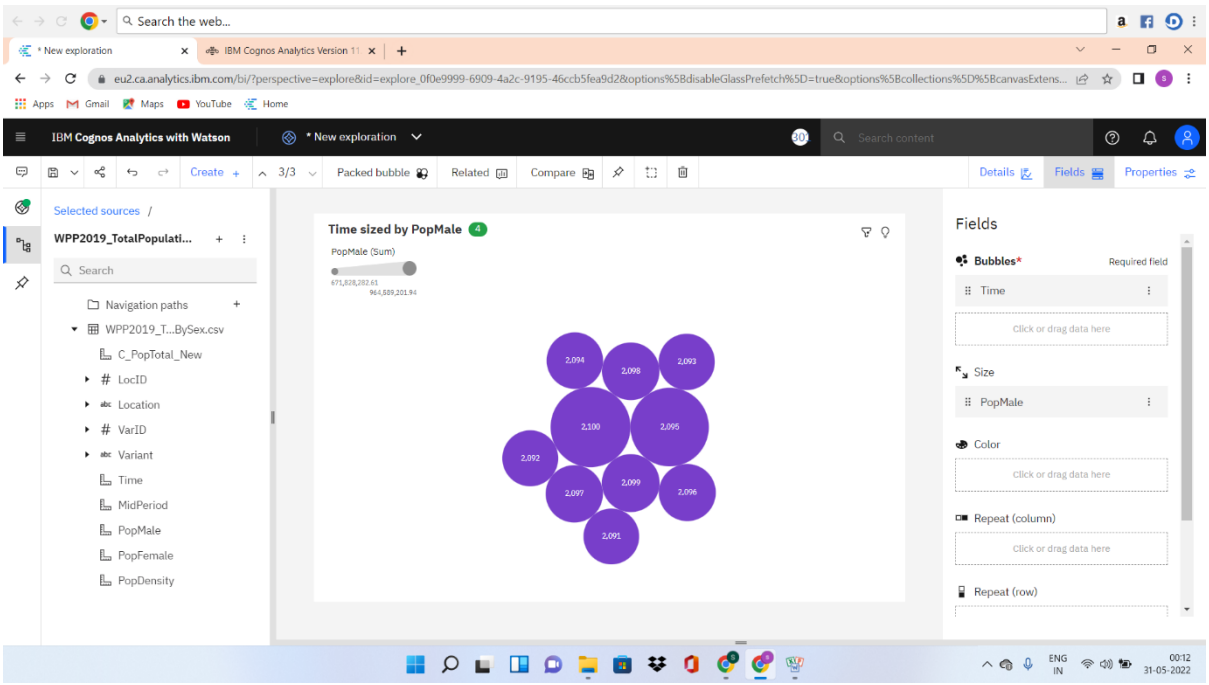



- PopFemale by Location

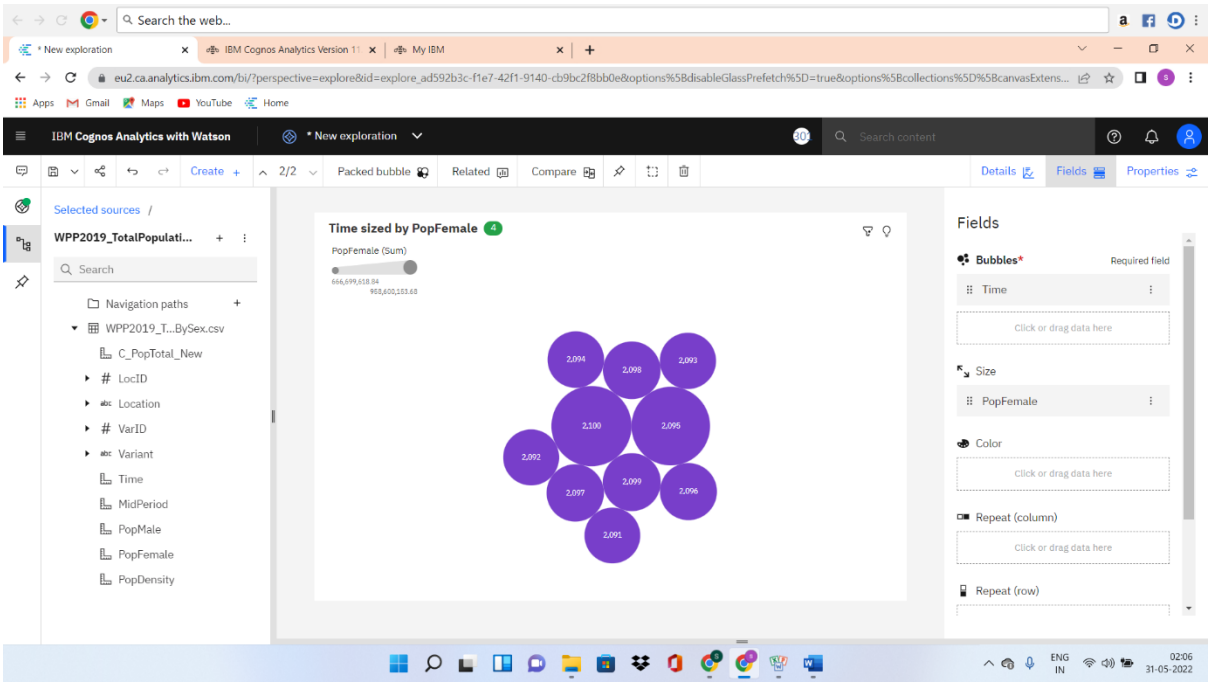



## 4.4 Pop Male by Time and Pop Female Using Packed Bubble Charts

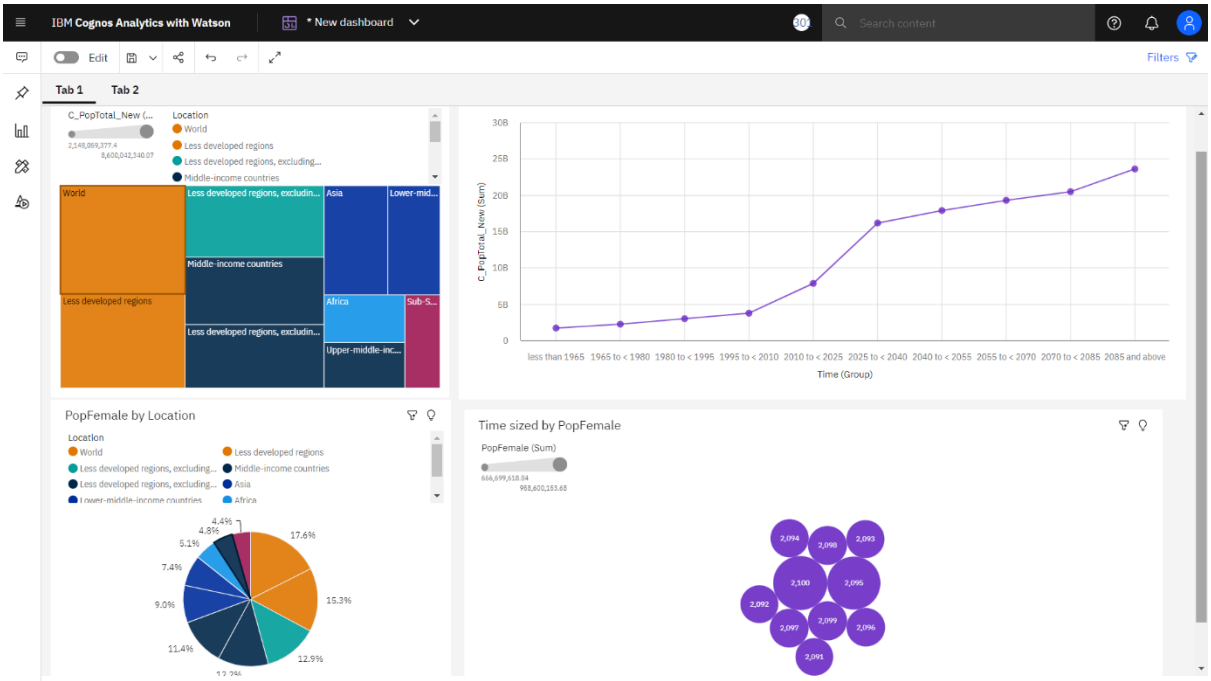
- Time sized by PopMale



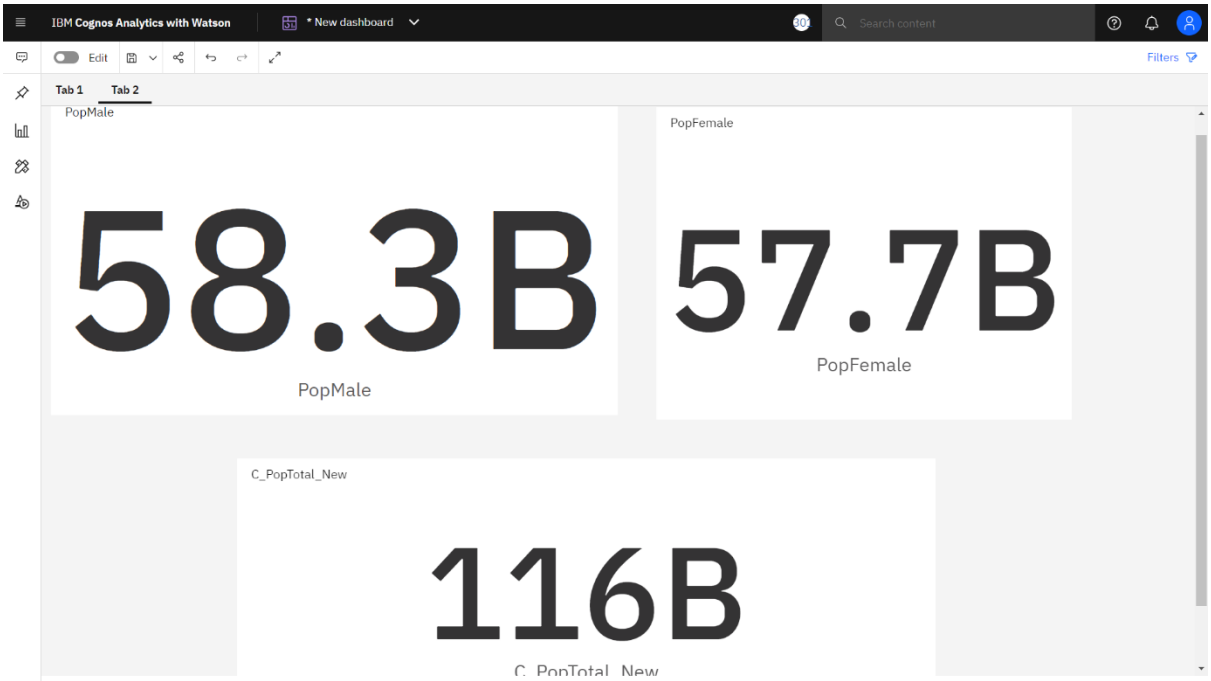

- Time sized by PopFemale




## 4.5 Building of Dashboard




## 4.6 Pop Male, Pop Female and Pop Total using Summary




- ## Advantages and Disadvantages of the IBM Tool

### Pros

1. Lower costs—reduces maintenance due to complete report coverage and a zero-footprint environment.
2. Faster results—shortens reporting time due to seamless integration and adaptive authoring.
3. Improved decision making—reports and dashboards present data in easily-understood formats.
4. Adaptive authoring automatically adjusts report layout when objects are added, moved, or removed.
5. High performance data access across all sources.

### Cons

1. Total Cost of Ownership (TCO) is more significant than other tools

2. Minimal forecast capabilities
3. Investment in Cognos R&D by IBM is declining
4. Won't work smoothly with large data sets having many parameters
5. Cross-browser compatibility is often problematic

- # Conclusion

The 2019 Revision of World Population Prospects is the twenty-sixth round of official United Nations population estimates and projections that have been prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. The main results are presented in a series of Excel files displaying key demographic indicators for each UN development group, World Bank income group, geographic region, Sustainable Development Goals (SDGs) region, sub region and country or area for selected periods or dates within 1950-2100.

List of sources of empirical data used or considered and the methods applied in revising past estimates of population and components of demographic change (fertility, child, adult and overall mortality, international migration) are presented in tabular form for each demographic component and country or area for the period 1950-2020.

The goal of this project is to find and analyze United Nations population estimates and projections and present the given data in a visual format for better understanding. For the visualization we have used IBM Cognos Analytics. By the end of this project we have gain a broad understanding of plotting different graphs and able to create meaningful dashboards