Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)

ADV – Advanced Data Visualization

Experiment No.	2
Name	Chinmay Jadhav
AIM:	Create advanced charts using Tableau / Power BI / R / Python / Plotly or Chart or D3.js to be performed on the dataset - Socio economic data
UID No.	2021300046
Class & Division	COMPS A(C)

DATASET DESCRIPTION:

Field	Description
Country	The name of the country for which the socio-economic data is collected.
Year	The year corresponding to the data points provided for each field.
Birth Rate	The number of live births per 1,000 people in a given year.
Death Rate	The number of deaths per 1,000 people in a given year.
Fertility Rate	The average number of children born to a woman over her lifetime in a specific year.
Life Expectancy at Birth, Female	The average number of years a newborn female is expected to live under current mortality levels.
Life Expectancy at Birth, Male	The average number of years a newborn male is expected to live under current mortality levels.
Life Expectancy at Birth, Total	The average number of years a newborn is expected to live under current mortality levels.
Population Growth	The annual percentage growth rate of the population.
Total Population	The total number of people living in the country for a specific year.
Mobile Cellular Subscriptions	The total number of mobile cellular subscriptions in the country.
Mobile Cellular Subscriptions per 100 People	The number of mobile cellular subscriptions per 100 people in the country.
Telephone Lines	The total number of fixed telephone lines in use in the country.
Telephone Lines per 100 People	The number of fixed telephone lines per 100 people in the country.
Agricultural Land	The total land area used for agricultural purposes (e.g.,

Field	Description
	crop production, livestock).
Agricultural Land Percent	The percentage of total land area that is used for agricultural purposes.
Arable Land	The total land area that can be used for growing crops.
Arable Land Percent	The percentage of total land area that is considered arable or suitable for growing crops.
Land Area	The total land area of the country.
Rural Population	The total number of people living in rural areas.
Rural Population Growth	The annual percentage growth rate of the rural population.
Surface Area	The total surface area of the country, including land and inland water bodies.
Population Density	The number of people per square kilometer of land area.
Urban Population Percent	The percentage of the total population that lives in urban areas.
Urban Population Percent Growth	The annual percentage growth rate of the urban population.

DASHBOARD:

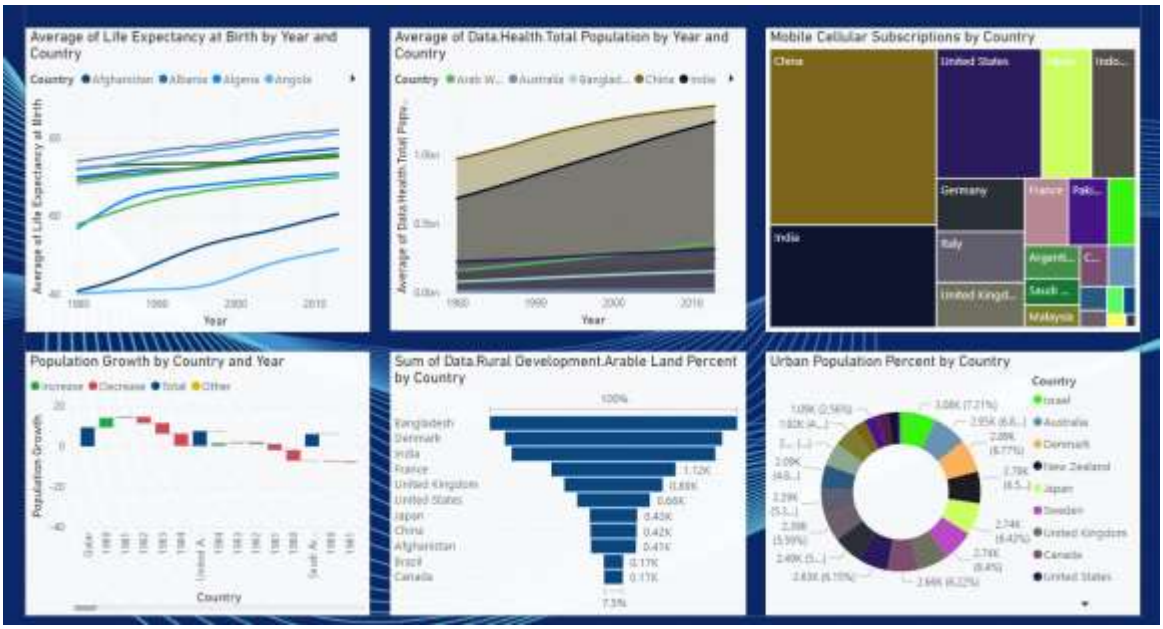
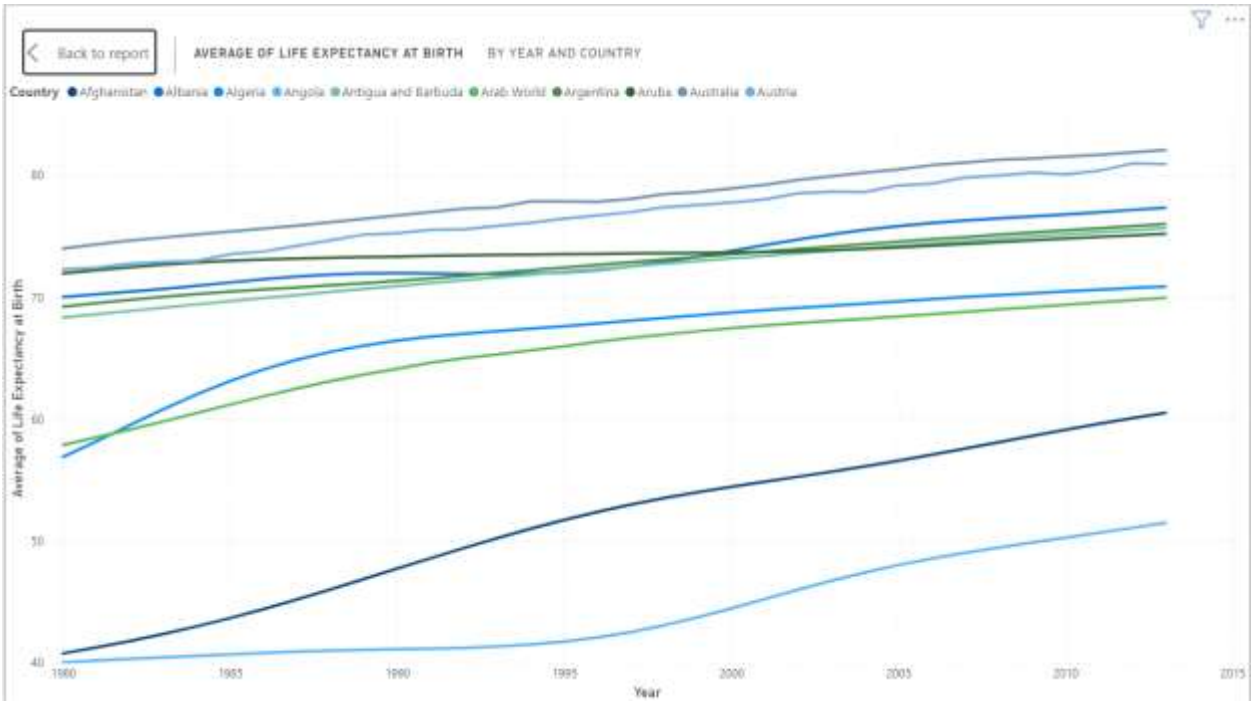


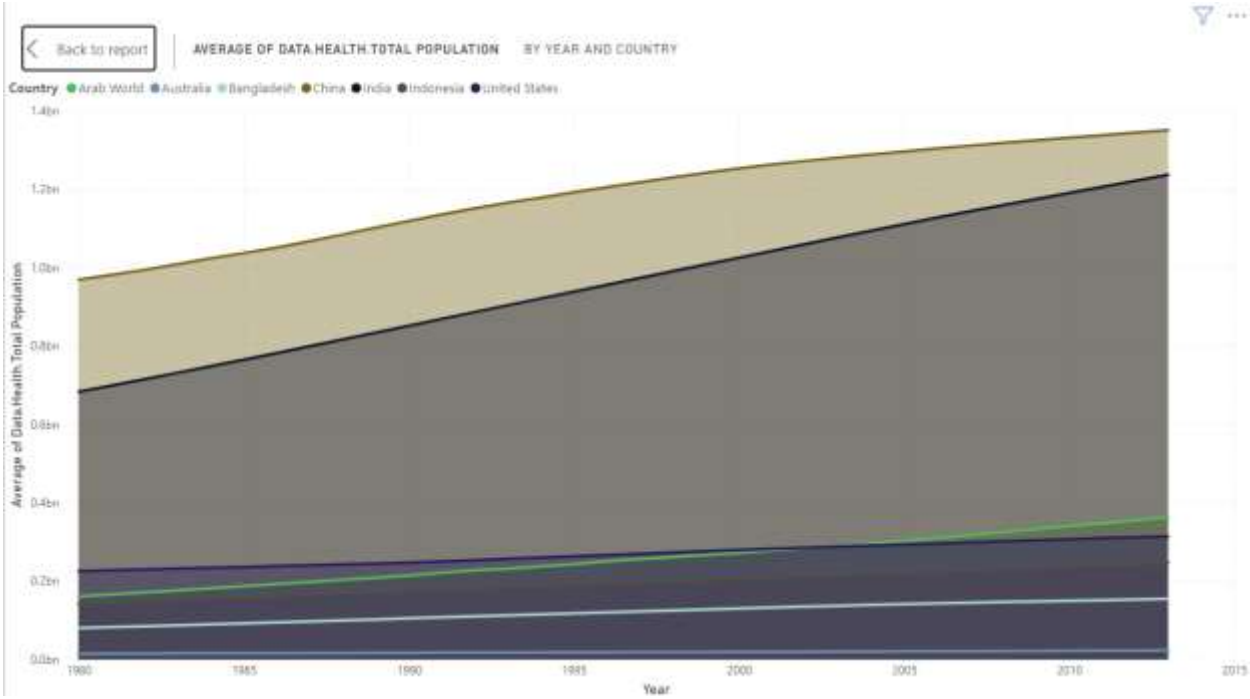
CHART 1:



Line Chart

- **Purpose**: Visualize trends over time for a specific variable, such as birth rate, death rate, or life expectancy.
- **Findings**:
    - If the line chart shows a **decline in birth rates** over the years for multiple countries, this may indicate demographic shifts, such as aging populations or changes in family planning policies.
    - An **increasing trend in life expectancy** at birth for both males and females over time suggests improvements in healthcare, nutrition, and living conditions.
    - If the **death rate** line shows significant fluctuations, it could indicate periods of crisis, such as pandemics or natural disasters.

CHART 2:



Area Chart

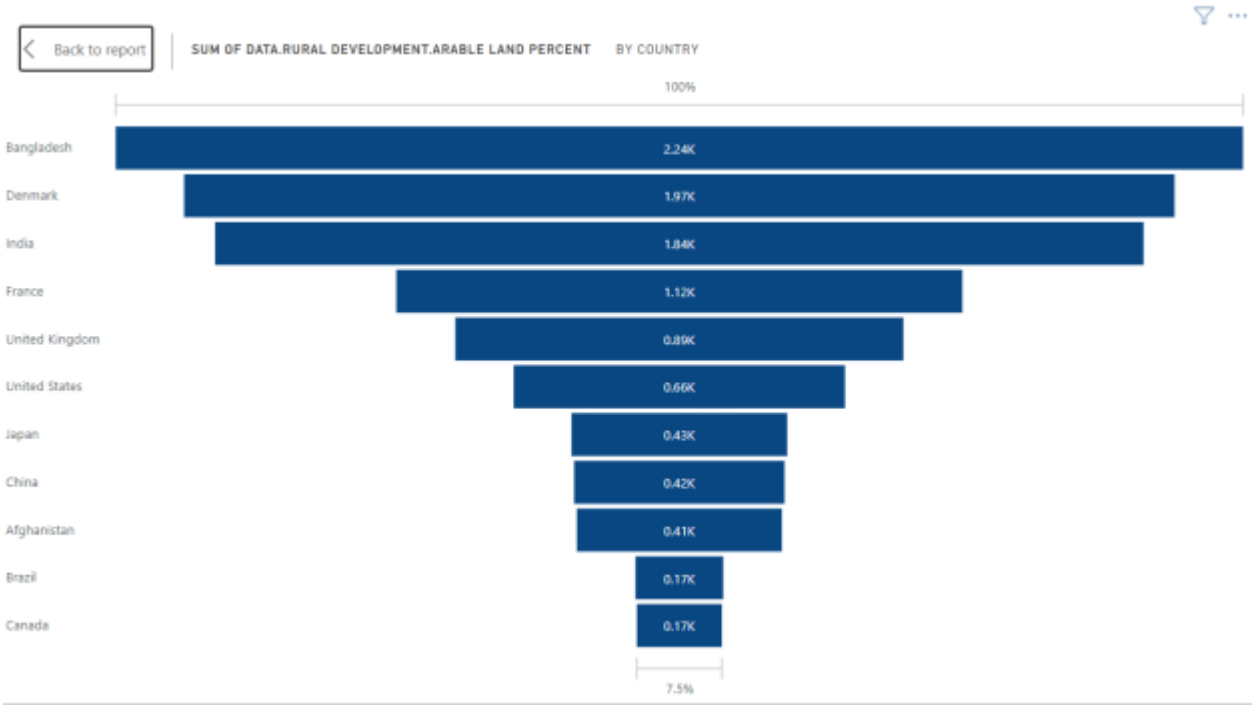
- **Purpose**: Show cumulative values over time and compare different variables (e.g., rural vs. urban population growth).
- **Findings**:
    - If the area chart depicts **rural population growth shrinking** while the urban population grows, it suggests urbanization trends.
    - A **steady growth in mobile cellular subscriptions** over time might reflect increased access to technology and telecommunications infrastructure.

CHART 3:

Treemap

- **Purpose**: Display hierarchical data as nested rectangles, useful for comparing parts of a whole.
- **Findings**:
    - A treemap showing **agricultural land use by country** could highlight which countries have the largest portions of their land dedicated to agriculture, indicating their reliance on agriculture for their economies.
    - Countries with **high urban population percentages** in the treemap suggest high urbanization levels, potentially affecting infrastructure and public service needs.

CHART 4:



Funnel Chart

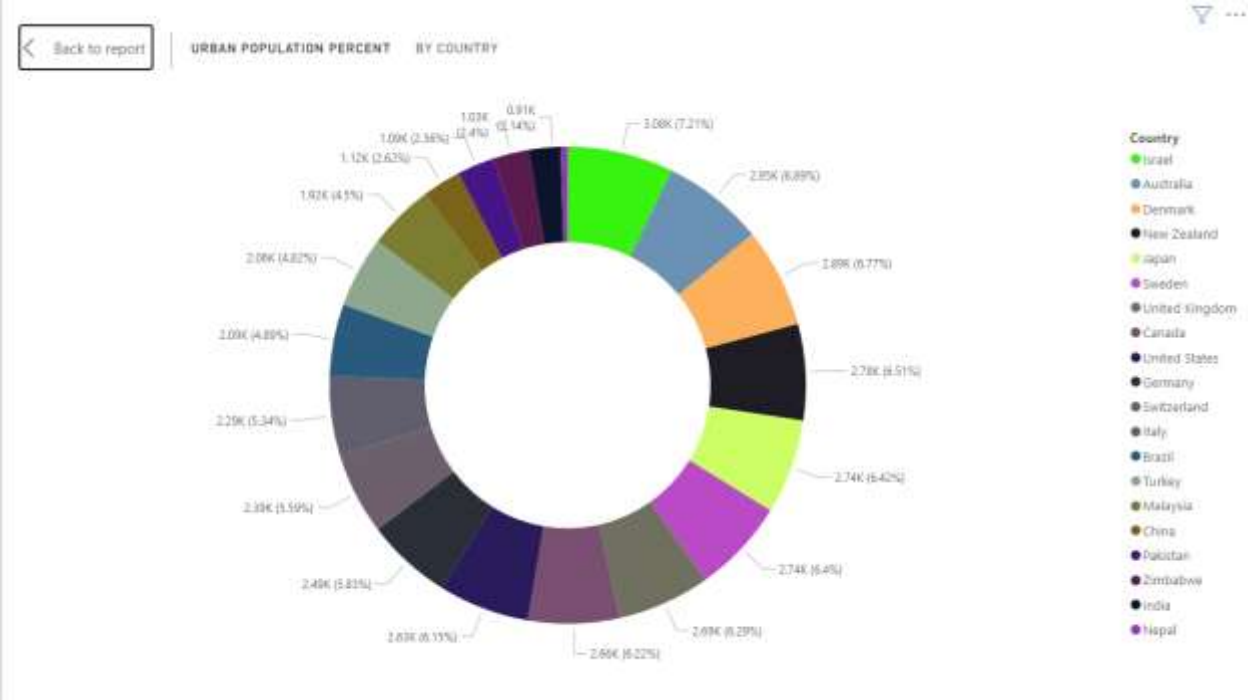
- **Purpose**: Illustrate stages in a process, useful for understanding how values decrease over stages (e.g., migration from rural to urban areas).
- **Findings**:
    - A funnel chart illustrating the **conversion of rural population to urban areas** may show where population densities are shifting, with a larger base indicating a higher rural population that narrows as it moves to urban settings.
    - A **funnel of birth rate to total population growth** might highlight countries where birth rates heavily contribute to overall population dynamics.

CHART 5:

Waterfall Chart

- **Purpose**: Visualize sequential changes in a value, such as cumulative population growth over time or changes in urbanization rates.
- **Findings**:
    - If a waterfall chart shows significant **year-over-year population growth** in specific countries, it can highlight areas of rapid demographic expansion.
    - A **negative change** in rural population growth could imply urban migration or a reduction in rural areas due to urban expansion.

CHART 6:



Donut Chart

- **Purpose**: Visualize proportions of a total (e.g., urban populations).
- **Findings**:
    - If the donut chart shows that a **significant percentage of the population is urban**, it could indicate a country's level of development or infrastructure requirements.