

HealthCare Analysis across India

Project - Phase 1

Team Members :-

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| 1. Ravi Raj | [22bds051] |
| 2. Pakhi Singhal | [22bds042] |
| 3. Preethi Varshala | [22bds045] |
| 4. Arnab Rai | [22bds005] |

Overview of the Project

Dataset / Feature description

1. **Dataset** : HEALTH_CARE
2. **Source of the Dataset** : [Dataset Source](#)
3. **Brief Description of Dataset** :
 - Wellness-Centres in India
 - Public Health Facilities
 - Public Health and Family Welfare Funding Allocation
 - Stillbirths and C-section trends
 - Human Papillomavirus Virus(HPV)
 - Mental disorders
 - Polio Vaccination

Project's Scope/ Deliverables

1. **Objective** : Develop an interactive healthcare dashboard for analyzing key healthcare metrics across India using Tableau and Minitab.
2. **Interactive Dashboard**: Visualize wellness centres, public health facilities, funding, and healthcare trends with state-wise comparisons and filtering options.
3. **Statistical Analysis**: Use Minitab for regression, predictive modeling, and hypothesis testing to reveal trends and correlations.

Tools and Technologies used :- Matplotlib, Plotly, Seaborn, Tableau, Minitab

Progress Achieved (Phase 1)

Key Milestones and Tasks Completed

- **Data Collection (100%):** Successfully collected comprehensive datasets from data.gov.in, including features such as wellness centres, public health facilities, maternal health trends, and vaccination coverage.
- **Data Cleaning & Feature Analysis (100%):** Completed feature analysis by examining columns from each dataset, cleaning the data, and handling missing values to ensure accuracy and readiness for analysis.
- **Initial Data Visualizations (80%):** Conducted exploratory data analysis (EDA) using Matplotlib, visualizing trends in stillbirths, C-section rates, and vaccination coverage, providing initial insights into healthcare trends.
- **Statistical Insights (70%):** In-progress analysis of healthcare performance, using statistical techniques to identify correlations between government funding and health outcomes across different regions.

Discuss challenges faced and solutions implemented.

→ Data Collection from Multiple Sources:

- ◆ **Challenge:** Integrating data related to wellness centres, vaccinations, and other health features from different websites.
- ◆ **Solution:** Standardized and unified the data using **Pandas** and **Numpy**, ensuring smooth integration from diverse sources.

→ Data Inconsistency & Missing Values:

- ◆ **Challenge:** Incomplete or inconsistent data, especially from rural regions.
- ◆ **Solution:** Applied data cleaning techniques such as imputation and interpolation, ensuring accuracy and completeness.

→ Handling Large & Diverse Datasets:

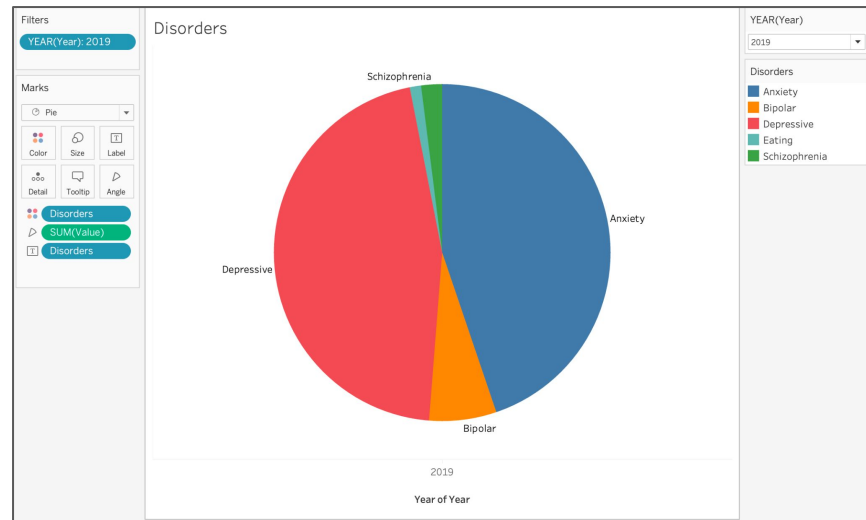
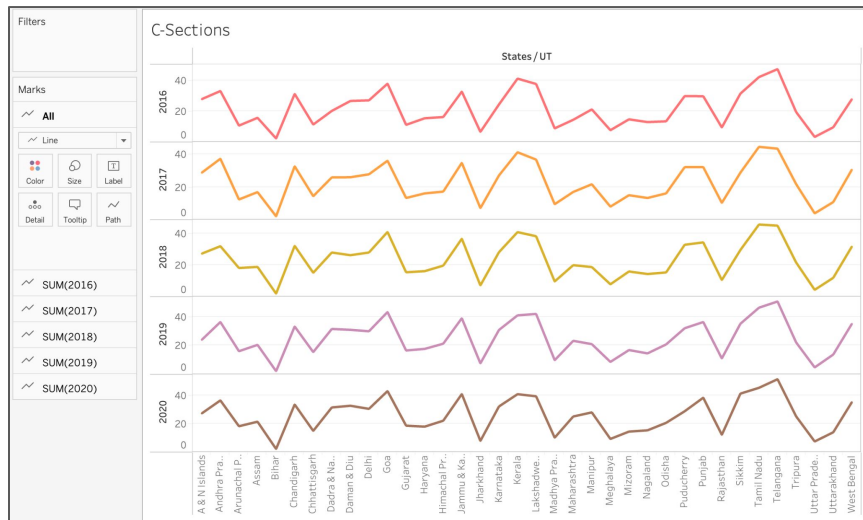
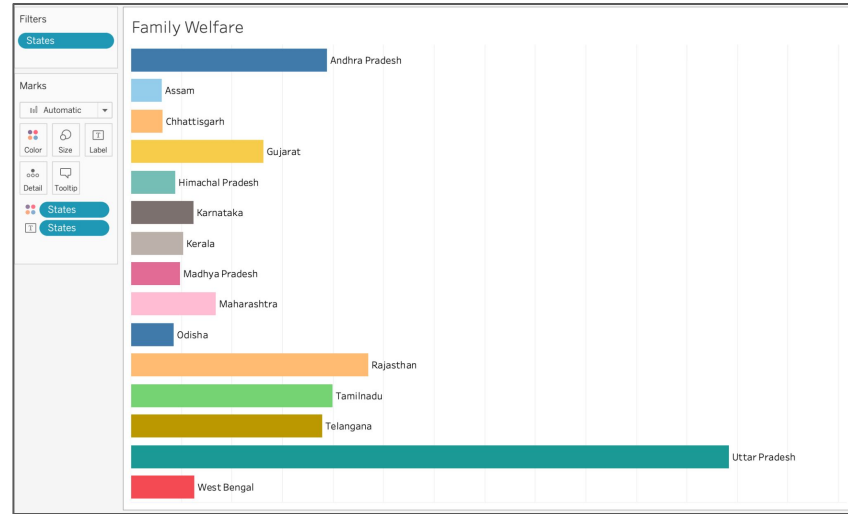
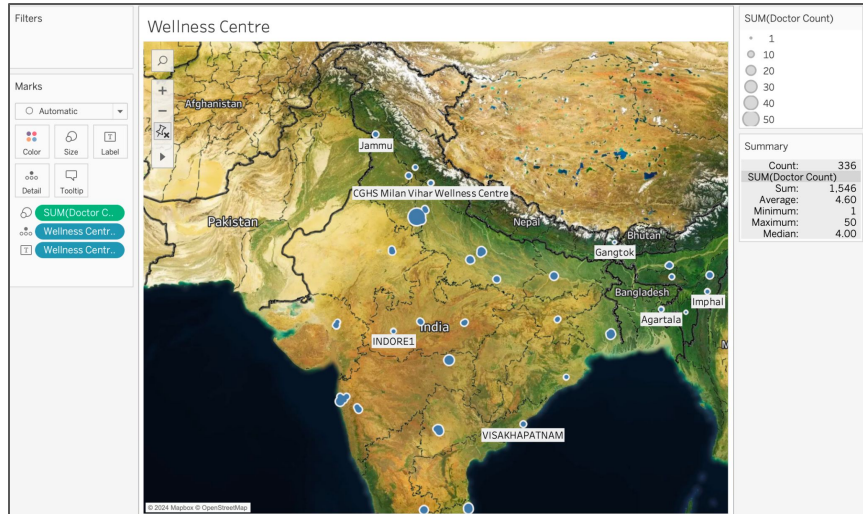
- ◆ **Challenge:** Processing large volumes of data with varying structures.
- ◆ **Solution:** Segmented the data for separate processing and merged it after cleaning optimizing efficiency.

→ Complex Visualization Requirements:

- ◆ **Challenge:** Presenting diverse healthcare data in an intuitive, user-friendly format.
- ◆ **Solution:** Utilized **Tableau** to create interactive, layered dashboards with dynamic filtering for ease of exploration.

→ Real-time Filtering and Performance:

- ◆ **Challenge:** Ensuring the dashboard remains responsive while offering real-time filtering across regions and metrics.
- ◆ **Solution:** Optimized queries, introduced caching and indexing techniques for fast, smooth dashboard performance.



Plan and Milestones

1. Design and Layout (Weeks 1-2)

→ Tasks:

- ◆ Define dashboard requirements and key metrics (e.g., wellness centres, vaccination rates).
- ◆ Create design mockups and wireframes.
- ◆ Obtain stakeholder feedback and finalize the dashboard design.

→ **Milestone:** Completed design and layout approval by the end of Week 2.

2. Data Integration (Weeks 3-4)

→ Tasks:

- ◆ Import and integrate all datasets into Tableau.
- ◆ Ensure accurate data connections and perform preliminary validations.

→ **Milestone:** All datasets integrated and validated in Tableau by the end of Week.

3. Development of Visualizations and Interactivity [5-6]

→ Tasks:

- ◆ Develop visualizations for key metrics and trends
- ◆ Implement interactive features such as filters and drill-down capabilities.

→ **Milestone:** Interactive visualizations and features developed by the end of Week 6.

4. User Testing and Feedback (Week 7)

→ Tasks:

- ◆ Conduct user testing with a select group to identify usability issues and gather feedback.
- ◆ Refine dashboard based on feedback to enhance user experience.

→ **Milestone:** Complete user testing and incorporate feedback by the end of Week 7

5. Final Refinements and Launch (Weeks 8)

→ Tasks:

- ◆ Finalize dashboard refinements and prepare comprehensive documentation.
- ◆ Launch the dashboard and conduct training sessions for end-users.
- ◆ Provide ongoing support to address any post-launch issues.

→ **Milestone:** Dashboard officially launched and user training completed by the end of Week 8.

Conclusion

→ Data Collection and Preparation:

- ◆ **Progress:** Collected and standardized comprehensive healthcare datasets.
- ◆ **Significance:** Provides a solid foundation for analyzing healthcare trends across India.

→ Data Cleaning and Feature Analysis:

- ◆ **Progress:** Cleaned data and ensured accurate feature representation.
- ◆ **Significance:** Ensures data reliability for valid insights and informed decision-making.

→ Initial Visualizations and Insights:

- ◆ **Progress:** Developed preliminary visualizations to explore key trends.
- ◆ **Significance:** Offers early insights into healthcare trends and areas of concern.

→ Dashboard Development and Features:

- ◆ **Progress:** Started building the interactive dashboard with key metrics and features.
- ◆ **Significance:** Enables interactive exploration and detailed analysis of healthcare data.

→ Upcoming User Testing and Refinements:

- ◆ **Progress:** Preparing for user testing and feedback to refine the dashboard.
- ◆ **Significance:** Ensures the dashboard meets user needs and provides actionable insights.

Thank You !!!