FIT3179 Assignment2
Data Visualisation 2
Sheet 1: Brainstorm
Domain: Air Pollution & Health - Indian Cities

Name: Anurag Kumar
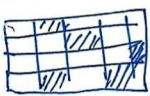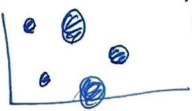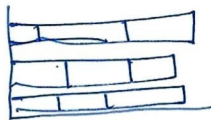Student ID: 34392025

IDEAS

Map:

8 cities

Lung icon:

which side is polluted and which is fine

Bar chart:

8 bars for cities, with varying values height

Scatter plot:

Calendar Heatmap:

Grid of months with colors

Time series:

Line graph

Bubble chart:

Population Impact

Stacked bar chart:

Shows health factors

Stat cards

29.8 Mg/m²   97.6% ...

Basic information

Combine & Refine

Title + 4 stats

India Map
(8 cities)

Scatter | Bar | Time

Heat | Bubble | Rank
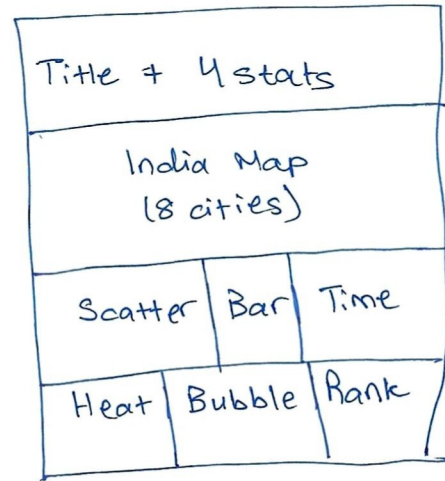
- Roughly 8 visualizations
- Scroll-based narrative with text summary explanations
- Color-blind safe colors, initially starting with base 'category 10' colors provided.

Filter

X Real-time data
X 3D Visualizations
X Predictive Models

X Video / Audio

Too complex and some features require maintenance which is unecessary for this assignment

✓ charts (Static)
✓ Hover tooltips
✓ Click interactions
✓ Scroll navigation
✓ Colorblind-safe

Categorize

Geographic:
- Map views
- Spatial Patterns

Temporal:
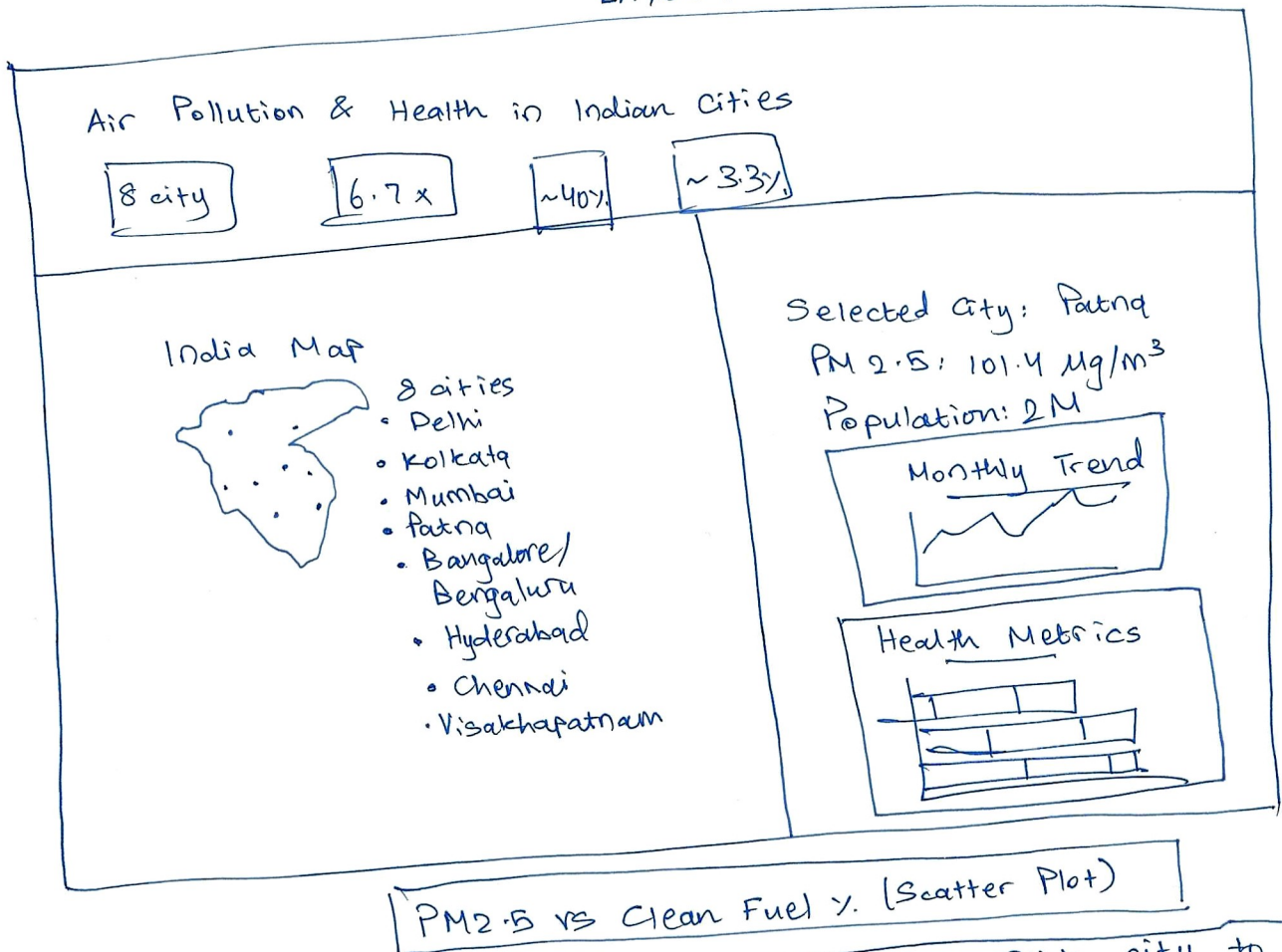- Time Series
- Seasonal Patterns

Comparative:
- Bar charts
- Scatter plots
- Rankings

Health Metrics:
- AAI, Malnutrition, Tobacco

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LAYOUT

Air Pollution & Health in Indian Cities

| 8 city | 6.7 x | ~40% | ~ 3.3% |

India Map

8 cities
- Delhi
- Kolkata
- Mumbai
- Patna
- Bangalore/ Bengaluru
- Hyderabad
- Chennai
- Visakhapatnam

Selected City: Patna
PM 2.5: 101.4 $\mu g/m^3$
Population: 2M

Monthly Trend

Health Metrics

PM2.5 vs Clean Fuel % (Scatter Plot)

Focus: Interactive map drives exploration. Click city to filter all the views. Geographic patterns immediately visible.

Operations

- Enable to hover over city → tooltip
- Click city → filter all
- Click legend → toggle
- Drag → pan map
- Scroll → more charts

Point in map → ●

City: ...
State: ...
PM 2.5: ...
PM 10: ...

Respiratory Infections: ---
Clean Fuel Use: ---
Tobacco Male: ---

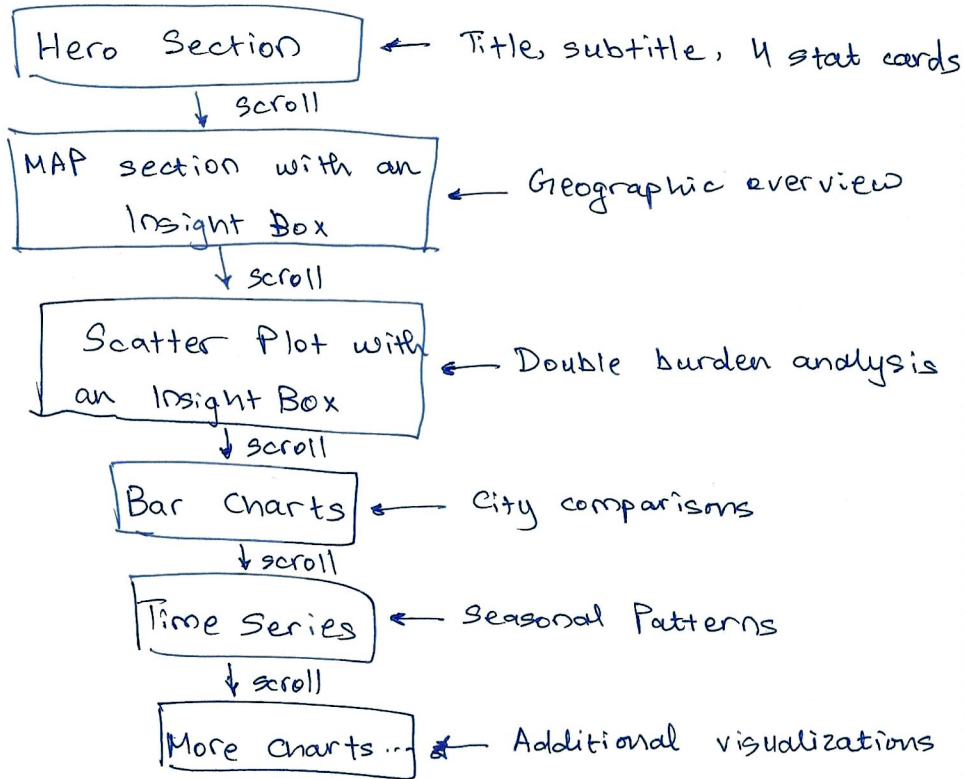when hovering it, following information revealed

Discussion

Pros:
- Geographic Context is clear
- Spatial patterns visible
- Interactive exploration
- Data is accessible

Cons:
- Dashboard may be overwhel with information
- Requires exploration
- Small screen issues

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Sheet 3: Initial Design 2
Title: Storytelling Narrative

Layout

Hero Section → Title, subtitle, 4 stat cards

↓ scroll

MAP section with an Insight Box ← Geographic overview

↓ scroll

Scatter Plot with an Insight Box ← Double burden analysis

↓ scroll

Bar Charts ← City comparisons

↓ scroll

Time Series ← Seasonal Patterns

↓ scroll

More Charts... ← Additional visualizations

Focus:

Linear narrative guides through insights. Each section builds on previous.
Designed for general audience.

Operations

- Scroll → Progressing Story
- Hover → Tooltips
- Click legend → Filter
- Dots → Jump to section
- Top button → return

Discussion

Pros:

- Guided experience
- Builds proper understanding
- Natural reading flow

Cons:

- Linear path only
- Long page
- Narrative is fixed

Layout

Patna	Kolkata	Jaipur	Hyderabad
101.4	77.2	71.3	55.3
65% CF	92% CF	60% C~~R~~F	99% CF
0.7 ARI	2.6 ARI	0.6 ARI	0.8 ARI

→ **Top row**

PM2.5.
Then a dot
with differe~~nt~~
color~~s~~ depend~~ing~~
on value

— Clean Fuel %.

~~Respirato~~
~~Infection~~
Health metric

Bangalore	Chennai	Pune	Visakhapatnam
51.9	46.7	49.8	41.2
97% CF	98% CF	90% CF	73% CF
0.0 ARI	1.0 ARI	3.3 AR~~I~~	2.0 AR~~I~~

Bottom row →

Selected: [Patna] [Bangalore] ← User Selection

┌─────────────────────────────────────┐
│ Detailed Comparison Charts   │
│ (This will only show selected cities)│
└─────────────────────────────────────┘

Focus:

Card-based interface for flexible city comparison. Select 3-4 cities to analyze in detail.

Operations

- Click ~~card~~ card → select
- Click again → ~~delete~~ deselect
- Hover → highlight
- Sort button → reorder
- Compare → show selected

Discussion

Pros:

- All cities are visible
- Easy to select
- Quick overview
- Flexible comparison

Cons:

- No geographic context
- Limited detail
- Can be cluttered
- No actual narrative

Final Design: Narrative with Embedded Visualization

Complete Layout

Air Pollution & Health: The Hidden Crisis

" Text Information .... "

| 8 Cities | | 6.7 x WHO | | 40% Unclean | | 3.3% ARI |

Section 1: Geographic Distribution

India Map (Blue-Orange-Brown)

~~Insight~~

Operations:
1. Scroll → navigate
2. Hover → tooltips
3. Click legend → filter
4. Responsive sizing
5. Linked interactions

Detail:
Tech: Vega-Lite v5, Pure.css
Data: 3 csv files
Colors:
• Blue   • Purple
• Orange • Brown
Github page hosting
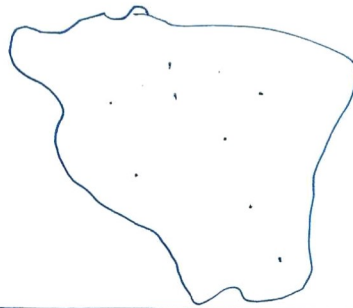
Insight:--- Indo-Gangetic Plain worst affected

Section 2: Double Burden

PM2.5 vs Clean Fuel %

100%

0   50   100   PM 2.5

Regression Line representing WHO Limit

Section 3: Bar Chart

110

Value

0
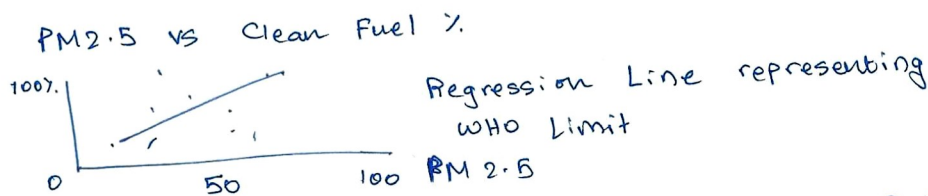
Cities

Section 4: Time Series

160

PM2.5

0

Months

Section 5: Heatmap

Cities
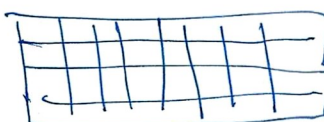
Health Risk Factors

Section 6: Bubble Chart

ARI %

PM 2.5
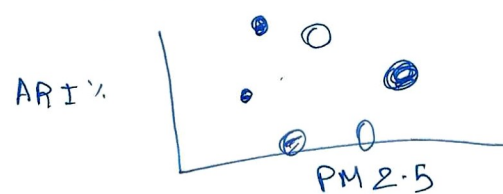
Section 7: Health Ranking Stacked Bar chart

Cities

Health Risk Cumulative

Section 8: Radial chart