IDEATION PHASE - FIRST DRAFT

(Jason Wu - Economics 490 Senior Thesis Project)

1. Initial Questions from Class Readings

- Wait—Heritage Foundation says economic freedom = prosperity, but Prof. Chen argued it's more complex?
- Which metrics actually matter most? Tax rates vs property rights vs trade freedom?
- How to compare regions fairly when data quality varies (Europe vs Africa datasets)?

2. Data Exploration (Messy First Attempts)

Dataset Issues Found:
☐ Good: 187 countries with 2022 scores
☐ Annoying: Missing data for Venezuela, North Korea
☐ Confusing: Why does "Fiscal Health" have negative values for some countries?

Quick correlation test in Python:

```python
python 3 lines

Click to expand

import pandas as pd

data = pd.read_csv('economic_freedom.csv')

...
```

Output:

- Moderate correlation (-0.56) between income tax rates and economic freedom score *(surprising?)*

3. Sketchy Wireframe Ideas

(Drawn in notebook margin during seminar)

```
RunCopy code
1 [ WORLD MAP ]
2 - Color-code by freedom score
3 - Popup: Show country details on click
4
5 [ SCATTER PLOT ]
```

```
6X = Business Freedom
7Y = GDP per capita
8Dot size = Population
9
10[ CHEAT SHEET ]
11- Top 5 "Most Free" economies
12- Bottom 5 "Least Free"
```

4. Tools I Think I'll Need

Free Options (Student Budget):

- Data: Python (Pandas), Excel fallback
- Charts: Chart.js (free tier)
- Map: Leaflet.js with free GeoJSON
- Hosting: GitHub Pages (can't afford AWS)

Wishlist if Time Allows:

- Interactive sliders for year comparison
- Export PDF button (but html2pdf looks complicated)

5. Advisor Meeting Notes

(Scrawled during office hours)
Prof. Singh Suggestions:

- Focus on 3-5 key indicators first
- Use standardized scales for fair comparisons
- Check if regional clusters emerge (ASEAN vs EU vs Africa)

6. Next Steps

1. Clean data (handle missing values by Friday)
2. Build BASIC version with just:
- Map
- 1 scatter plot
- Rankings table
3. Show prototype to study group for feedback

IDEATION PHASE - DRAFT 2

(Emily Tran - Senior Project in Economics)

1. Problem Statement

"How can we effectively visualize the relationship between economic freedom and prosperity across different countries?"

- Need to show that economic freedom isn't just a number; it impacts real lives (jobs, income, etc.).

2. Key Metrics to Explore

- **Economic Freedom Index**: Overall score, components like `Business Freedom`, `Trade Freedom`, `Tax Burden`.
- **Prosperity Indicators**: GDP per capita, Unemployment Rate, Human Development Index (HDI).
- **Additional Factors**: Corruption Index, Education Levels (could be interesting to see if education correlates with freedom).

3. Data Sources

- **Heritage Foundation**: Economic Freedom Index (2022).
- **World Bank**: GDP, Unemployment, HDI.
- **Transparency International**: Corruption Index (might add depth).
- **UNDP**: Human Development Reports (for HDI).

4. Initial Thoughts on Visualizations

- **World Map**: Color-coded by economic freedom score.
- **Scatter Plots**:
- `Business Freedom` vs. `GDP per capita`
- `Tax Burden` vs. `Unemployment Rate`
- **Bar Charts**: Top 10 and bottom 10 countries in terms of economic freedom.
- **Radar Charts**: Breakdown of freedom components for selected countries.

5. User Personas

- **Policymaker**: Needs quick insights to inform policy changes.
- **Researcher**: Wants detailed data for academic papers.
- **Student**: Looking for a visual tool to understand concepts better.
- **Journalist**: Needs compelling visuals for articles.

6. Technical Considerations

- **Frontend**:
  - **Framework**: React.js (familiar from class projects).
  - **Charts**: Chart.js for simplicity.
  - **Maps**: Leaflet.js for interactive maps.
- **Backend**:
  - **Data Processing**: Python with Pandas for cleaning and analysis.
  - **Hosting**: GitHub Pages for the frontend; consider Heroku for backend if needed.

7. Challenges & Concerns

- **Data Quality**: Some countries have incomplete data.
- **Complexity**: Too many metrics might overwhelm users.
- **Time Constraints**: Need to balance depth of analysis with project timeline (graduation is coming!).

8. Feedback from Peers

(Notes from group study session)

- **Alex**: "Make sure to explain what each metric means; not everyone will know."
- **Sara**: "Consider adding a glossary or tooltips for clarity."
- **Mike**: "What about mobile users? Make sure it's responsive!"

9. Next Steps

1. **Data Cleaning**:
   - Handle missing values (impute or exclude).
   - Standardize metrics for comparison.
2. **Prototype Development**:
   - Start with the world map and one scatter plot.
   - Use dummy data to test visualizations.
3. **User Testing**:
   - Share early prototype with classmates for feedback.
   - Adjust based on usability insights.

10. Timeline

- **Week 1**: Data cleaning and initial analysis.
- **Week 2**: Build basic visualizations (map + scatter plot).
- **Week 3**: User testing and feedback iteration.

- **Week 4**: Finalize dashboard and prepare for presentation.