Assignment: Force Layout Visualization Using D3.js

Requirements

1. Data Preparation

- **Source**: Use the Author Network Data provided in the specified link.
- **JSON File**:
  - Nodes should represent **Authors**.
  - Links should represent **shared publications**.

2. Hue channel

- The nodes by **affiliation country (top 10 countries only and the rest #A9A9A9)**

3. UI

- On mouse over, only the authors with the same affiliation should be visible, and the rest should have opacity of 0.2 (on mouse leave, should return to normal).
- On click on each node, the data for the author should be shown (use a tooltip div, to show the author affiliation information)

4. Force Layout Visualization

- **Force Simulation**:
  - Use D3.js force simulation to create a force layout visualization.
  - The **size of each node** should be determined by the number of degrees for node (Choose a suitable min-max scale for the domain and apply d3.scaleSqrt (r range[3, 12])).
- **Force Parameters**:
  - Apply a charge using d3.forceManyBody().
  - Set the radius factor for d3.forceCollide() (use reasonable range for radius).
  - Add UI to control the parameters for forceManyBody, forceCollide and link Strength.

5. Web Page Creation

- **Visualization Web Page**: Create a web page on GitHub to host the visualization.

Format the page appropriately, you can use flexbox, or bootstrap to format the visualization and UI.

Data Filtering: Exclude records that are missing:

- **Year**
- **Affiliation**
- **Author**

Example References

- Utilize the examples provided to guide your implementation.

Rubric for grading:

Data Preparation: Correctly use the Author Network Data to format nodes and links (20 points)
Hue Channel: Accurately color nodes by affiliation country (top 10 vs. others) (20 points)
UI Interaction: Implement hover effects and tooltips effectively (20 points)
Force Layout Visualization: Use D3.js for force simulation with appropriate node sizing (20 points)
Web Page Creation: Host a functional and well-structured web page on GitHub (20 points)