### 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)