Healthcare Patient Interaction Network Visualization

Overview:

Assume that your team is working for an insurance company and analyzing/reporting healthcare patient interaction network with a given data with visualization. This data visualization project aims to create an interactive and insightful visualization of a healthcare patient interaction network. The dataset includes information about healthcare entities, healthcare professionals, patients, and interactions between them. The visualization will be developed using D3.js.

Dataset:

Nodes.json: Contains information about entities involved in healthcare interactions, including unique IDs, names, roles (e.g., healthcare professional, patient), and specialties (e.g., cardiology, orthopedics).

Links.json: Describes the interactions between entities, specifying the source, target, interaction type (e.g., consultation, referral), and date.

Attributes.csv: Provides additional attributes for each entity, such as location, expertise, or patient count.

Objectives:

Network Graph Representation: Create an interactive network graph to visually represent the healthcare patient interaction network. Nodes represent healthcare entities and professionals, and links represent interactions, with varying characteristics based on interaction types.

Node Details: Implement a feature that allows users to hover over nodes to view detailed information about each entity, including its name, role, specialty, and additional attributes.

Link Details: Enable users to explore interaction details by hovering over links. Display information such as the interaction type and date.

Interactive Filtering: Implement interactive filters to allow users to focus on specific types of interactions, healthcare specialties, or entities.

Attribute-Based Coloring: Color code nodes based on additional attributes, providing insights into characteristics such as location or expertise.

Patient History Panel: Design a panel that displays the interaction history of the selected patient or healthcare professional, updating dynamically as users interact with the graph.
Graph Analytics: Implement algorithms or visual indicators to highlight important nodes or entities based on their centrality or influence within the network.
User Interaction: Enable users to pan and zoom within the visualization for a more detailed exploration of the healthcare patient interaction network.

Expected Deliverables:

Interactive healthcare patient network by D3.js visualization accessible via a web interface
Temporal Visualization: include a time slider to visualize how the healthcare patient interaction network evolves over time.
A presentation summarizing key findings and insights obtained through visualization
User guide/documentation/report

Potential Enhancements (Optional):

Dynamic Aggregation: Allow users to dynamically aggregate interactions based on different criteria (e.g., by month, by healthcare specialty).
Search and Highlight: Include a search feature that allows users to quickly find and highlight specific healthcare entities or interactions.