# Part1: Design & Discussion

In this assignment, our task was to come up with a visualization for the Electronic Health Record (EHR) dataset. Our group decided to do a temporal analysis of encounters each patient had. Since the age of a patient, days from first TBI, and type of encounter are important to do inference from the visualization, we decided to add all this information in a 2D plot leveraging the visualization power of colors and shapes.

The image below shows the first draft of our design.
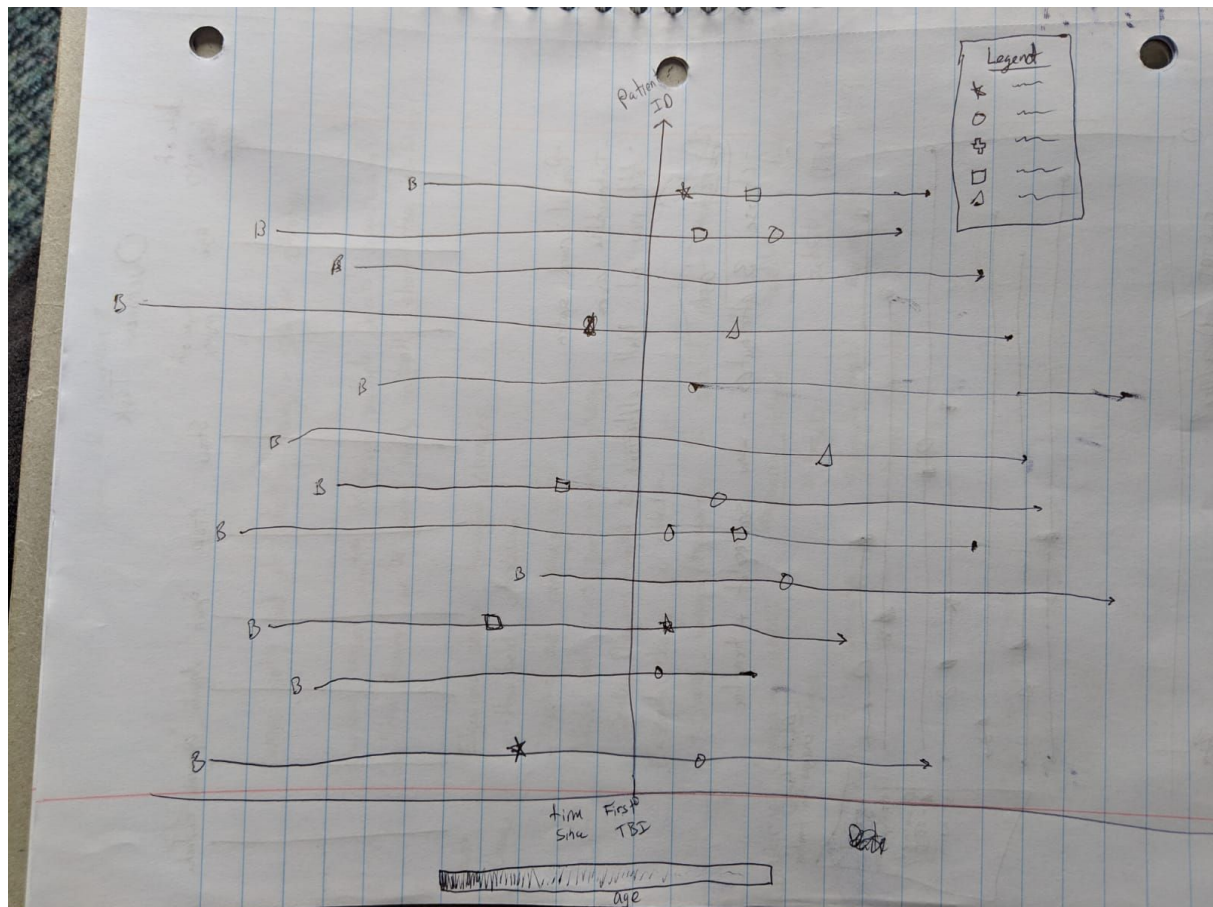
The x-axis represents the temporal information about the patients, and each horizontal line gives a timeline for a patient. The y-axis tells the time of the first TBI, and time before and after the TBI encounter (first) is plotted on the negative and positive x-axis respectively. Since there only 41 unique patients, we can easily analyze the information for all patients (41 horizontal lines) on a reasonable-sized monitor screen. Each horizontal line gives information about the when and what type of encounters occurred with each patient. Initially, we thought about using shapes or glyphs to distinguish different encounters from each other but after the discussion in class, we changed that to different colors for each encounter. Since different patients have different age-groups at the time of the encounter, we decide to use a gradient for the horizontal-line color. The interactive aspect of our design involves

re-ordering of the patients as per user requirements (using drag and drop). Patients with similar timeline lengths can be grouped together to look of interesting trends about how a disease progresses with age.

It should also be noted that the discussion in the class revealed that the encounter data is quite skewed. Around 80% of patients have encounters which do not fall in any of the categories. Our design does not get affected by this problem. On the other hand, most of the other designs had an intrinsic assumption that encounter categories have reasonable distribution (not skewed), such designs will ultimately lead to a lot of noise and might be futile.