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CS 416 Data Visualization

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Narrative Visualization on CoC

The purpose of the narrative visualization is to show the top crimes occurred in

Chicago during 2020 and attributes of the crimes. By using this visualization, an

individual user can understand frequency of different types of top crimes that occur, the top

locations where crimes occur the most, frequency of total crimes throughout the year.

The narrative visualization follows martini glass design consisting of three author-driven

scenes and one reader-driven scene.

The author-driven scenes consist of bar charts and annotations to keep different scenes clear of any confusion. And with the help of bar charts, the viewer can easily visualize the frequency of any crime, location and month. With the help of annotation, the author can explain the significance of data in a scene to provide more information to the viewer. In addition, the y-axis is set to the frequency of crimes between all scenes and the x-axis changes to different

attributes such as types of crimes, location, and months. The purpose of following this approach

is to keep viewer understanding clear of any confusion, not divert the message of

visualization (which is frequency of top crimes that occurred in Chicago and different attributes of the crimes) and connect viewer to each scene. The reader-driven scene consists of bar chart

and y-axis is set to the frequency of crimes like the author-driven scenes. The only difference is

that the viewer can explore this scene picking(triggering) a crime type and seeing top locations

where these kinds of crime occur in Chicago. This approach keeps the viewer consistent with

author-driven scenes.

As mentioned, there are four scenes with the first three consisting of author-driven scenes and the fourth scene i s reader-driven. Scene 1 displays the top 10 types of crimes that occurred in Chicago, scene 2 displays top 10 locations where crimes occur the most, scene 3 displays total crimes per month throughout the year. And scene4 is an explorative scene where the viewer can select a specific crime type and see locations where this kind of crime is the most in Chicago. The all-four scenes are ordered in this way to connect data in each scene from the previous scene so in a reader-driven scene, the viewer has a clear understanding of the message of the visualization and is confident to explore the scene by themselves.

Between the three author-driven scenes, a grey box with the author’s observation text in

it is the annotation template that the author followed, and the box is placed near the data which

the observation associates to it. This template shows the author's observation in a clear manner

and it supports the message because the annotation displays frequency of crimes or total crimes I n any location to the viewer. Between each scene, the location of new annotation changes and previous annotation is removed to keep the viewer’s attention to new annotation. There are number of parameters the narrative visualization uses.

In the author-driven scenes, the annotation is considered a parameter since when the moves between the scenes, the location of annotation state changes and so the content of annotation. In the reader-driven scene, when the viewer selects the crime types, it updates the state of the bar chart for that specific crime. This i s considered a parameter. Also, the user has the option to sort the data by clicking on sort button, this will sort the state of the chart for the selected crime type. This is also considered a parameter.

There are three triggers that require user action which will invoke a state change in the

visualization. When the user clicks on scene button (0,1,2,3,4), it will trigger a method that will

change the chart to that specific scene and display the associated annotation. In the

reader-driven scene, when the user selects a specific crime type, it will trigger a method that

will change the chart to that specific crime and if the user clicks on the sort of button, it will trigger a method that will sort the data on that chart. A message is displayed on top of scene buttons to tell the viewer that clicking any button will show a different scene. Messages are also displayed in reader-driven scene to tell the user that by selecting a crime type or clicking on the sort button will cause state change in the chart.