1. Pick three concepts covered in Lecture 9 - Interaction (e.g., Brushing & Linking) and relate them to the taxonomy presented in Heer & Shneiderman Table

    1. How do the interaction concepts fit to their taxonomy?

    In the article by Heer and Shneiderman entitled “Interactive Dynamics for Visual Analysis” the authors provide a taxonomy of interactive dynamics in particular for visual analysis. The three main categories they describe are: Data & View Specification, View Manipulation, and Process & Provenance. The first one exists of tools to provide analysts with controls to filter and sort the data and visualise it. View Manipulation entails the manipulation of this visualisation in order to highlight patterns. Therefore, you must be able to select data items, navigate the view, coordinate multiple aspects of the data in multiple views and organise the work space. Finally, Process & Provenance has to do with documentation. This entails record keeping of actions and insights, annotation of patterns, documenting observations, sharing the results and guide novices through common analysis tasks.
    Coming back to the question, it seems that primarily the aspects categorised under View Manipulation are related to the lecture on interaction as both are specified to the responsiveness of the visualisation with the user and not so much the process of creating a visualisation or analysing one.
    For sake of convenience, I’ll discuss the first three concepts that were covered in the lecture and discuss these in light of the article by Heer and Shneiderman.
    The first concept of the lecture is Overview & Detail and is inspired by the words of Ben Shneiderman (who happens to be the same Shneiderman of the article): “Overview first, zoom and filter, and details on demand”. This means that it is important for the viewer to be able to first have an overview of what the data looks like before going into more detail. Of course it can also be important to keep the overview even after zooming in to the details. This concept is especially related to the *Navigate* concept of the View Manipulation category as for the act of navigation you need to first have an overview before you can (literally and/or figuratively) find your way. In the article by Heer and Shneiderman it is described that the zooming and filtering step can be done using several methods, e.g. with a fish-eye lens in order to maintain some overview or with semantic zooming where the user gets more information as they zoom in. However, the authors also describe an exception to the rule of overview first and then detail. One example is a calendar.

The second concept in the lecture is Focus and Context, where the focus is on a detail; for example when it is bigger than the rest or more brightly coloured. This can also be established with a fish-eye zoom as was mentioned just now. Therefore again *Navigate* is an appropriate tool that is closely related to the concept of Focus and Context. Arguably *Select* can also be seen as appropriate as this usually entails searching for data or a specific part of the data and in the process highlighting it.
This is also where the third and last concept of the lecture to be discussed here fits in: Brushing and Linking. If the selection of data happens across different linked views of the data, it is called *Coordinate* according to the article. This operation allows for exploration of multi-dimensional data which would be hard to do if all the dimensions are plotted in one view. The *Organisation* of the multiple linked views then adds the last aspect of the View Manipulation category described by the article.