

Assignment 2

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Task 1:

Explain in detail the InfoVis Reference Model. What are the strengths of this model?

One advantage of the model lies in its facilitation of interaction throughout the entire process, from manipulating the underlying data to determining the presentation of the visualization. This flexibility extends to altering the dataset, modifying visual representations, and adjusting the viewpoint. Consequently, the model's division of data into raw data, data tables, visual structures, and views enables the reuse of the same data for various purposes. This modular approach allows for swift adjustments at the desired level, making it efficient to repurpose the data for different scenarios.

What kind of interactions are supported by Range Sliders? Is there a way to improve them to show more information? Make a short list of pros and cons

Range slider allows users to select values within a specified minimum and maximum range which enables the selection of specific data. A few improvements can be made of the general range slider, such as implementing a non linear option which can be good at some data types, use symbols and units because the general slider don't have any information so it would be good to have a unit cooperated in the slider instead of implementing it as a complement afterwards.

PRO:

- Real time customization:
- Versatility: Can be used for many applications such as filtering and setting numerical preferences
- Intuitiveness: Easy to understand and use

CON:

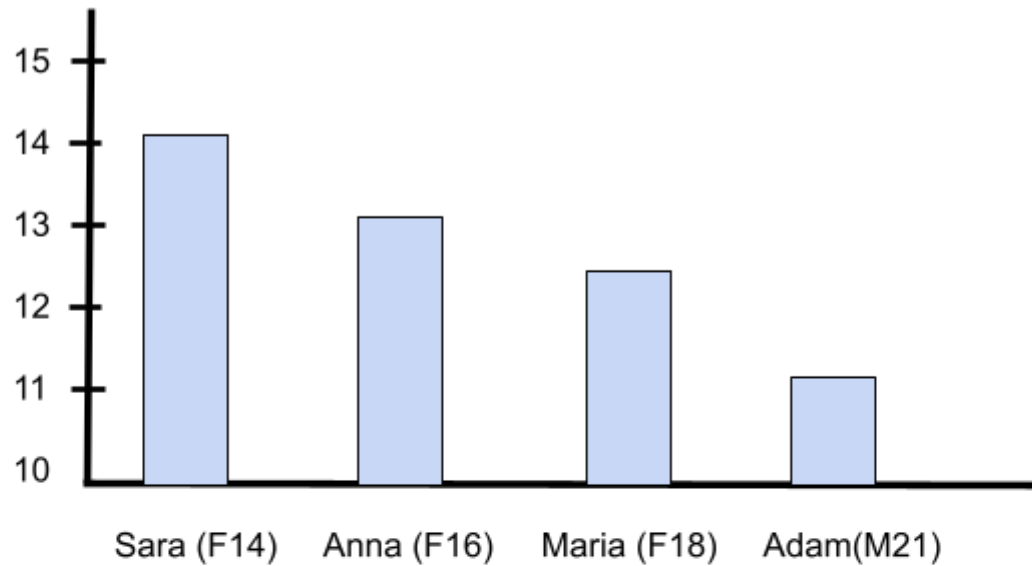
- Limited precision: Hard to have good precision especially for a big range.
- Not suitable for all data: Good for numerical data, not for non-numeric or categorical data.

In most visualization systems selecting or highlighting a data object in a specific view leads to a highlight in another view. What is this interaction technique called? What are its advantages?

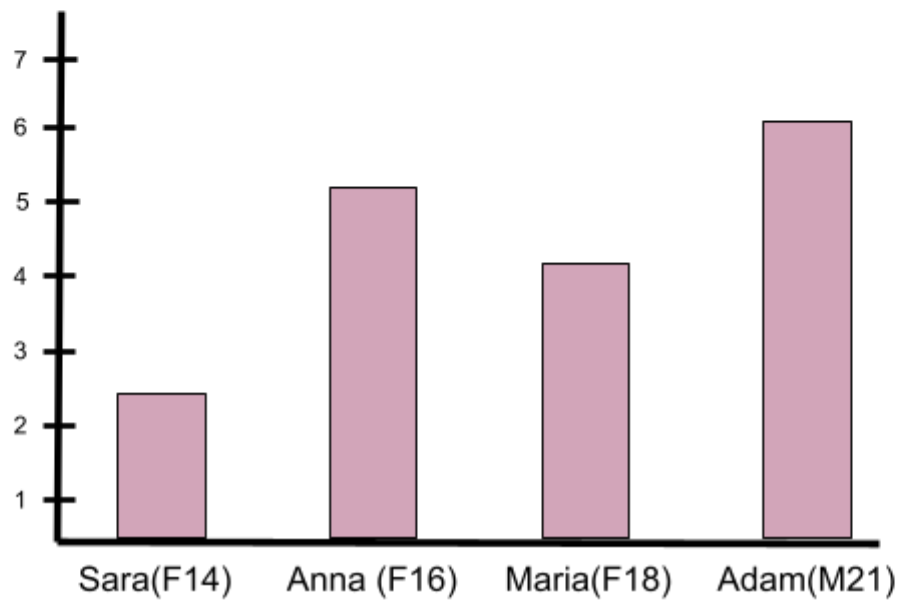
The technique is called *Brushing & Linking* and a few advantages is that it allows dynamically exploring data from different views. It makes it possible to cross filtering which makes it easier to make correlations between data. Because you can see the selected data changes immediately which makes it easier to make analysis and interactivity. It makes it possible to explore complex dataset and multiple dimensions to uncover relationships and patterns.

Task 2:

Best 100 m (s)



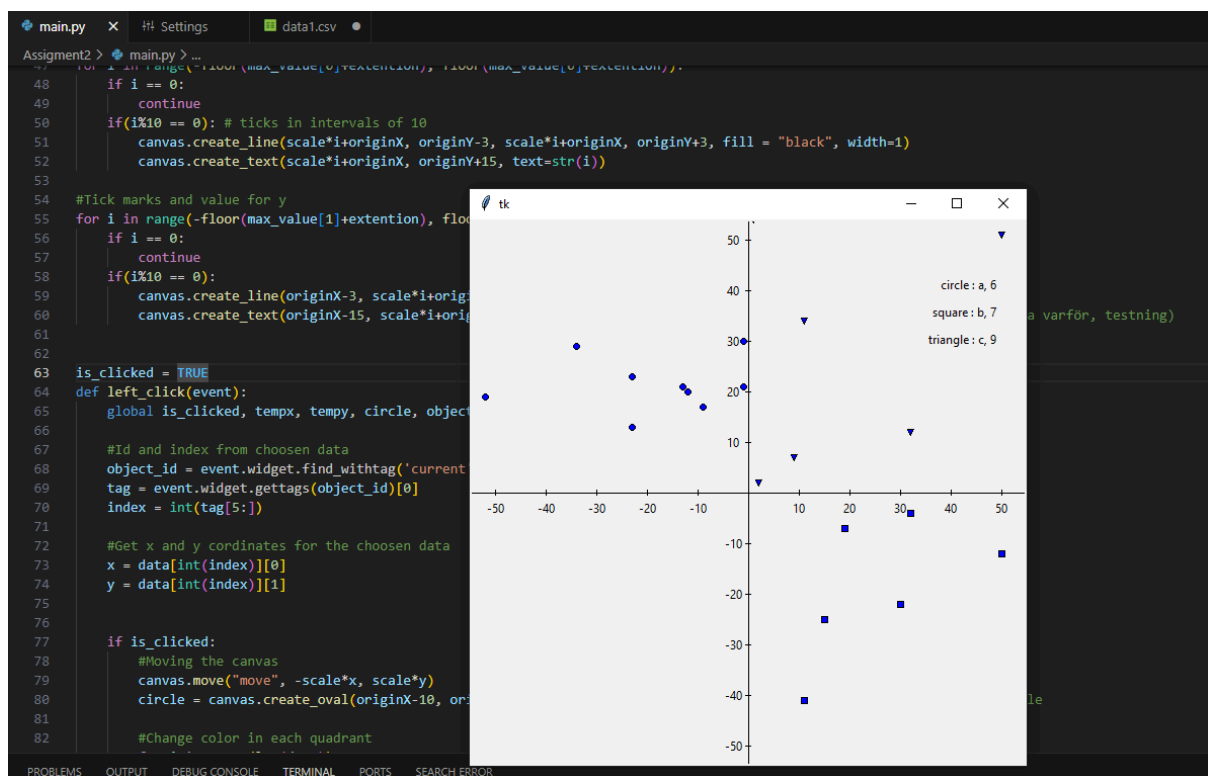
Furthest Jump (m)



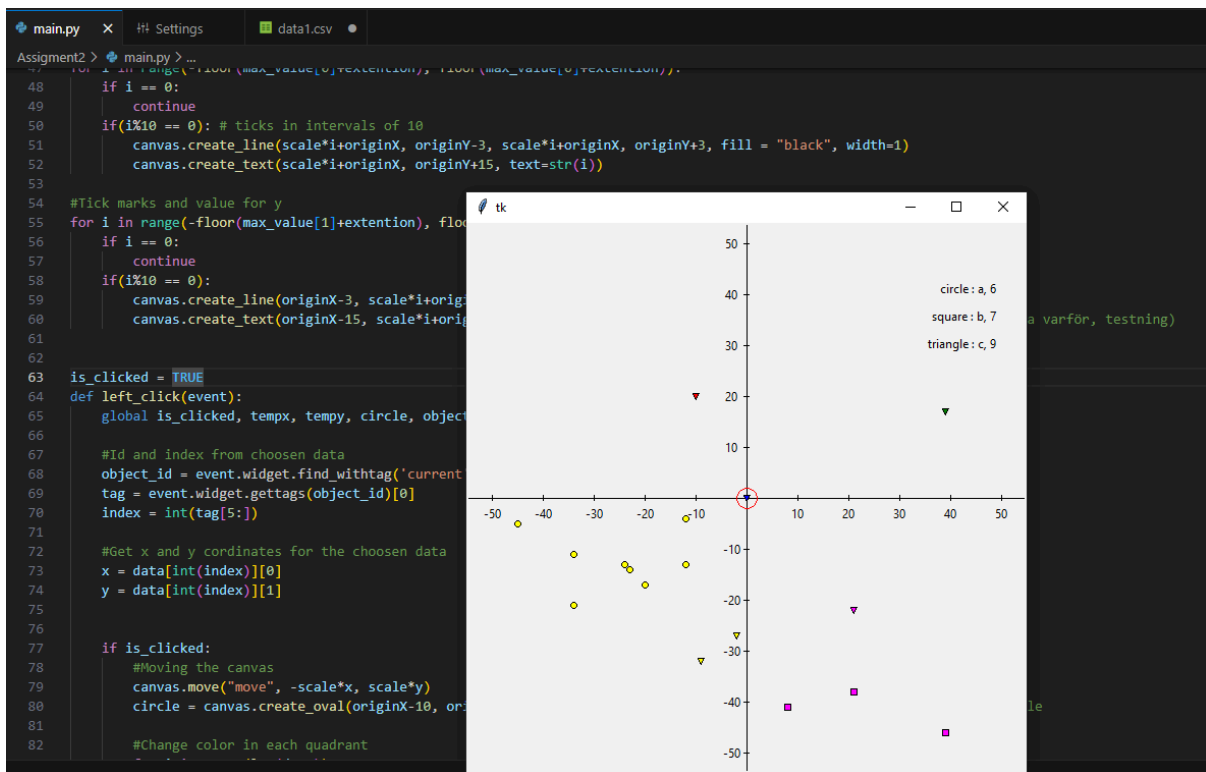
Task 3:

For this task we used python. To run this application, python needs to be installed, and also the toolkits, tkinter, numpy and pandas needs to be installed with either pip or any other way.

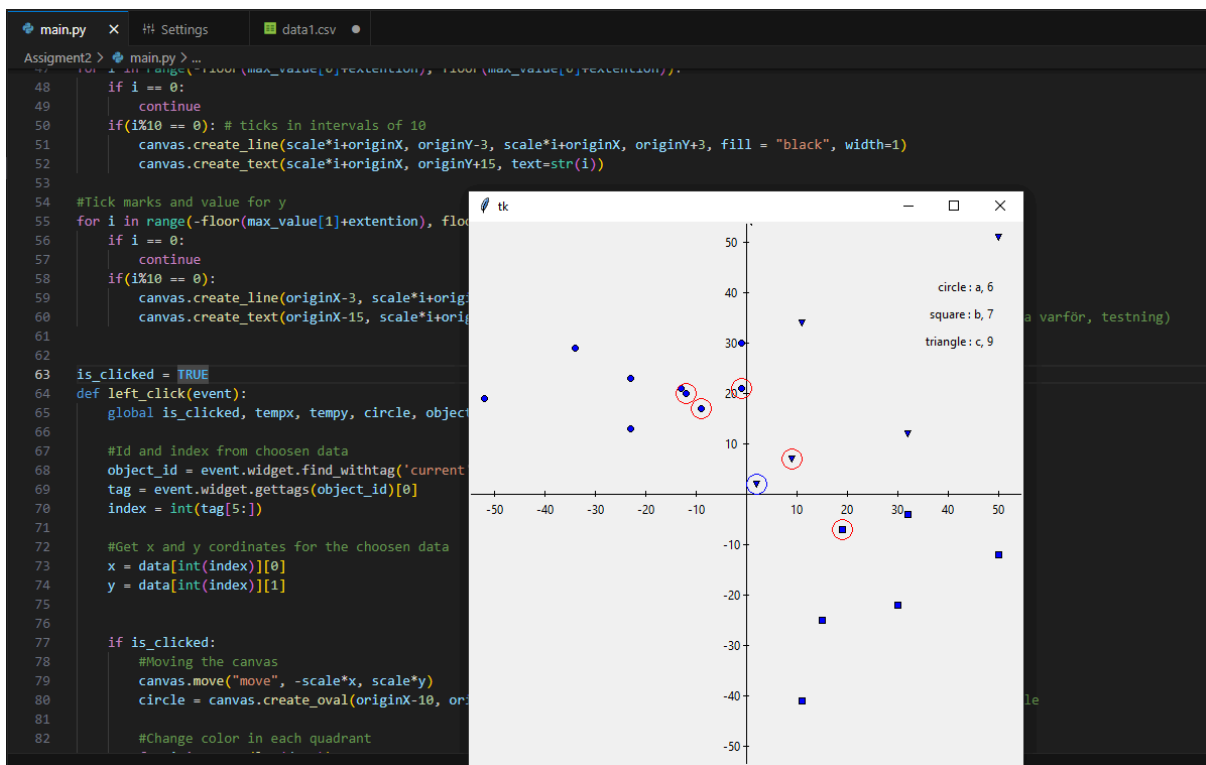
1. This code starts by reading the data and then copying it to an array. We also look at what max and min value is from the CSV file.
2. We then create a window, that's depends on the data.
3. Creates a fixed axis with ticks with a 10 unit step interval.
4. Create action with input of left click that moves all data points so that the datapoint selected becomes in the center of the scatterplot.
5. Creates an action with the input of the right click. This gets the x and y coordinates from the chosen data. Euclidian value from the chosen point is then calculated and sorted from closest to furthest. We then take the closest five datapoints and draw a red circle around them and a blue circle around the chosen datapoint.
6. Lastly we print out the scatter plot and its objects as different forms depending on the data type with a legend.



Activated the scatterplot.



Left click: on the top triangle (10,35). That object now becomes the center point at (0,0)



Right click. Shows the blue rings as the object clicked and red rings around the 5 closest objects.