**Design**

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Initiate state:

Line: display all the data

* Data mapping: for each candidate: Y-axis → the accumulation of funding; X-axis → time

Pie: display the ratio of the funding for each candidate among the whole period

* Data mapping: The ratio of funding → the angle of the slice; The party → color and area

Map: match funding to different color for each state

* Data mapping: The state of the candidate → the state on map; the states of the party→ the states on map;

Left Click some period in the **line chart**:

Line: the lines will only draw to that period

Pie: display the ratio of the funding for each candidate among this period

Map: match funding to different color for each state

Left Click some area (party) in the **pie chart**: (click outside the pie will go to the initial state)

Line: show the lines for candidates belongs to that party in the original colors and show the rest candidates in a very light color

Pie: show the ratio of the funding for all the candidate in this party among this period and highlight the selected candidate

Map: highlight the states that those candidates are from

when the pie only show the candidates from the selected party:

hover the pie:

line chart: only show the line for that candidate in the original colors and the rest in a very light color

Button selected mode -- candidate button left click:

left click a button once, highlight this button, draw, pie and map corresponding to the elected candidate(s), to unselected click this button again.

Left Click some state in the map:

Line: show the lines of candidates who come from that state in the original color and show the rest candidates in a very light color, the corresponding candidate buttons will be white

Pie: highlight the slice of that candidate

Map: show the total funding of that state and highlight that state

if now click outside the map, It will go to the button selected mode.

hover some state in the map: highlight that state and show the state name and the total funding of that state

hover some pie slice: highlight the slice and line correspond to that candidate and show the name of the candidate and the amount of the funding

hover the “candidate button” in the line chart: highlight the line and slice correspond to that candidate and highlight the state that the candidate comes from

right click: return to initial state

Data structure:

1. For each chart it is a class, where all data are stored and have several states as well as a draw function of its own that will draw differently according to its state.
2. In the draw function of the main class, it will call all the draw functions in each class and pass the state to indicate how each chart should draw itself.
3. The state changes according to the mouse actions.

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| --- | --- | --- | --- |
| State | LINE | PIE | MAP |
| All | Show lines of all candidates | Show the funding of three parties and each has the detail of candidates | Show the total amount of data (to sept) |
| Selected\_time | Show lines of all candidates and highlight the selected area | Show the funding of three parties till the end point of highlighted area(details are the same with above) | Show the total amount of data before the XXX |
| Selected\_candidate | Show lines of all candidates but only display the line that was selected in the original color, the rest lines are all in a light grey color | Show the ratio of the candidates in the same party with the selected one and highlight the selected one | Show the total amount of data (to XXX) but highlight the state that the selected candidate from |
| Selected\_party | Show lines of all candidates but only display the lines that belong to the selected party in the original color, the rest lines are all in a light grey color | Show the ratio of a selected party with the details of the candidates in this party | Show the total amount of data (to XXX) highlight the states that those candidates are from |
| Selected\_state | Show lines of all candidates but only display the lines that belong to the selected state in the original color, the rest lines are all in a light grey color | Show the ratio of fundings for the parties from the selected state (with details of each candidate) | Show the amount of data (to XXX) highlight the selected states |

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| --- | --- | --- | --- | --- |
| Action | Line | Pie | Map | Button |
| Left click | → Selected\_time | → Selected\_party | → Selected\_state | → Selected\_candidate |
| Right click | → All | → All | → All |  |