

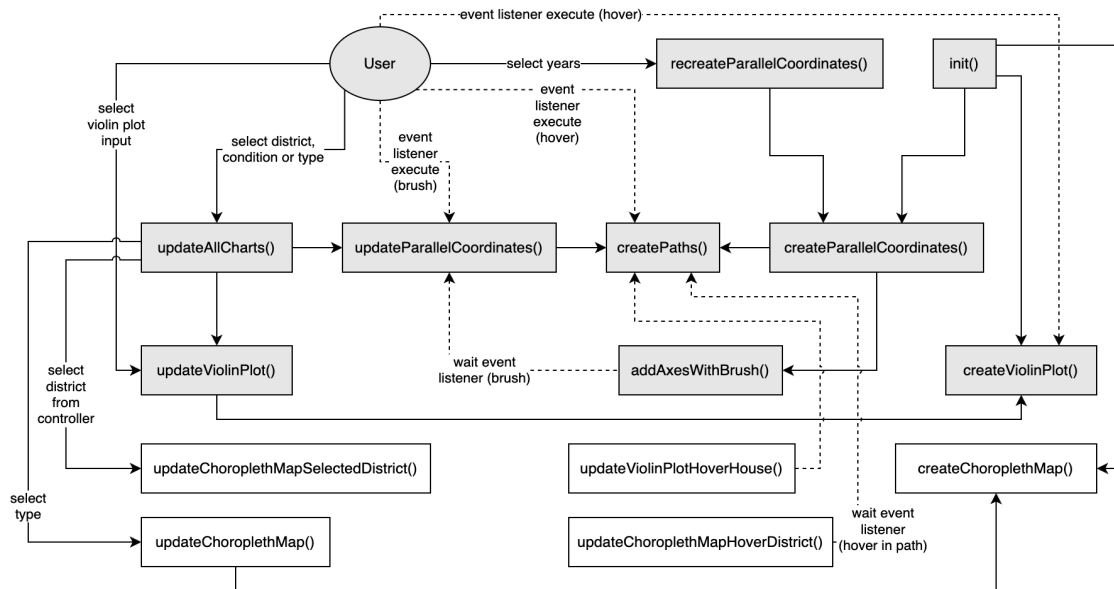


# Checkpoint V: Third Prototype

Group: G23

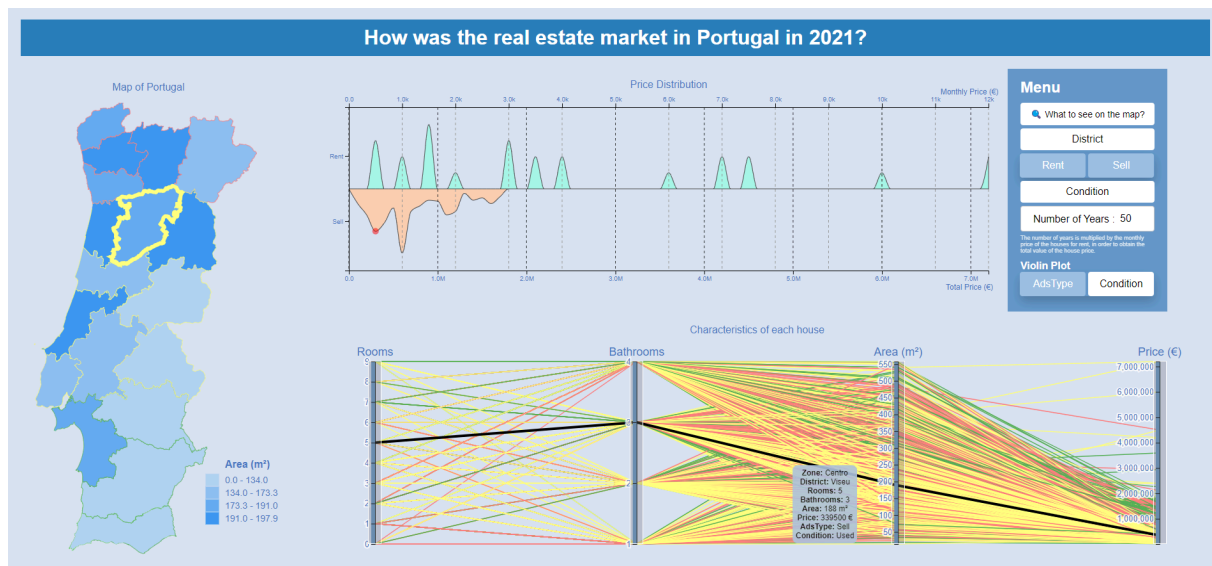
Date: 2024/10/22

## Prototype Architecture



In `choropleth_map.js`, several new methods were added to implement the Choropleth Map features. The **`createChoroplethMap()`** and **`updateChoroplethMap()`** methods are used to filter what is shown on the map (area, price, or availability) based on the controller. The **`updateChoroplethMapSelectedDistrict()`** method is triggered when districts are filtered in the controller, highlighting them on the map. The **`updateChoroplethMapHoverDistrict()`** method highlights a district's border on the map when a house from that district is hovered over in the parallel coordinates. These methods were added to handle all the Choropleth Map functions.

## Dashboard Layout



Regarding the layout presented in the last checkpoint, we added the Choropleth Map with a legend and made some color adjustments for clearer information.

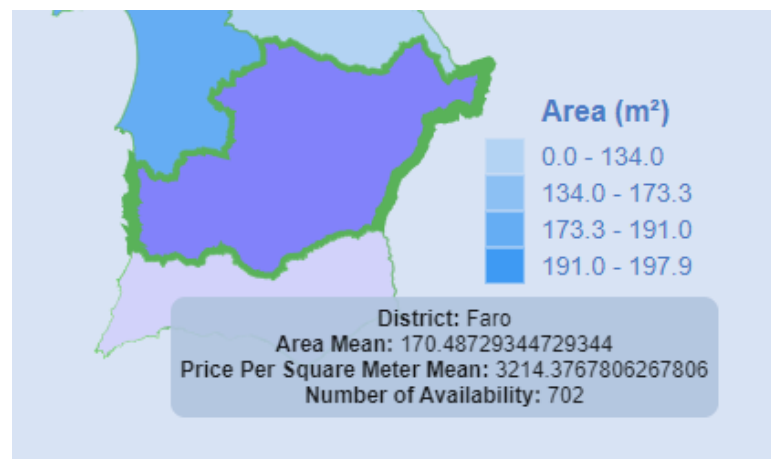
## Data Processing

A **GeoJSON dataset** was added to create the map of Portugal, containing district information like zone, number of available houses, average area, price per square meter, and quartiles. A **quartiles\_values.json** file includes the limits for each quartile. When interacting with the brushes in the parallel coordinates, the **geo\_data** and **quartile\_value** variables will update with the latest areas, prices, and quartile limits.

## Chart Interaction

For this chart, the interactions work as follows: When you hover over the map, the selected district will be highlighted with a thicker border in its zone color (dark purple). If the district is not selected, only the color will change (light purple). A tooltip will also appear, showing relevant information. This is triggered by the **.on("mouseover")** event in the **createChoroplethMap()** method.

Regarding the legend, you can select quartiles on the map. At the end of **createChoroplethMap()**, the **createLegend()** method is called. If a quartile is selected, the **highlightDistrictsByQuartile()** function runs, and to remove the selection, **unhighlightDistrictsByQuartile()** is used.



## Chart Integration

In the parallel coordinates plot, when you hover over a line or set of lines, the **updateChoroplethMapHoverDistrict()** method is triggered, causing the choropleth map to highlight the corresponding district, usually with a border. When a district is selected on the choropleth map, this selection is sent to the controller, which filters the data based on the chosen district and triggers an update for all the charts. The **updateDistrict()** method is called, which in turn calls **updateAllCharts()**, updating all charts according to the new selection and adding these districts in the controller. Additionally, if districts are selected directly through the controller, the **updateChoroplethMapSelectedDistrict()** method is activated, visually highlighting those districts on the choropleth map. This ensures that interactions and changes in one chart dynamically and synchronously affect all the others. (Look the image in Dashboard Layout)