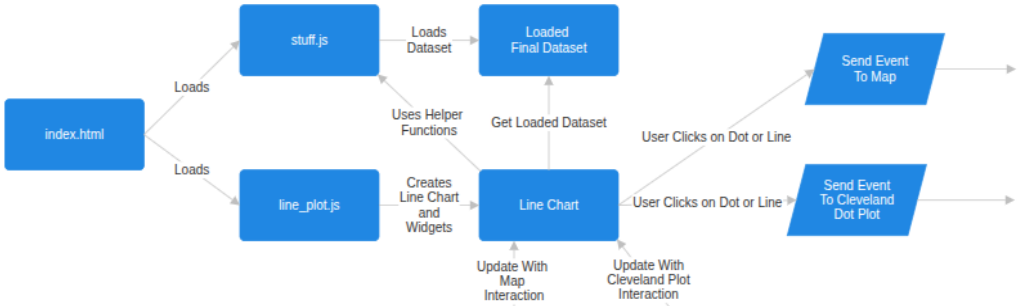
Checkpoint IV: Second Prototype

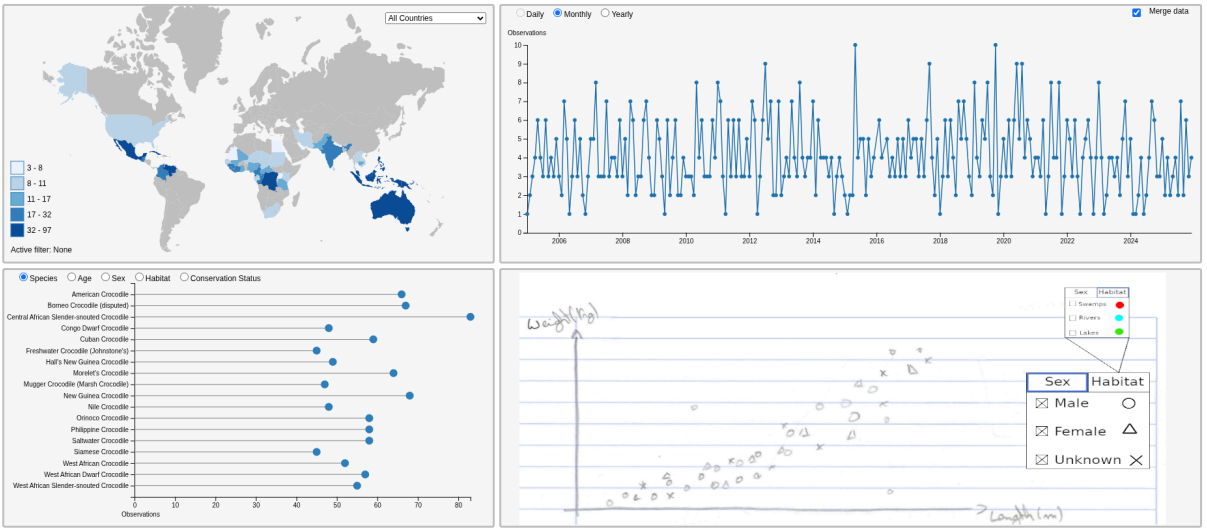
Group: 34
Date: 2025/10/05

Prototype Architecture



The project architecture is essentially unchanged from that which was shown in CPIII, and this section is essentially a continuation of the same one found in CPIII. There is just one new module, named line_plot.js and referred to as Line Chart. This is our second implemented idiom, third if counting the Choropleth Map, and it works and interacts with the other modules the same way that the other implemented modules already do, sourcing data the same way (stuff.js module) and sending data the same way (events to other modules).

Dashboard Layout



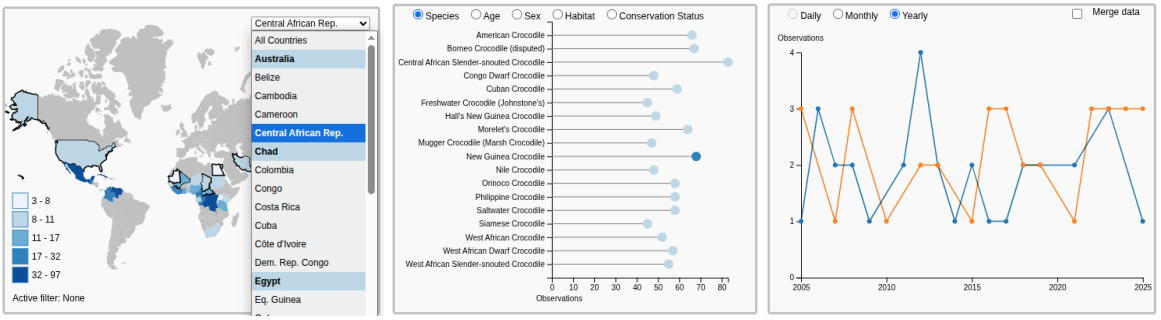
Little has changed in the dashboard compared to CPIII and CPII, there being only three changes. An interactive colour scale is now included in the map, showing the five colour quantiles; the “Year” and “Month” dropdown boxes in the Line Chart have been replaced in favour of a set of Radio Buttons for changing the granularity of the viewed data (Day, Month, Year); a “Merge data” checkbox has been added to allow the user to switch between seeing many lines (by country) or seeing a single line (an aggregate of either all countries or just the selected countries). The user is still able to pick specific years and months to view, but we considered that instead of very long and data heavy dropdown boxes, it would be more clear and easier for the user to directly interact with the Line Chart via brushing, clicking and hovering, to pick specific time frames.

Data Processing

No new data processing is done whatsoever to the dataset directly (via the python files). The way that data is filtered and interpreted by each function is unique and depends on different attributes: the Cleveland Dot Plot still counts observations for each available attribute; the Choropleth Map still counts observations per country; and now the Line Chart counts observations per country and per date. When the Line Chart creates this count, a new “global” country is added to the newly created data map, which includes a count of all dates of all countries. This means that when the user clicks on the “Merge data” option, no data is actually processed, as all that is done is the “global” data is displayed. This data is only processed when the selected countries change. When countries are selected, the data is filtered to include only those countries and when dates are selected, the data is filtered to include only those dates.

Chart Interaction & Integration

There are many new interactions now, some from given suggestions from CPIII. In the previous idioms there are new interactions: selecting multiple countries on the map; deselecting countries by clicking on them again; selected countries are marked in the dropdown box; clicking on a colour in the colour scale filters the map to only show those values; and clicking on a dot (in the Cleveland Dot Plot) will desaturate the other dots, so the user can see which dot is currently selected more easily.



If we select several countries and select a data point (species in this case) in the Cleveland Dot Plot, we’re shown the observation dates and amounts by country in the Line Chart. Since only two of those countries have that species, only two lines are shown. Hovering over the dots tells the user the country, the number of observations, and the date of that dot. There are many countries, so the dots will overlap very frequently, and in this case, the tooltip will display information about all the dots in that position. Clicking on a dot will show information about that date: the map will show countries with observations on that date; the Cleveland Dot Plot will show values for that date; and the Line Chart will display information about that date. It is also possible to click on a line, making all idioms only show information for that country. Other interactions include choosing the viewed granularity (Month or Year), and the possibility to “merge” or “unmerge” the data, as previously described. Lastly, it is possible to choose a specific time-frame by brushing on the x-axis of the Line Chart, making all idioms show information about that time-frame. Brushing and granularity pictured below: