Data Visualization (COM-480) – Milestone 2

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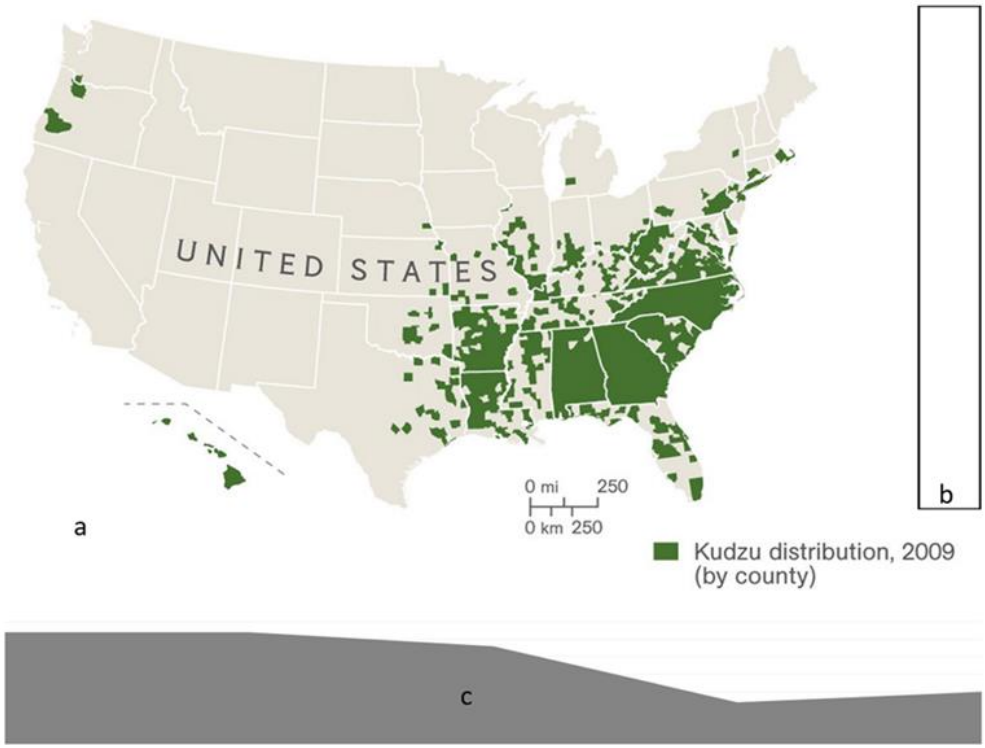
For the Milestone 2, we discuss about the visualizations we want to make in the final project, and our ideas are reported below.

1)

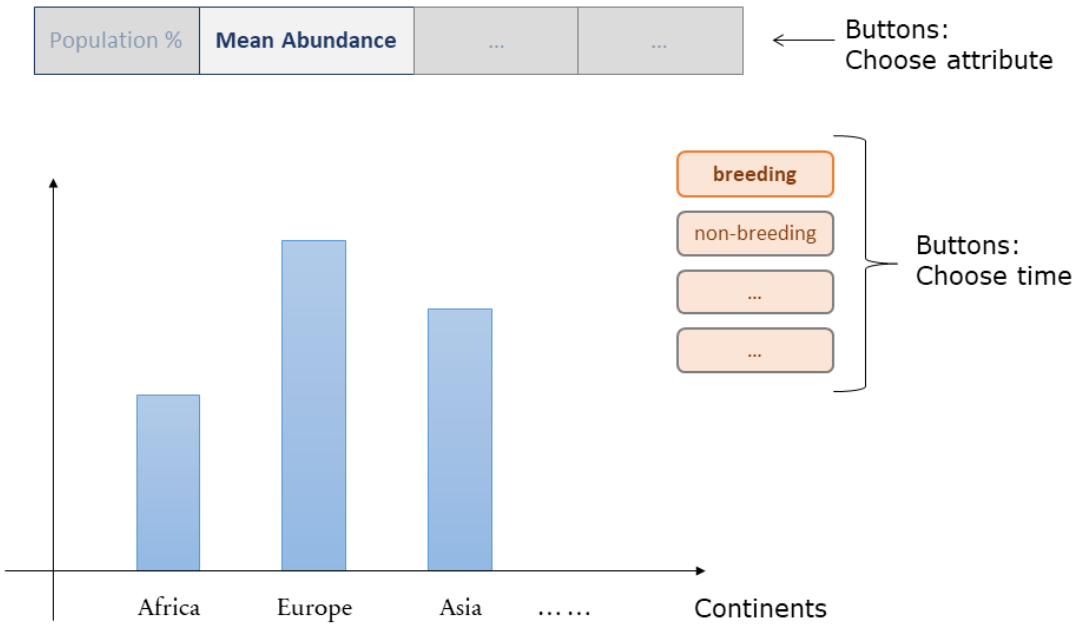


First of all, we would like to provide an interactive map to show the variation of distributions for birds. Part a is the main part of the figure, and the colour on the map indicates the range of the bird's distribution at a given time, while the shade of the colour indicates the bird's abundance together with Part b. Part b is an adjustable colour bar where users can select the range of bird abundance they are interested in and the results of the bird distribution will be displayed in the map. Part c is a folded area map of bird occurrence versus time in the overall area, the user can select a certain time which will be highlighted in it, while the map in Part a will correspond to the distribution range of birds at that point in time. Part c also takes on the timeline function in part a.

We would also like to include more options: region, breeding season or non-breeding season. The change in bird distribution over time is already indicated in the previous description, and we would also like to add an option for time range: time X to time Y, where once the user specifies the time range, a dynamic display of the corresponding bird variations will be provided. In addition, all the current displays of bird migration are through changes in the distribution area, we would also like to provide more varieties, so we will add a more intuitive presentation: dots or arrows, to offer more options to the user.

We are going to use CSS and D3.js shown in Lectures 4 and 5, for figure display and webpage design. The JavaScript library Leaflet will help us to realize web mapping. In addition, we are going to deal with data through Python libraries like Altair and Pandas.

2)

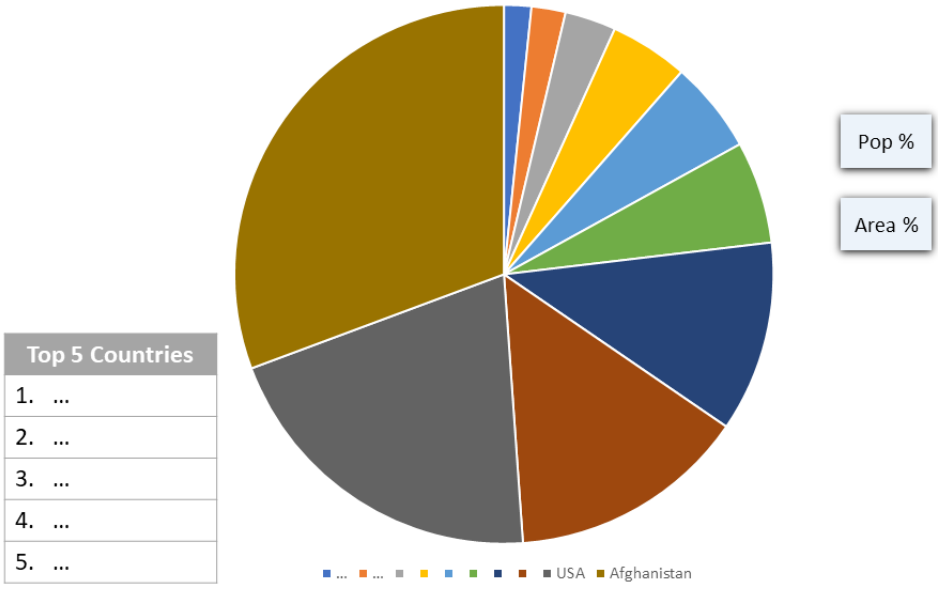


Secondly, we would like to show a very general figure about the bird statistics over the seven continents. In this figure, we plot population percentage, area percentage or abundance mean depending on what attribute is chosen among the buttons above. On the right hand, there are also 4 buttons that allow users to select among different seasonal time (breeding, non-breeding, etc.).

We need to use D3.js to achieve the first interactive bar plot. Plus, we may need to acquire basic knowledge about hierarchical buttons which can select both time and attributes shown.

3)

We would also like to show a pie chart about the total population percentage and total area percentage for each selected season.



It is possible to choose among attributes to see the distributions over countries and regions, and to find out the five countries or regions with the largest population or area occupied by a specific kind of bird at different seasonal time.

To realize this pie plot, we would use SVG plotting shown in Lectures 1 and 2.

For this section, we can consider to add more bird species to our options, in order to make our website content more abundant.