

Visualization of Data Science Project Proposal

Basic Information:

Project name: Bird Tracker

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GitHub Link: <https://github.com/orgs/dataviscourse2024/teams/bird-tracker/repositories>

Background and Motivation: Recently, we found ourselves engrossed in bird watching, which inspired us to track different bird species across the United States. The project aims to create an interactive tool where users can search for a specific bird and see all the states where it is present. Additionally, by hovering over a state, users will get information about the birds in that state, including their count and critical features. This project aims to enhance understanding of bird populations, migration patterns, and biodiversity across different regions. By making this data easily accessible and visually engaging, we hope to promote conservation efforts, educate users about the richness of bird species in the U.S., and contribute to the growing need for user-friendly tools in environmental sciences.

Project Objectives:

Build an interactive visualization tool that allows users to search for specific bird species and view the states where those species are present.

Enable state-level exploration by displaying the number of bird species in a selected state and critical features about each species (such as migratory or endangered status).

Build the first steps required to build a real-time bird-tracking visualization tool.

Promote understanding and awareness of bird biodiversity by creating a user-friendly interface for educational and research purposes.

Integrate hover-over functionality that offers detailed insights on each state, including the count of birds and their unique characteristics, to enhance user interaction and data accessibility.

Data:

We are initially going to use data that has been collected via the Monitoring Avian Productivity and Survivorship (MAPS) program. <https://ibp-maps-data-exploration-tool.org/app/maps>

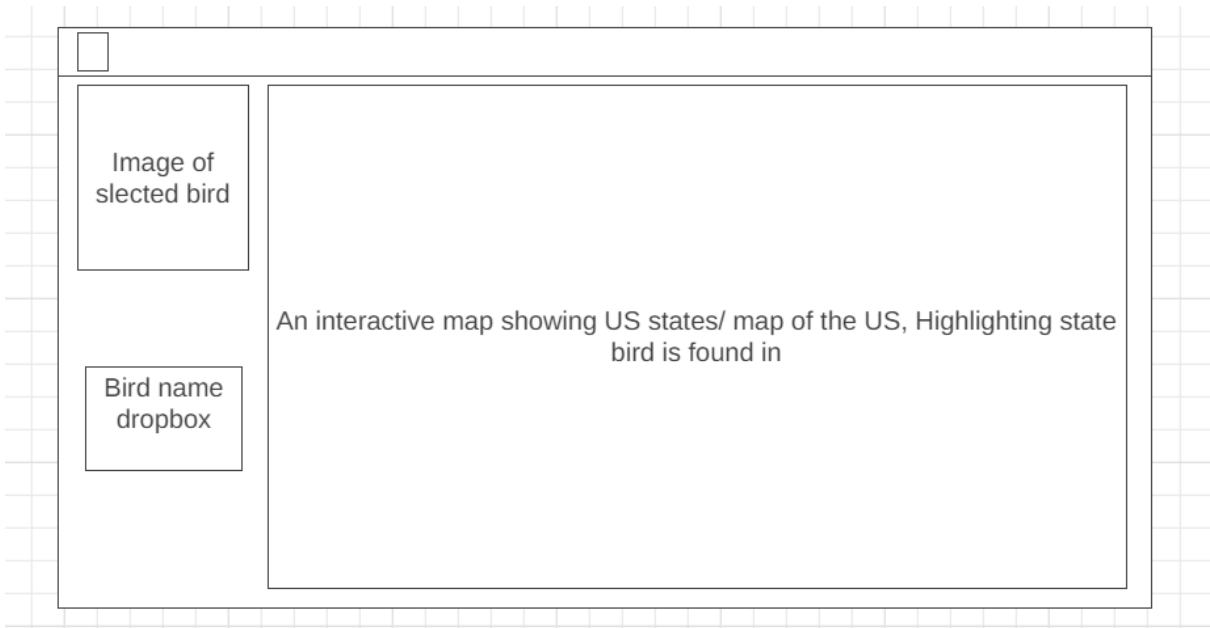
We are also searching for other data that has more general information about the birds and their images, but we might have to compile this on our own as of now.

Data Processing:

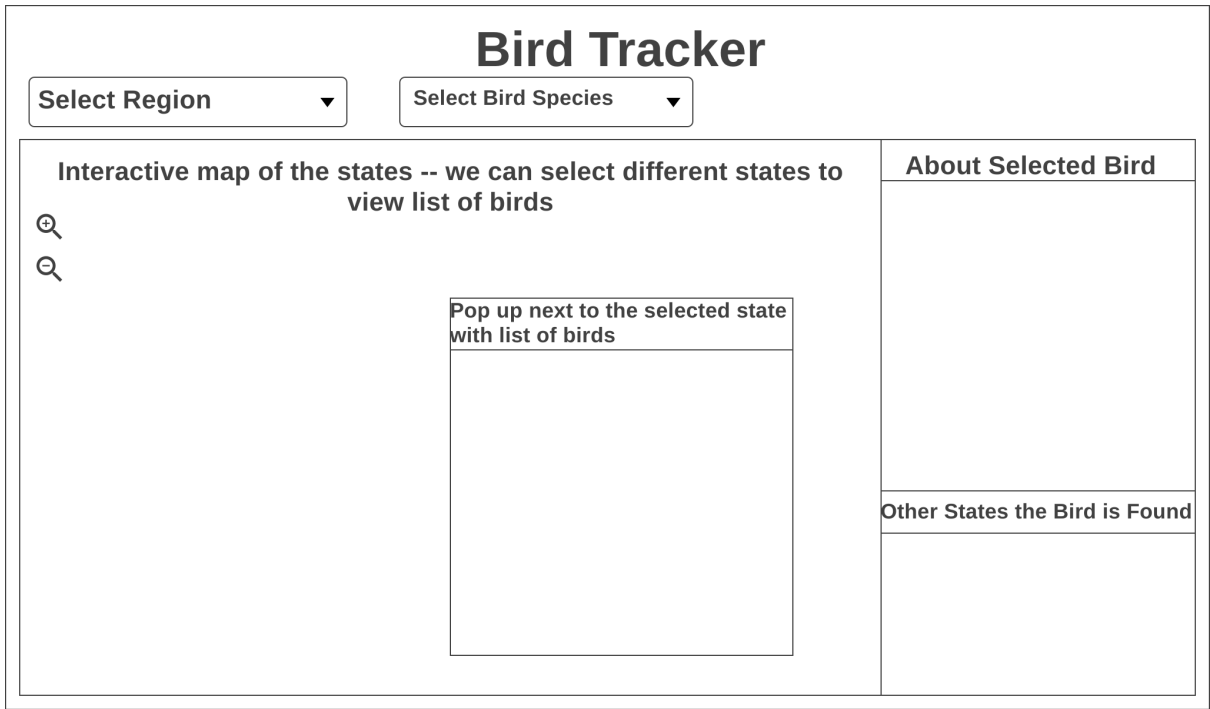
- We will be doing some data cleanup as a lot of data is provided to us, and we will remove the data we don't require.
- We will also derive which state the birds are in from the region data they have given.
- We will also have to get bird image data and more data about the bird from a different source.
- The data will be displayed using an interactive map and a few plots to show different trends among the birds.
- We are taking the following details from the predefined dataset.
 1. Scientific Name – The Latin name of the bird.
 2. Common Name – The widely recognized name of the bird.
 3. Bird Count – Total number of birds recorded in the selected state.
- We will compile our dataset for the following:
 1. Bird Image – Image of the selected bird.
 2. Interesting Facts – Interesting facts about the chosen bird.

Three alternative prototype designs for our visualization

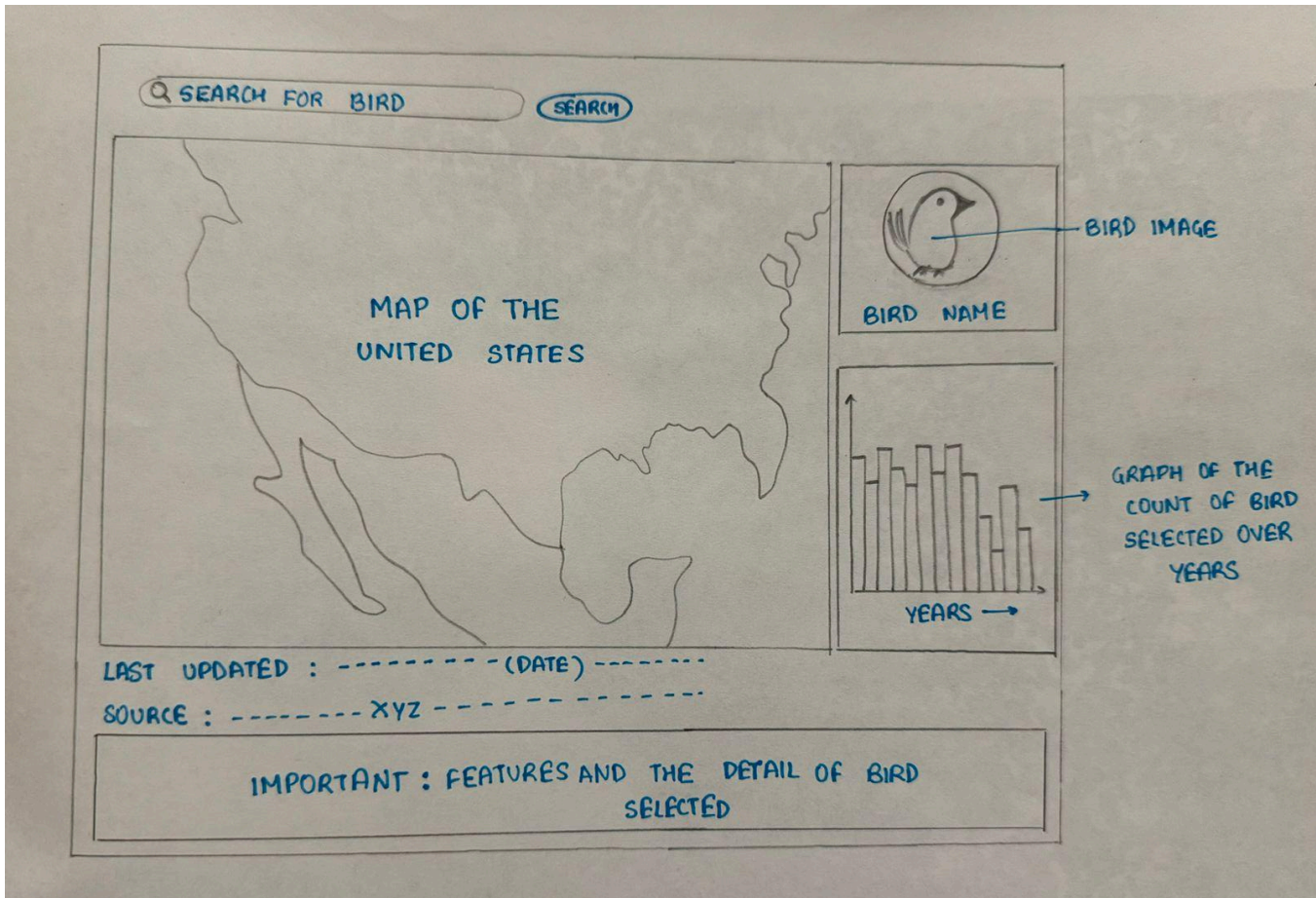
Tanmay:



Sujit:



Sakshi:



Final design Sketch



Design description and justification

- **Interactive Map:-** this is the core aspect of our design. We will show a map of the United States with the state borders, and each state will be selectable. Also, when a bird is selected, the state will be highlighted
- **Dropdown menu:-** will have birds available to be selected or searched for.
- **Bird Image:-** will have an image of the bird selected from the dropdown menu.
- **About Bird:-** will have the number of birds captured for observation and other facts about the bird.
- **Other states:-** the bird is found in will be a list of other states where we can find the bird

Must-Have Features:

1. Interactive map – should be able to select individual states to get bird-related data about the state
2. Dropdown/filter system – should be able to filter particular birds or states to get more data about them in the interactive map
3. Facts and related visualizations about the selected bird. Example – visualization to show

Optional Features:

1. Vocalizations – Description or sound bites of the bird's calls or songs.
2. Migration patterns – show the migration path taken by the bird on the map
3. Mobile compatibility – Make the interactive map compatible to devices of varying screen sizes.

Project Schedule:

Week 5 (Sep 17/19)

Project review(ask for process book details)

Week 6 (Sep 24/26)

Work on getting the framework setup/ create page template essentially

Week 7 (Oct 1/3)

Exam week

Week 9 (Oct 15/17)

Create process book/Get data ready

Week 10 (Oct 22/24)

Milestone due

Week 11 (Oct 29/31)

Peer Feedback

Week 12 (Nov 5/7)

Work on must-have features

Week 13 (Nov 12/14)

Work on must-have features

Week 14 (Nov 19/21)

Fix any issues and try to implement optional features

Week 16 (Dec 3/5)

Submission