SharkPulseApp
CS4624

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Outline

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- Acknowledgements
Client

- Professor Francesco Feretti
  - Department of Fish and Wildlife Conservation
  - Research Human Impact in the Ocean
- Jeremy Jenrette
- SharkPulse, get more data on sharks
Problem

Motivation:

- The shark population is under threat due to several factors
- Protecting sharks is crucial as it can impact the overall health of marine ecosystems
- The threats facing sharks include:
  - Overfishing
  - Shark finning
  - Loss of habitat

Problem:

- SharkPulse static Pulse Monitor pages
- Improve user experience
Deliverables

- Refined Validation Monitor Map View (toggle)
- Improved Validation Form Navigation
- Map location selection
Work Completed

- Created a versatile pipeline
  - User can choose between Instagram and Flickr
  - Requested form information changes based on user’s choice

- Refined forms
  - Added map with draggable marker
  - Changed format of form
  - Consistent style
  - Autofill shark species name and common name
  - Escape and submit buttons
Instagram Validation Form

Original Form

New Form
Implementation

- Produce a generalized validation Monitor app able to load different social network data streams
  1. Add another tab for Instagram data streams on the nav bar
  2. Create 2 different functions to handle each data stream individually
  3. Call those 2 functions in shinyServer function, fetch data from database and pass data to functions’ parameter

```r
render_flickr(
  input, output,
  dat, common_name_options_str,
  species_name_options_str
)

render_insta(
  input, output,
  dat1, common_name_options_str,
  species_name_options_str
)
```
```r
shinyServer(function(input, output, session) {
  dat <- get_flickr_data()
  dat1 <- get_insta_data()
  shark_info <- get_name()
  shark_info$scientific_name <- factor(shark_info$scientific_name)
  shark_info$main_common_name <- factor(shark_info$main_common_name)
})
```
Implementation

- Improve website's User Interface, make validation form more user friendly and responsive.
  1. Design on Figma and get approved by clients
  2. Update CSS file based on discussed wire frames
Implementation

- Integrate Instagram Validation form with Google Maps

1. Get Google API key and geotag.js script to render Instagram
2. Create callback function and other helper function, store those in geotag.js
Challenges

- Lacked familiarity with R Shiny, leaflet package, Google Places Libraries

- The given code using HTML modal instead of shinyUI made the code base messy and hard to follow

- Every time a new shark marker is clicked the HTML modal is reloaded so it consumes the Google Maps API multiple times

```html
You have included @js?key=A1zaSydroOBM... back=initialize:253 the Google Maps JavaScript API multiple times on this page. This may cause unexpected errors.

yea @js?key=A1zaSydroOBM... back=initialize:253
Cea @js?key=A1zaSydroOBM... back=initialize:246
google.maps.Load @js?key=A1zaSydroOBM... back=initialize:14
(anonymous) @js?key=A1zaSydroOBM... back=initialize:396
(anonymous) @js?key=A1zaSydroOBM... back=initialize:396
```
Timeline

February:
- Familiarize ourselves with the code base
- Figure out what aspects need to be improved on the validation monitor.

March:
- Re-design Front-end to be user-friendly and start implementing
- Enhance integration of front-end and back-end

April
- Finish up implementation for the validation monitor

May
- Complete final version of the website, fully tested
- Present to the client
Timeline Continued
Future Work
Acknowledgements

- Professor Francesco Feretti
- Jeremy Jenrette
- Professor Edward Fox
- TA Ryan Wood
References

1. [http://sp2.cs.vt.edu](http://sp2.cs.vt.edu)
2. [https://www.conservation.org/act/shark-facts#:~:text=Sharks%20have%20survived%205%20mass,like%20overfishing%20and%20shark%20finning.](https://www.conservation.org/act/shark-facts#:~:text=Sharks%20have%20survived%205%20mass,like%20overfishing%20and%20shark%20finning.)
3. [http://hdl.handle.net/10919/109976](http://hdl.handle.net/10919/109976)