phone: “+573222119934” email: “jmrautos11@gmail.com” address: “Cl 46 C sur, N 39-41” date: “2024-09-13” output: html_document —

Intro

I have two years of experience working with RStudio, Python 3 (Django), and Jupyter Notebook. The applications presented showcase only a portion of their functionality, particularly in relation to real-time fluctuations and 3D mapping. These projects are developed in both R and Python, demonstrating my versatility and expertise in utilizing these powerful programming languages to create dynamic and interactive visualizations. Libraries Used:

In R:

```
ggplot2: A widely used package for data visualization that implements the grammar
of graphics, allowing for the creation of complex and multi-layered plots.
shiny: A web application framework for R that enables the development of
interactive web applications directly from R, making it easy to create dynamic
visualizations.
plotly: A library that allows for the creation of interactive plots and dashboards,
enhancing the user experience with zooming and hovering capabilities.
leaflet: A library for creating interactive maps that can visualize geographical
data and provide a rich user interface.
```

In Python:

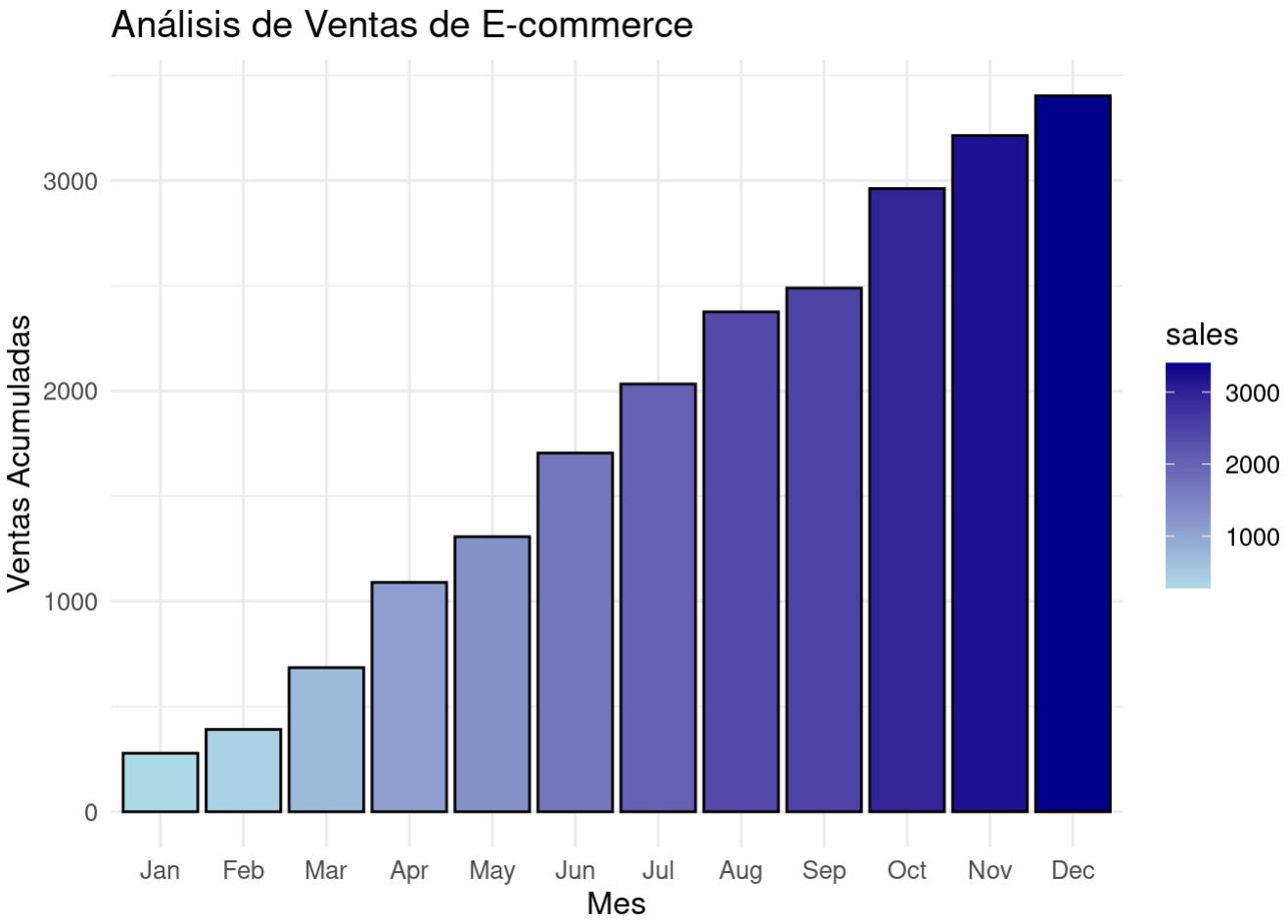
```
Django: A high-level web framework that encourages rapid development and clean,
pragmatic design. It is used for building robust web applications.
Matplotlib: A plotting library that provides a MATLAB-like interface for creating
static, animated, and interactive visualizations in Python.
Plotly: Also used in Python, this library allows for the creation of interactive
visualizations and dashboards, similar to its R counterpart.
Bokeh: A library for creating interactive plots and dashboards that can be easily
embedded in web applications, providing a modern look and feel.
```

These libraries enable me to harness the full potential of R and Python for data analysis and visualization, creating applications that are not only functional but also visually engaging.

Featured projects

1. E-commerce Sales Analysis

- **Description**: This analysis focused on the sales patterns of an online store.
- **Tools**: R, ggplot2, dplyr
- **Results**: 20% increase in sales after implementing the recommendations.



1. Ocean Temperature in 3D

This R Shiny application displays two visual elements: a 3D surface plot showing ocean temperatures and an interactive 2D map using the `leaflet` library.

1. **Shiny Framework**:
   - The app uses the `shiny` library to create an interactive web application. The UI (User Interface) and server logic are defined, allowing the app to render and respond to user inputs dynamically.
2. **Data Generation**:
   - The `lon` and `lat` variables represent longitude and latitude ranges globally. The `temperature_data` simulates ocean temperature readings across these coordinates, generated randomly using the `runif` function. Missing values (`NA`) are introduced to mimic incomplete real-world datasets.
3. **3D Surface Plot**:

- The `plotly` library is used to generate a 3D surface plot. This plot shows the temperature variation across the oceans using a color gradient.
- The plot's axes represent latitude, longitude, and temperature, giving a visual overview of the spatial distribution of ocean temperatures.

4. **Interactive Map**:

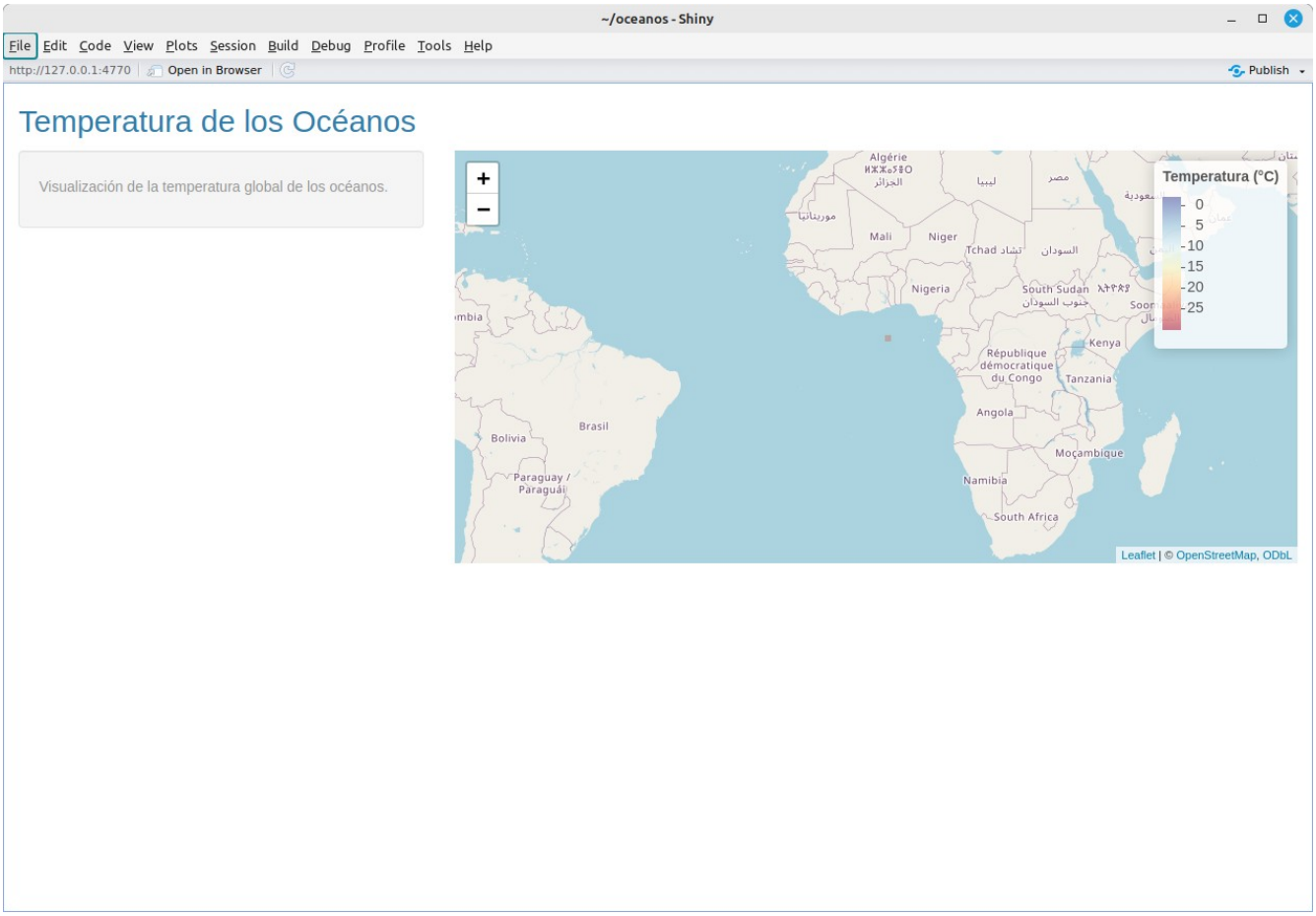
- The `leaflet` library is employed to display an interactive map. It allows users to pan and zoom over a world map, and the `addHeatmap` function displays a heatmap of ocean temperatures based on the generated data.

5. **User Interface**:

- The UI is divided into two panels: one for the 3D surface plot and another for the interactive 2D map, allowing users to interact with both visualizations simultaneously.

Libraries Used

1. `shiny`: Core package to build interactive web applications in R.
2. `plotly`: Used to create interactive 3D surface plots.
3. `leaflet`: Provides interactive maps with the ability to add layers, heatmaps, and other geographic visualizations.
4. `dplyr`: Facilitates data manipulation, such as filtering rows and selecting specific columns.
5. `tidyr`: Used to tidy up data, in this case to remove `NA` values before plotting.
6. `sf`: Provides functions to handle and visualize spatial data.

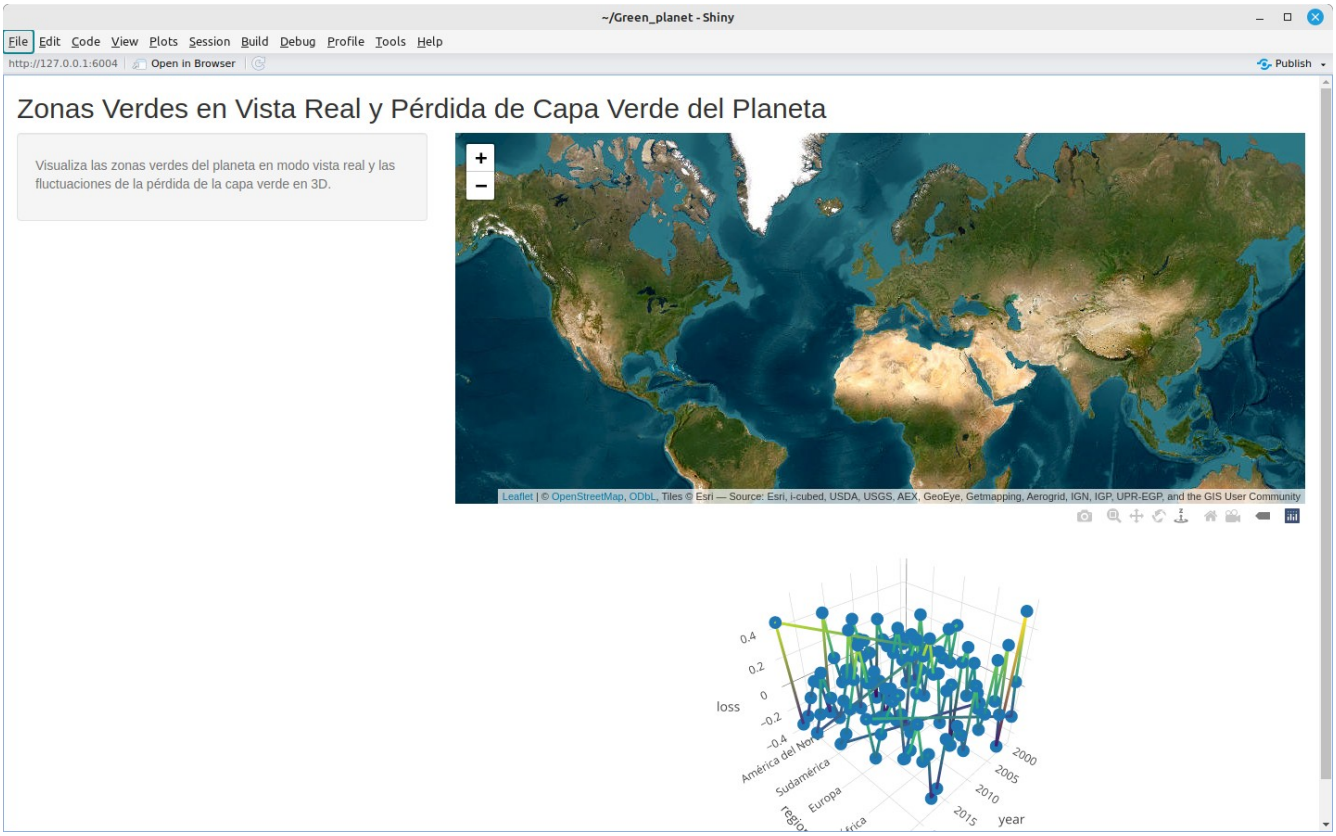


Application Overview

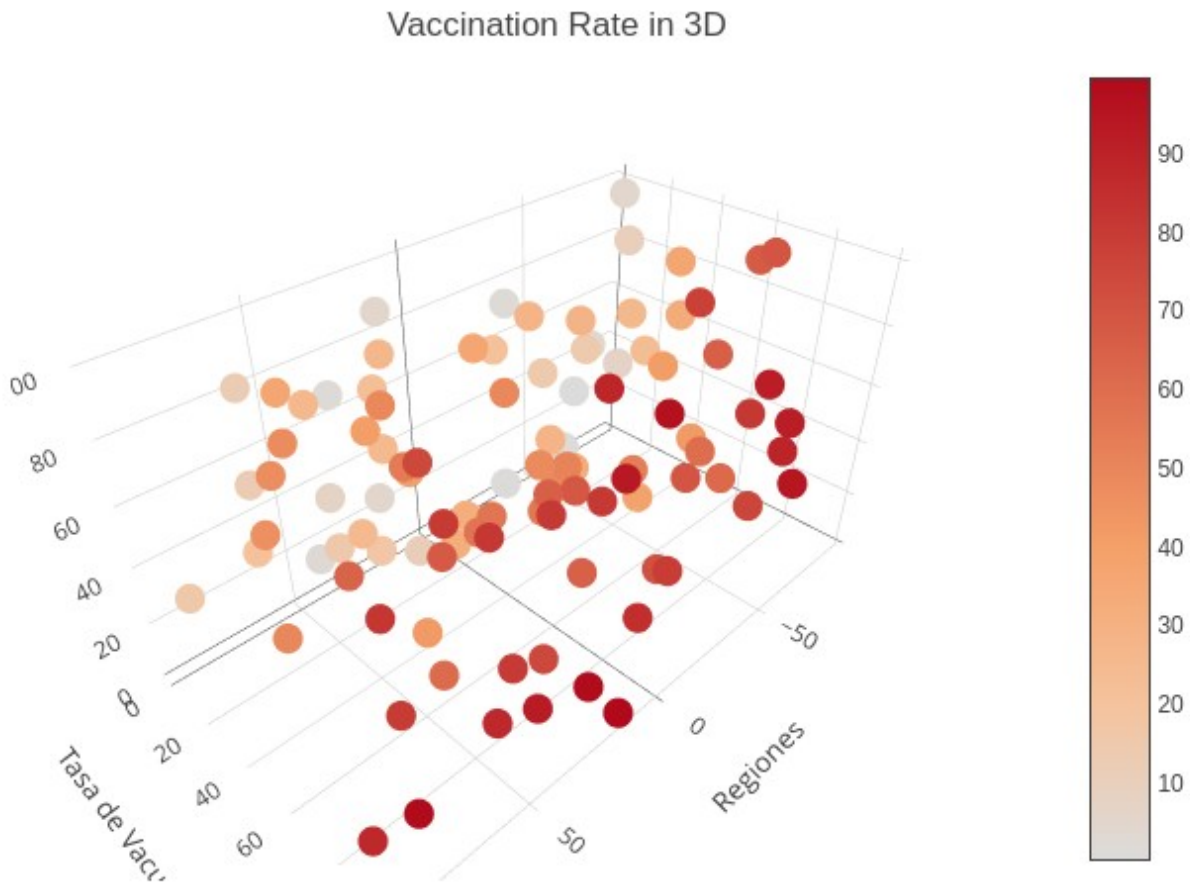
The "Pulmones Verdes del Planeta" application is designed to visualize green areas (forests, vegetation, etc.) on a 3D map of the Earth. The main purpose is to highlight the regions contributing to the planet's ecological balance. The application uses 3D graphics and interactive maps to provide an immersive experience for users to explore and analyze these green regions.

Key Libraries Used

1. `plotly`:
    - **Purpose**: Plotly is used for generating interactive and visually appealing 3D plots. In this application, it allows users to interact with the Earth’s surface and explore various regions.
    - **Features**:
        - Ability to create 3D scatter plots, surface plots, and choropleths.
        - Interactive zooming, rotation, and panning.
        - Customizable color scales to represent different regions or data points (such as forest density).
    - **Example**: A 3D surface plot might be used to display the Earth's topography along with green areas, and users can interact with the globe to explore different regions.



graphics from other applications that work similarly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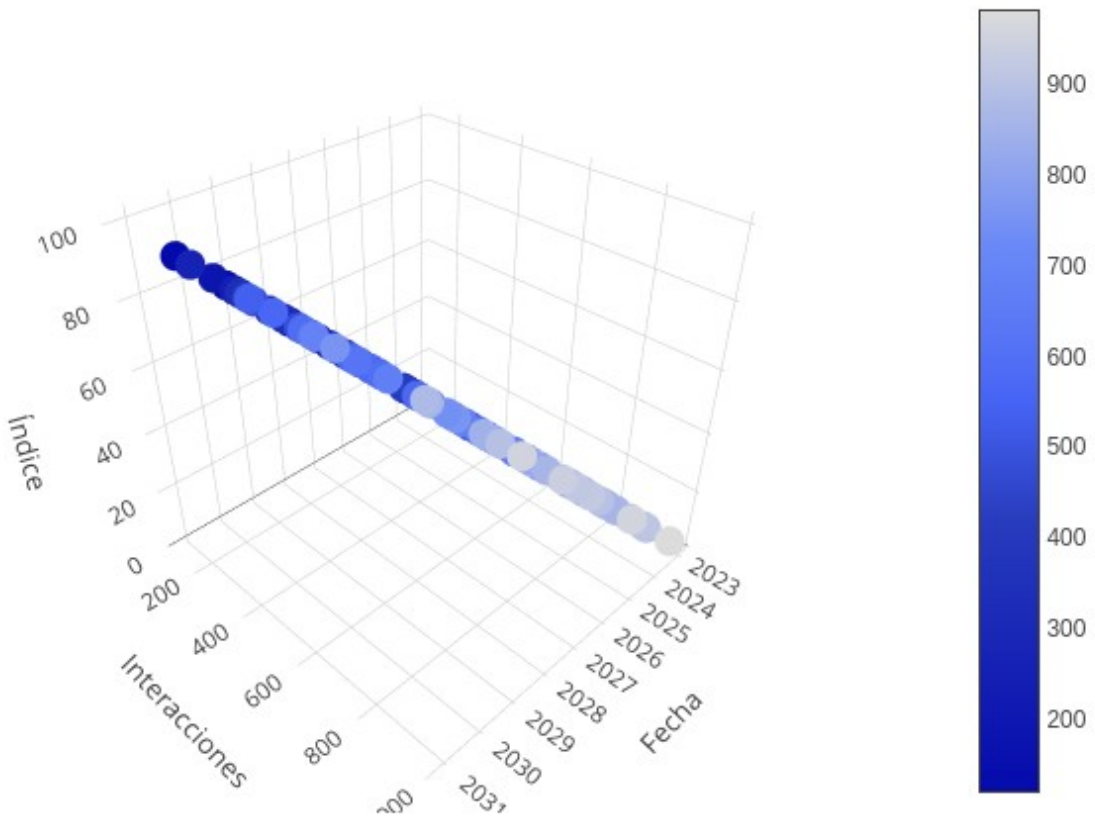
3D Social Media Data Analysis
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Temperatura de los Océanos en 3D