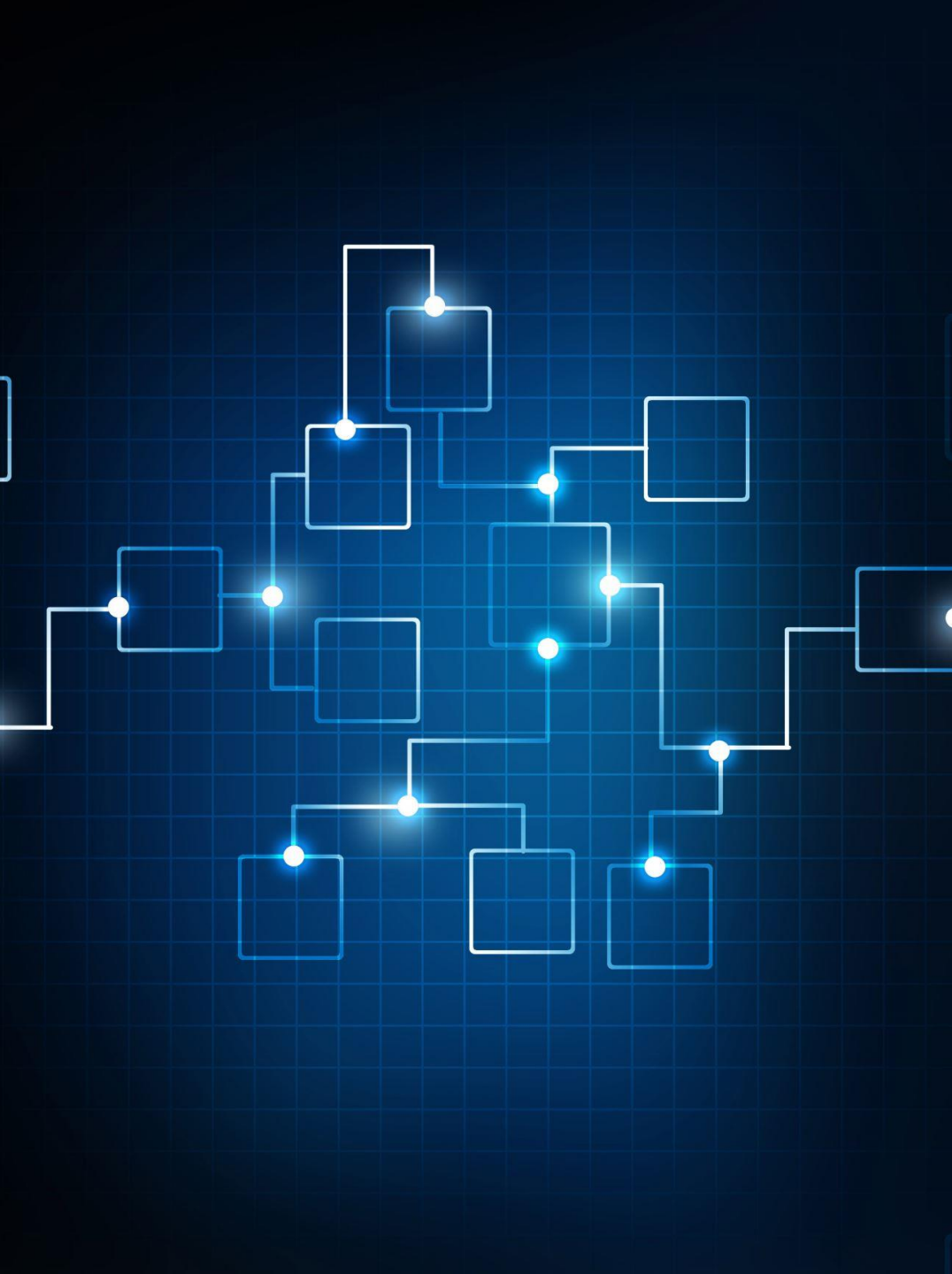


The background of the slide is a dark wooden surface covered with numerous colorful sticky notes. Each sticky note features a simple black outline of a person's head and shoulders. The colors of the sticky notes include yellow, light blue, pink, purple, and grey. The notes are scattered across the frame, creating a textured, layered effect.

Practice V. Workgroup. Creating a Shiny app

Dra. Anna Boqué
Dr. Jon Xavier Olano



Overview of the Shiny App Structure

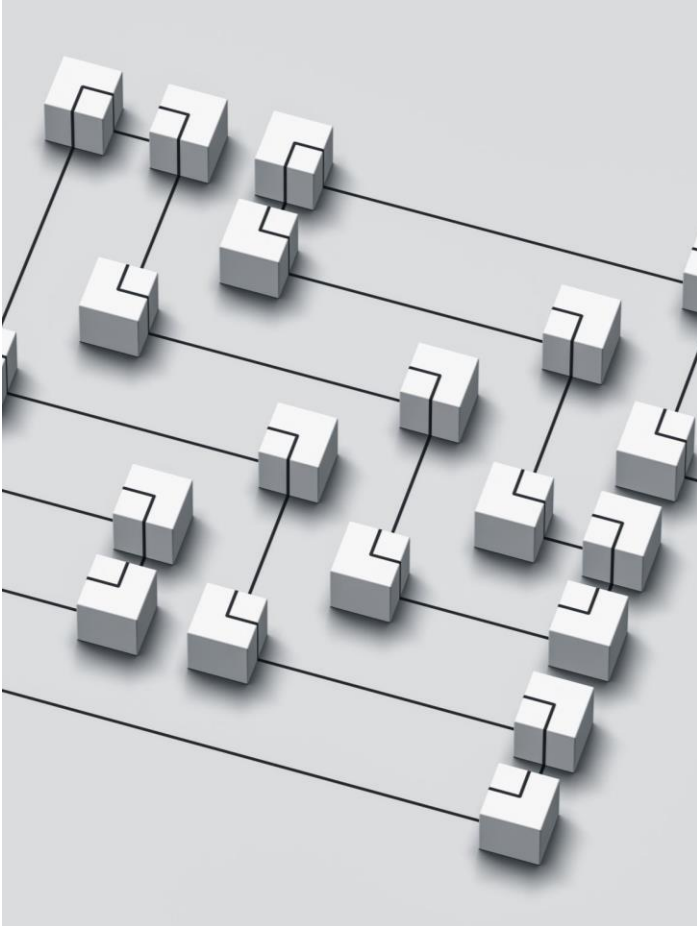
- Shiny Apps consists of two main parts:
 - UI (User Interface): Defines the layout and appearance of the app
 - Server: Handles the app's logic, responding to user interactions and updating the UI

Understanding the UI

- The UI specifies the layout, inputs, and outputs of the app
- In the code, the UI is defined using `fluidPage()` and contains multiple tabs for displaying different content

```
ui <- fluidPage(  
  titlePanel("Climate Data Viewer"),  
  tabsetPanel(  
    tabPanel("Map", leafletOutput("map")),  
    tabPanel("Station Metadata", DTOutput("metadata_table"))  
    ...  
  )  
)
```

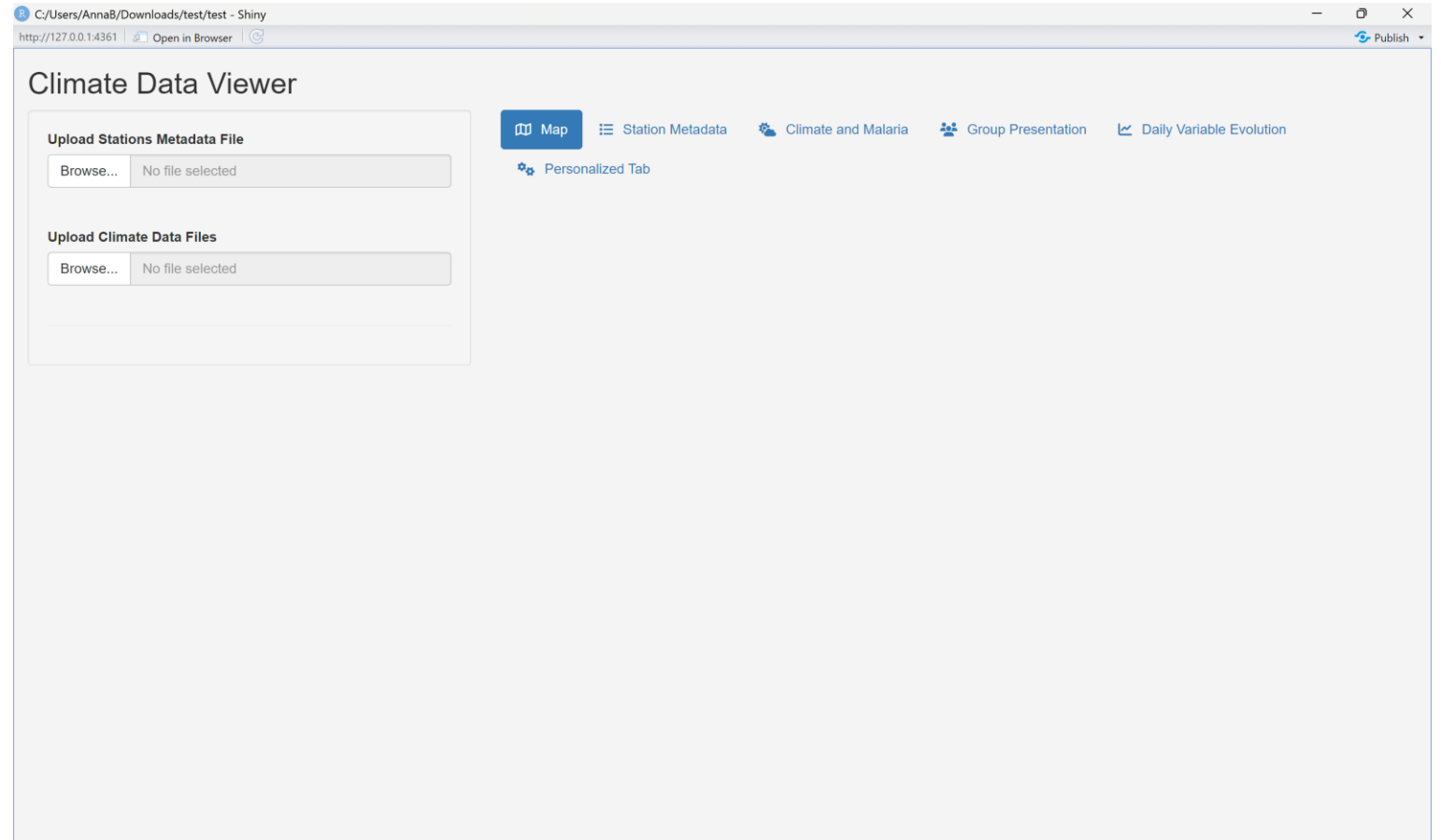
Understanding the Server



- The server contains the logic for the app
- It defines how inputs affect the outputs and how data is processed
- In the code, the server is defined using the server function and contains reactive elements like reactive () and render functions

```
server <- function(input, output, session) {  
  output$map <- renderLeaflet({  
    leaflet(stations) %>%  
      addTiles() %>%  
      addCircleMarkers(...)  
  })  
}
```

Task for
Students:
modify the
web app



Task for students: modify the web app

- Data:
 - 5 files with stations data
 - 1 file with station information
- Code named: code-shiny
- https://drive.google.com/drive/folders/1ywUJ0wfoVZzfnkGwX8t0GhPzx_w3tUR0?usp=sharing



Code-shiny: specifically designed for you

```
no  Editor  Ver

# Function to install required packages if they are not already installed
install_if_missing <- function(package) {
  if (!requireNamespace(package, quietly = TRUE)) {
    install.packages(package)
  }
}

# Install required packages if not already installed
install_if_missing("shiny")
install_if_missing("leaflet")
install_if_missing("readr")
install_if_missing("dplyr")
install_if_missing("lubridate")
install_if_missing("DT")
install_if_missing("ggplot2")
install_if_missing("shinyjs")
install_if_missing("plotly")
install_if_missing("shinythemes")

library(shiny)
library(leaflet)
library(readr)
library(dplyr)
library(lubridate)
library(DT)
library(ggplot2)
library(shinyjs)
library(plotly)
library(shinythemes)

# Function to convert DMS to decimal degrees
dms_to_decimal <- function(dms) {
  parts <- strsplit(dms, ":")[[1]]
  degrees <- as.numeric(parts[1])
  minutes <- as.numeric(parts[2])
  seconds <- as.numeric(parts[3])
  decimal <- degrees + minutes / 60 + seconds / 3600
  return(decimal)
}

ui <- fluidPage(
  useShinyjs(),
  titlePanel("Climate Data Viewer"),

```

```
RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

led5* x  Untitled6* x  Untitled7* x  Untitled8* x  Untitled9* x  Untitled10* x  Untitled11* x  code-shiny.R x  Run App  Addins

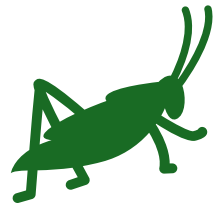
1 # Function to install required packages if they are not already installed
2 - install_if_missing <- function(package) {
3   if (!requireNamespace(package, quietly = TRUE)) {
4     install.packages(package)
5   }
6 }
7
8 # Install required packages if not already installed
9 install_if_missing("shiny")
10 install_if_missing("leaflet")
11 install_if_missing("readr")
12 install_if_missing("dplyr")
13 install_if_missing("lubridate")
14 install_if_missing("DT")
15 install_if_missing("ggplot2")
16 install_if_missing("shinyjs")
17 install_if_missing("plotly")
18 install_if_missing("shinythemes")
19
20 library(shiny)
21 library(leaflet)
22 library(readr)
23 library(dplyr)
24
15:30 (Top Level) R Script
```

Task for Students



Change the title of the app in the titlePanel:

```
titlePanel("Your New App Title")
```



Update the tab titles (e.g., “Malaria Viewer” to “Climate and Malaria”)

```
tabPanel("Climate and Malaria", ...)
```



Modify explanations in the “Malaria Viewer” and “Group presentation”



Any Questions?