

# Final Project for LA-558

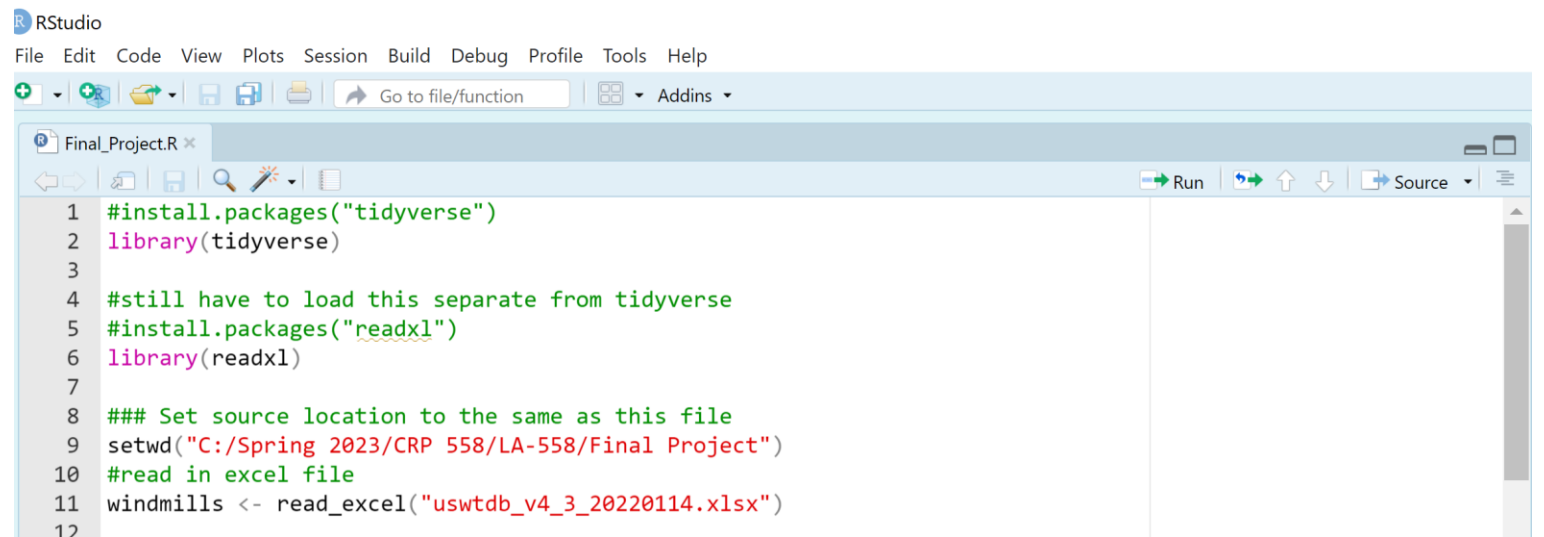
By Farzaneh Faramarzi

Professor Seeger

Spring 2023



# Read the Data in R

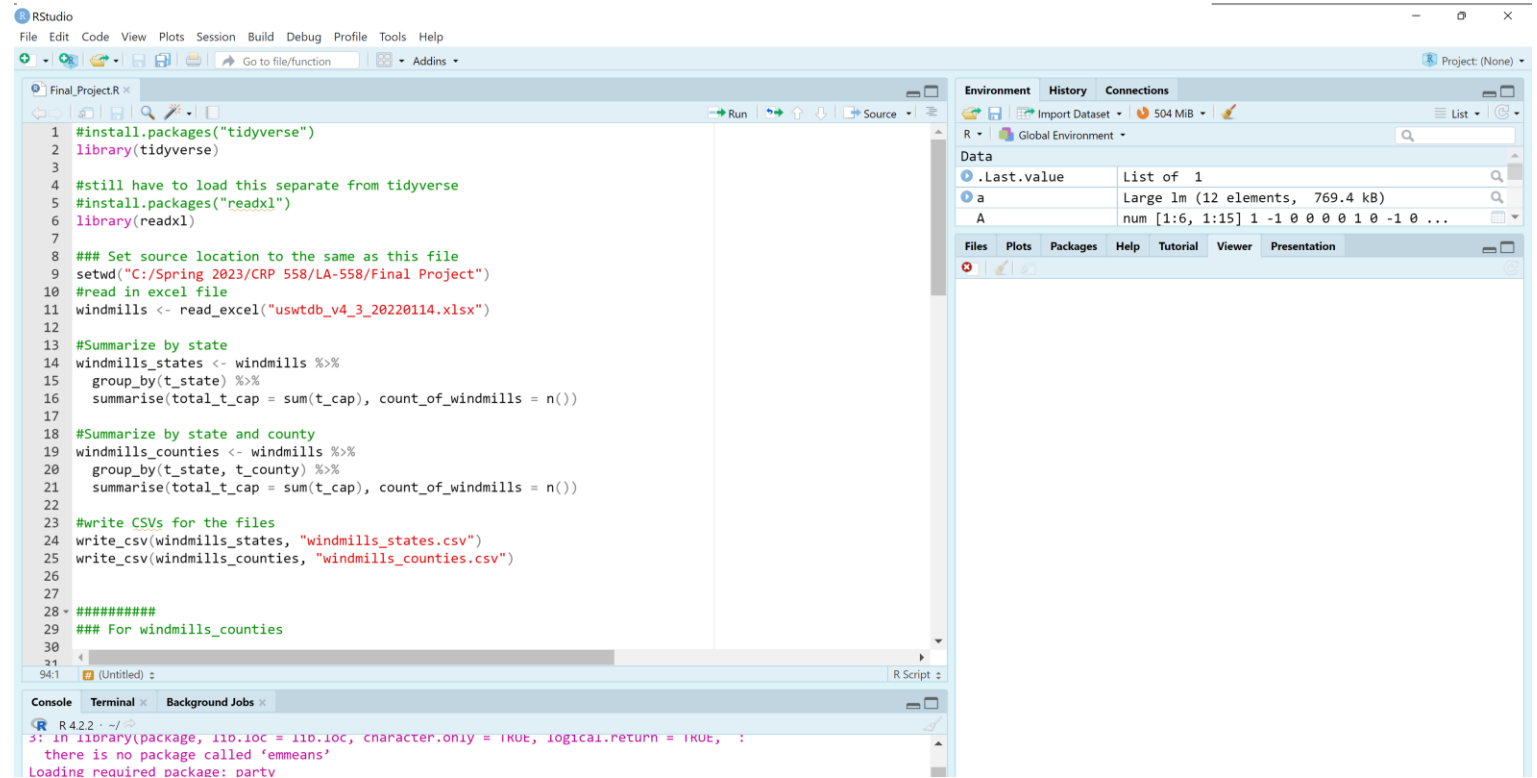


The screenshot shows the RStudio interface with a script editor open. The script contains the following R code:

```
1 #install.packages("tidyverse")
2 library(tidyverse)
3
4 #still have to load this separate from tidyverse
5 #install.packages("readxl")
6 library(readxl)
7
8 ### Set source location to the same as this file
9 setwd("C:/Spring 2023/CRP 558/LA-558/Final Project")
10 #read in excel file
11 windmills <- read_excel("uswtdb_v4_3_20220114.xlsx")
12
```

The RStudio window includes a menu bar (File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help), a toolbar with icons for file operations and navigation, and a status bar at the bottom.

# Clean the Data



The screenshot shows the RStudio interface with a script editor containing R code for data cleaning. The code includes package installation, data reading, summarization by state and county, and CSV writing. The environment pane on the right shows the current state of the workspace.

```
1 #install.packages("tidyverse")
2 library(tidyverse)
3
4 #still have to load this separate from tidyverse
5 #install.packages("readxl")
6 library(readxl)
7
8 ### Set source location to the same as this file
9 setwd("C:/Spring 2023/CRP 558/LA-558/Final Project")
10 #read in excel file
11 windmills <- read_excel("uswtdb_v4_3_20220114.xlsx")
12
13 #Summarize by state
14 windmills_states <- windmills %>%
15   group_by(t_state) %>%
16   summarise(total_t_cap = sum(t_cap), count_of_windmills = n())
17
18 #Summarize by state and county
19 windmills_counties <- windmills %>%
20   group_by(t_state, t_county) %>%
21   summarise(total_t_cap = sum(t_cap), count_of_windmills = n())
22
23 #write CSVs for the files
24 write_csv(windmills_states, "windmills_states.csv")
25 write_csv(windmills_counties, "windmills_counties.csv")
26
27
28 #####
29 ### For windmills_counties
30
```

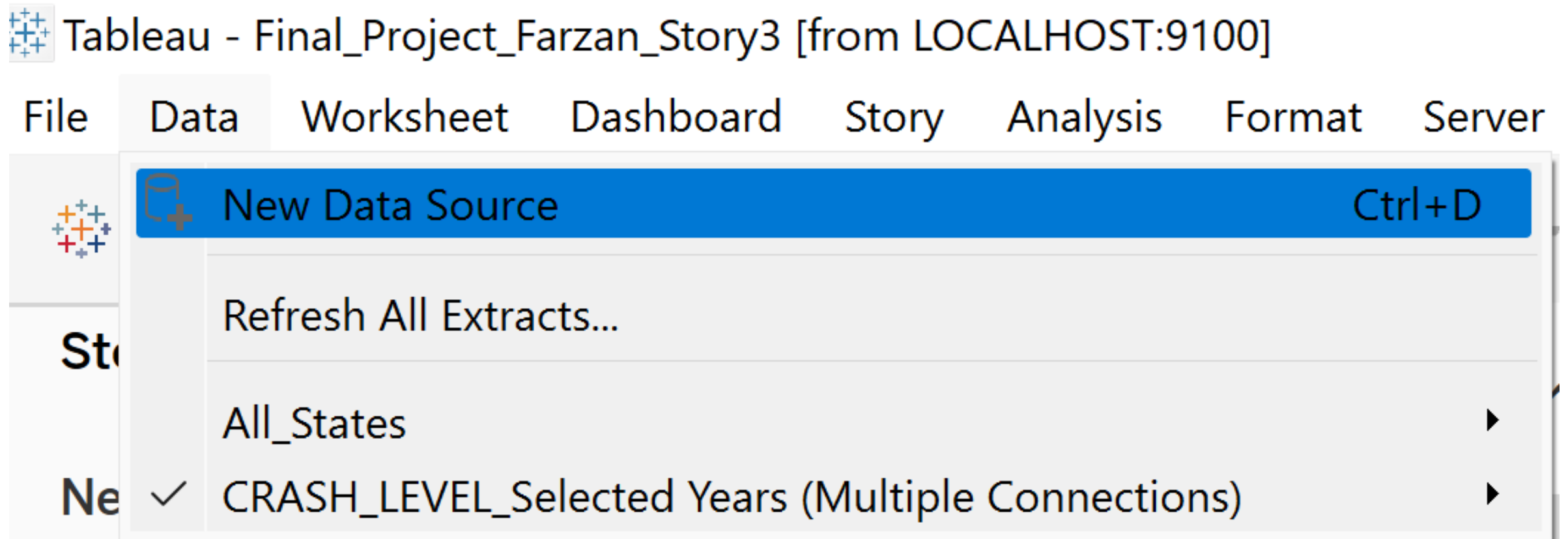
Environment pane details:

Object	Class	Attributes
.Last.value	List of 1	
a	Large lm (12 elements, 769.4 kB)	
A	num [1:6, 1:15]	1 -1 0 0 0 0 1 0 -1 0 ...

Console output:

```
R 4.2.2 > library(package = lib.loc = lib.loc, character.only = TRUE, logical.return = TRUE,
3: there is no package called 'emmeans'
Loading required package: parv
```

# Read the Data in Tableau that in R we Cleaned Before



# Connect Different Data together

Tableau - Final\_Project\_Farzan\_Story3 [from LOCALHOST:9100]

File Data Server Window Help

Connections [Add](#)

- CRASH\_SELEC...&Attributes  
Microsoft Excel
- States\_shapefile  
Text file
- windmills\_cou...noNA\_Positive  
Text file
- windmills\_sta...noNA\_Positive  
Text file

Sheets [New Union](#)  
[New Table Extension](#)

CRASH\_LEVEL\_Selected Years (Multiple Connectio...

Connection: ☐ Live ☒ Extract [Edit](#) [Refresh](#) Filters: 0 [Add](#)  
Extract contains all data. 4/28/2023 9:29:59 AM

windmills\_states\_noNA.csv

States\_shapefile.csv

windmills\_counties\_noNA...

windmills\_... — States\_sh...

46 rows

How do relationships differ from joins? [Learn more](#)

windmills\_states\_no... Operator States\_shapefile.csv

Abc T State = Abc State Code

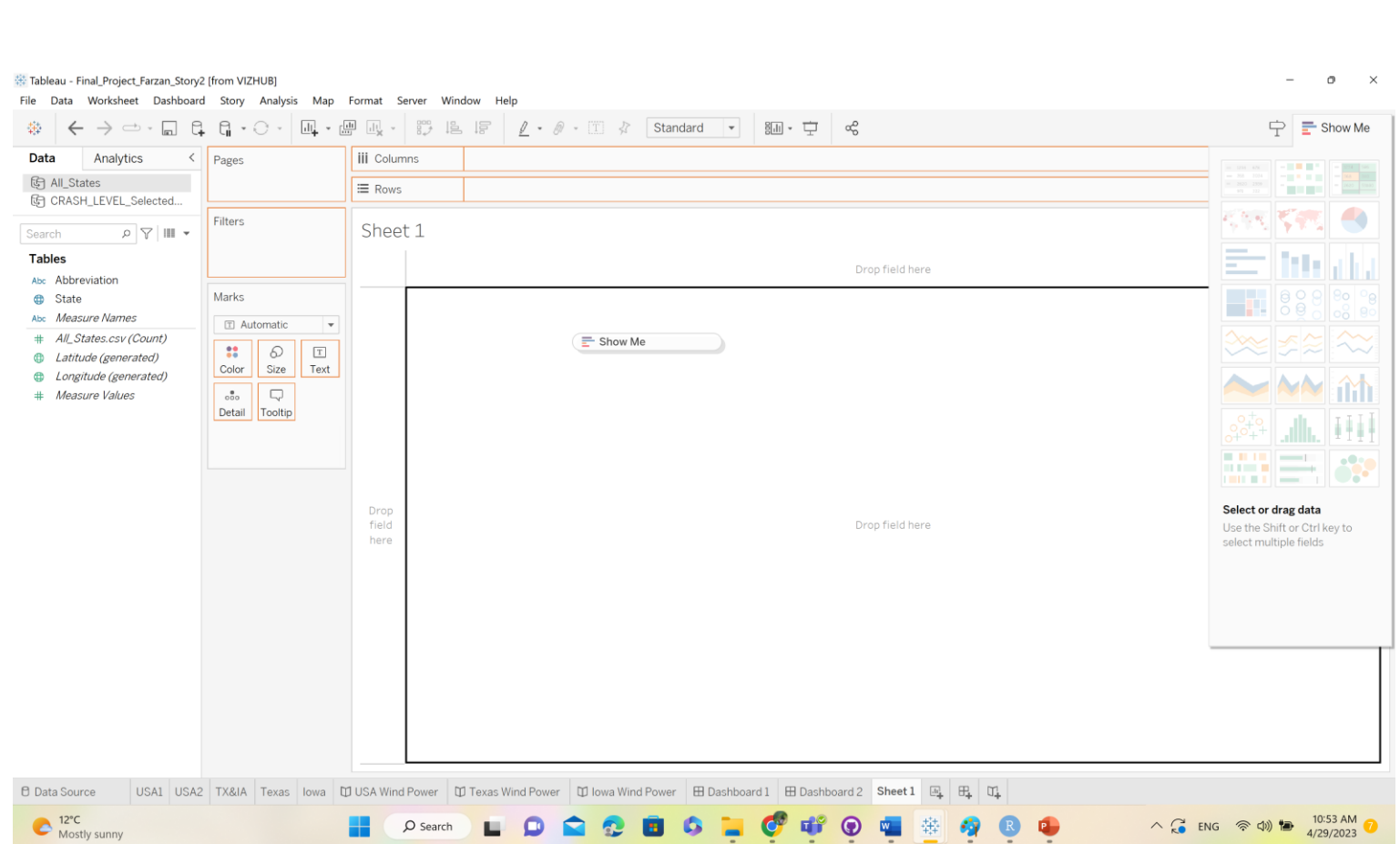
+ Add more fields

> Performance Options

windmills_states_noNA.csv T State	windmills_states_noNA.csv Total T Cap	windmills_states_noNA.csv Count Of Windmills
AK	0.00	141
AR	100.00	1
AZ	0.00	269
CA	0.00	6,065
CO	156,476.73	2,863
CT	5,800.00	3
DE	2,000.00	1

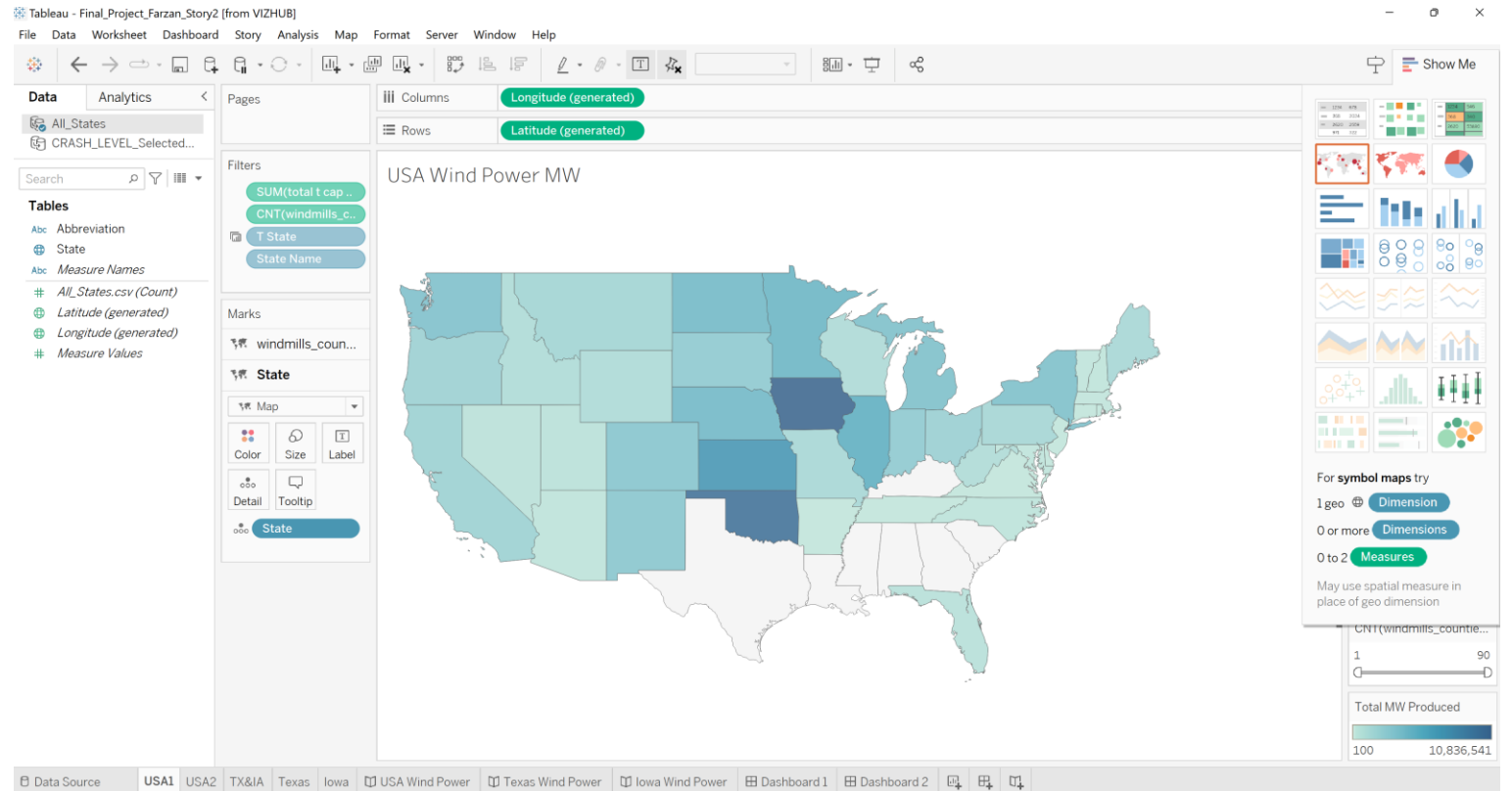
Data Source USA Wind Power Texas Wind Power Iowa Wind Power Dashboard 2

Pull the  
Global Data  
to the

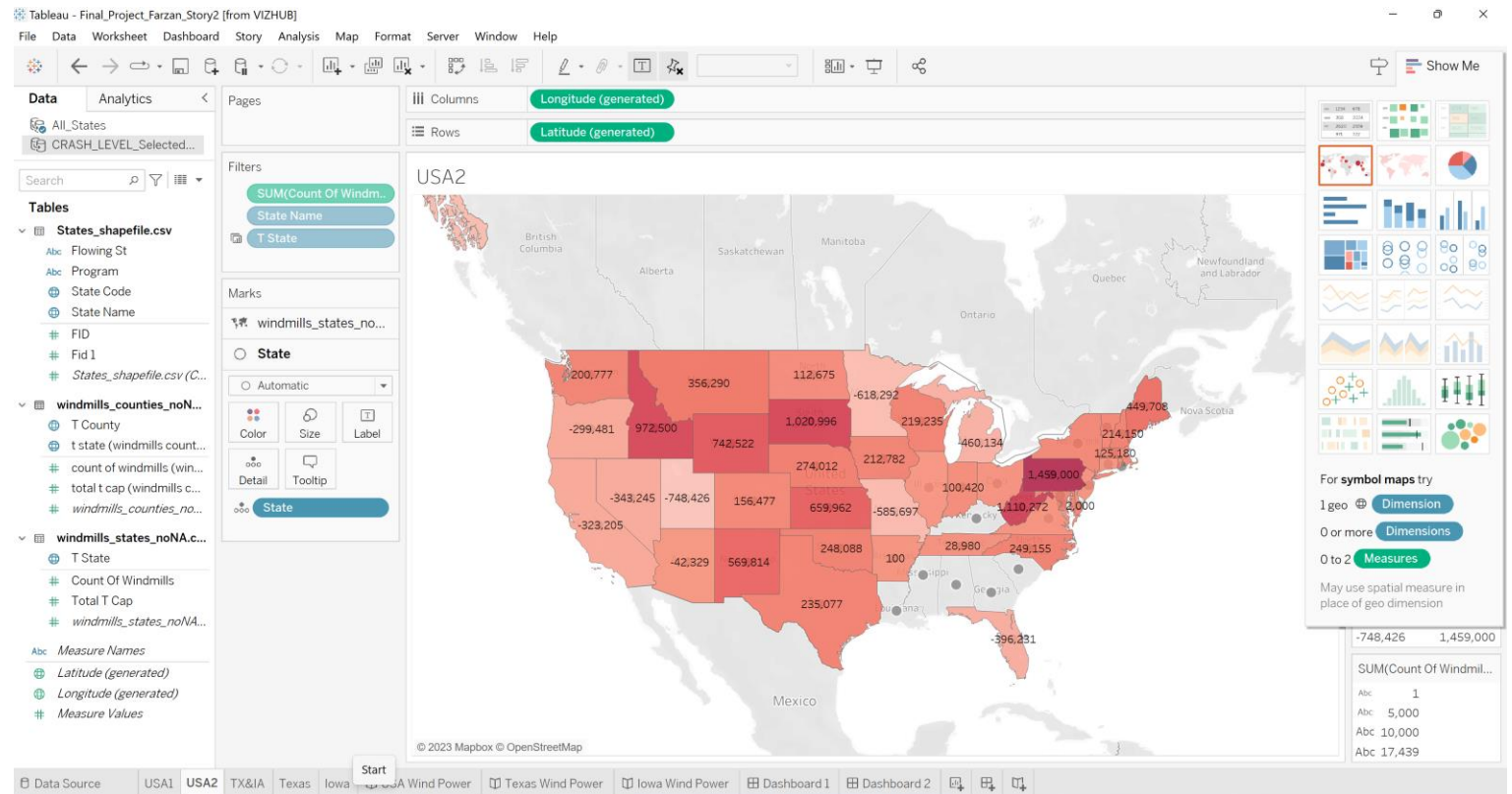




# Add Label and Details and Edit the Sheet Name



Add Other  
Sheets and  
Do the  
Similar  
Process





TO make the  
filter same in  
two maps

Tableau - Final\_Project\_Farzan

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics

Pages

Columns Longitude (generated)

Rows Latitude (generated)

Filters

USA2

Apply Filter to Worksheets [T State]

Filter will be applied to 2 worksheets.

Enter search text

Worksheets	Relationship	Details
<input checked="" type="checkbox"/> USA1	T State (CRASH_LEVEL_Selected Years (Multiple Connections))	
<input checked="" type="checkbox"/> USA2	T State (CRASH_LEVEL_Selected Years (Multiple Connections))	
<input type="checkbox"/> TX&IA		Existing filter keeps TX.
<input type="checkbox"/> Texas		Existing filter keeps IA.
<input type="checkbox"/> Iowa		

☐ Show only selected worksheets

Cancel OK

Maps

Color Size Detail Tooltip

MARKS

SUM(Total T Cap)

SUM(Count Of Windmills)

SUM(Total T Cap)

State Name

T State

SUM(Total T Cap)

SUM(Count Of Windmills)

Map

Mexico

© 2023 Mapbox © OpenStreetMap

SUM(Total T Cap)

0 1,459,000

SUM(Count Of Windmil...)

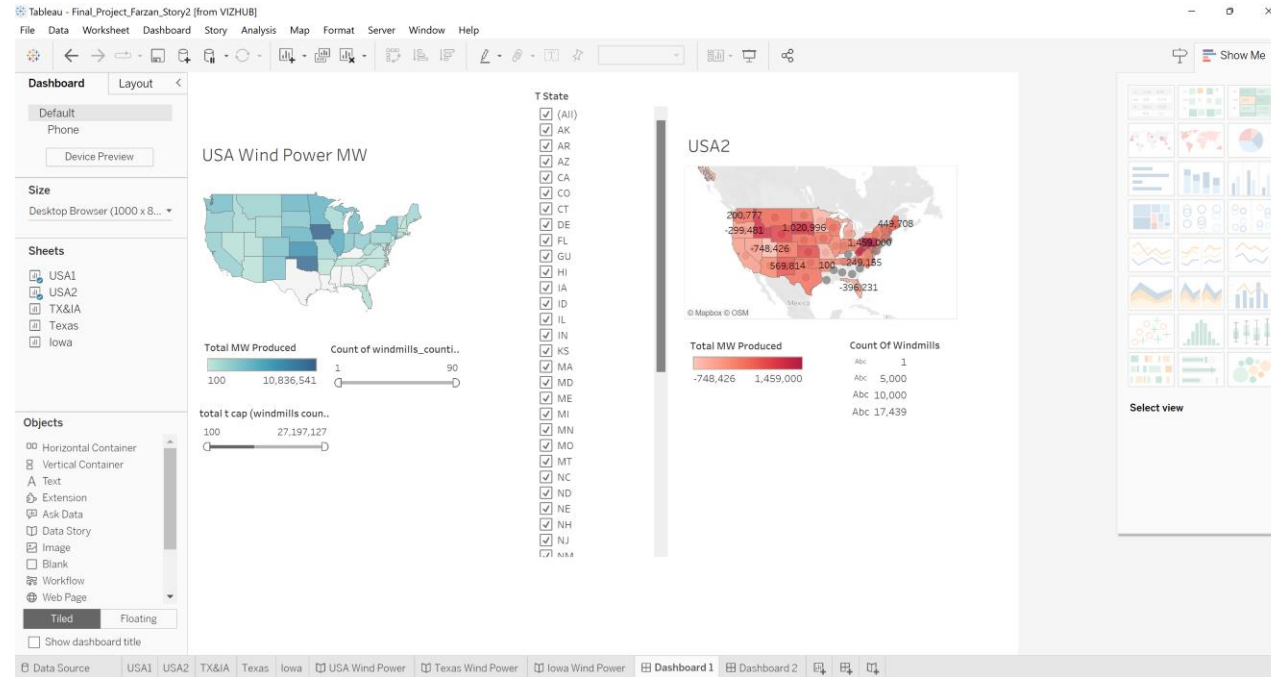
Abc 1

Abc 5,000

Abc 10,000

Abc 17,439

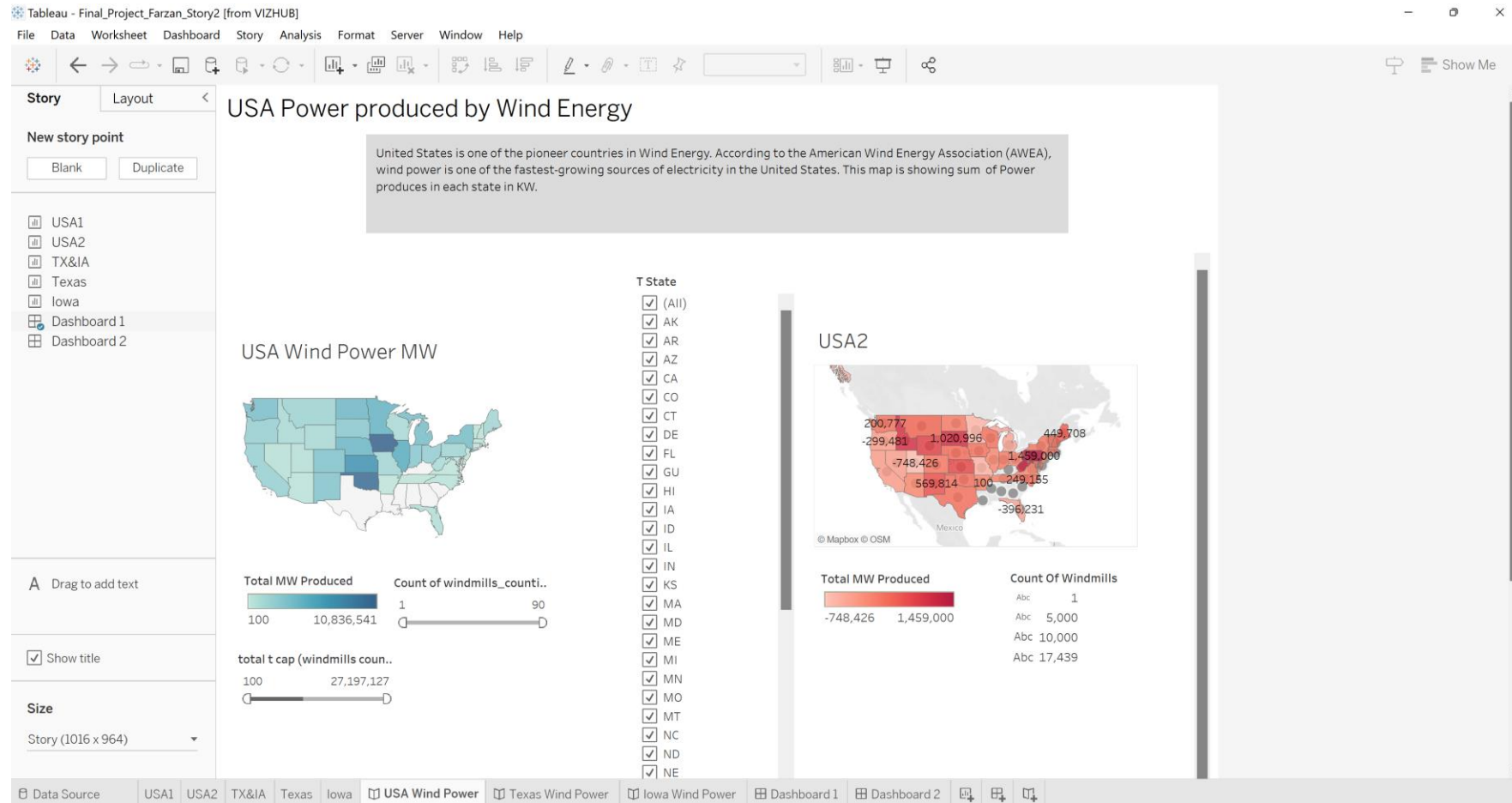
Data Source USA1 USA2 TX&IA Texas Iowa USA Wind Power Texas Wind Power Iowa Wind Power Dashboard 1 Dashboard 2



- I Prefer to work on Floating tab than Tiled. Floating gives flexibility to edit the size and location of map in the page.

# Add a Dashboard and Add Related Sheets in it

# Add Story and Write the Lit Review in the Box



# Extract the Data to be Able to Share in Tableau

Tableau - Final\_Project\_Farzan\_Story2 [from VIZHUB]

FileDataServerWindowHelp

Connections

CRASH\_SELEC...&Attributes  
Microsoft Excel

States\_shapefile  
Text file

windmills\_cou...noNA\_Positive  
Text file

windmills\_sta...noNA\_Positive  
Text file

Sheets

CRASH\_LEVEL...ected Years

New Union

New Table Extension

CRASH\_LEVEL\_Selected Years (Multiple Connectio...

Connection

Live

Extract

Edit

Refresh

Extract contains all data. 4/28/2023 9:29:59 AM

Filters

0

Add

windmills\_states\_noNA.csv

States\_shapefile.csv

windmills\_counties\_noNA...

windmills\_states\_noNA.csv

3 fields 46 rows

46

rows

Name

windmills\_states\_noNA.csv

Fields

Type	Field Name	Physical Table	Rem...
🌐	T State	windmills_states_...	t_state
#	Total T Cap	windmills_states_...	total_t...
#	Count Of Windmills	windmills_states_...	count...

Name	#	#
windmills_states_noNA.csv	windmills_states_noNA.csv	windmills_states_noNA.csv
T State	Total T Cap	Count Of Windmills
AK	0.00	141
AR	100.00	1
AZ	0.00	269
CA	0.00	6,065
CO	156,476.73	2,863
CT	5,800.00	3
DE	2,000.00	1

Data Source

USA1

USA2

TX&IA

Texas

Iowa

USA Wind Power

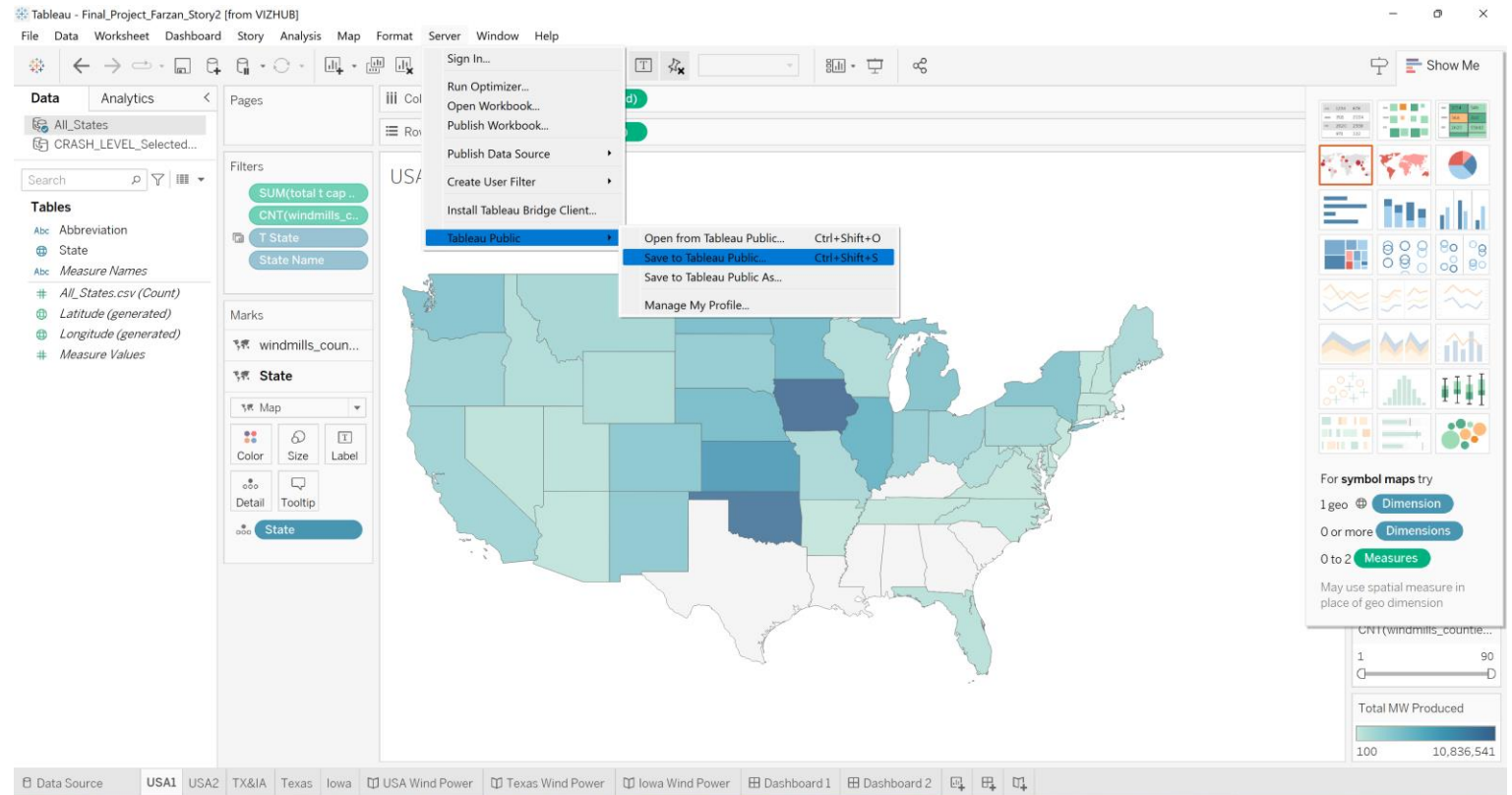
Texas Wind Power

Iowa Wind Power

Dashboard 1

Dashboard 2

# Share in Tableau Public



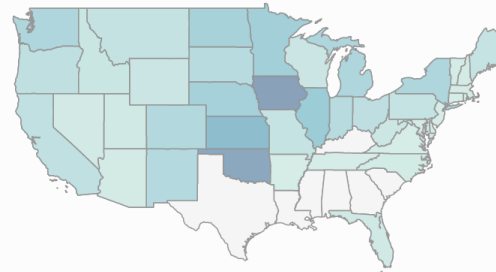
### Story3 by [Farzaneh Faramarzi-Khanghah](#)

USA Wind Power Texas Wind Power Iowa Wind Power

## USA Power produced by Wind Energy

United States is one of the pioneer countries in Wind Energy. According to the American Wind Energy Association (AWEA), wind power is one of the fastest-growing sources of electricity in the United States. This map is showing sum of Power produces in each state in KW.

USA Wind Power MW



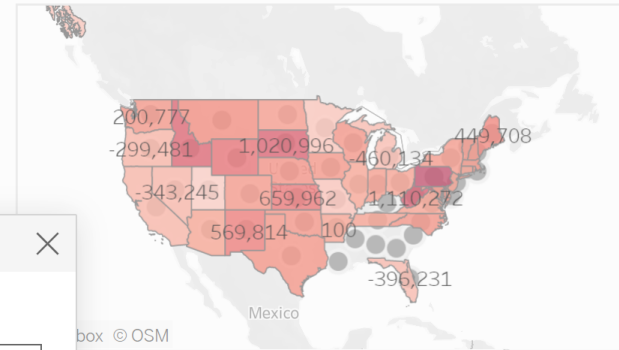
Total MW Produced  
100 10,836,541

Total MW Produced  
100 27,197,127

T State

- ☒ (All)
- ☒ AK
- ☒ AR
- ☒ AZ
- ☒ CA
- ☒ CO
- ☒ CT
- ☒ DE
- ☒ FL

USA2



Total MW Produced  
100 1,459,000

Count of Wind Turbines

Abc 1  
Abc 5,000  
Abc 10,000  
Abc 17,439

Share

Embed Code

`<div class='tableauPlaceholder' id='viz1'`

Link

[https://public.tableau.com/views/Final\\_](https://public.tableau.com/views/Final_)



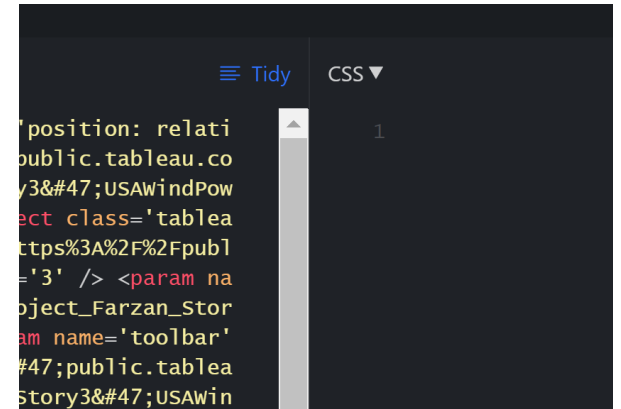
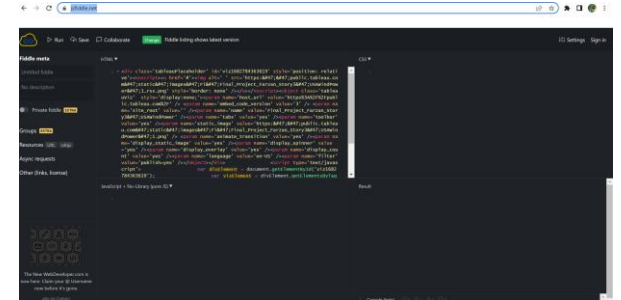
Copy Embed  
Code from  
Tableau Public



Copy the Embed  
Code in  
<https://jsfiddle.net/>

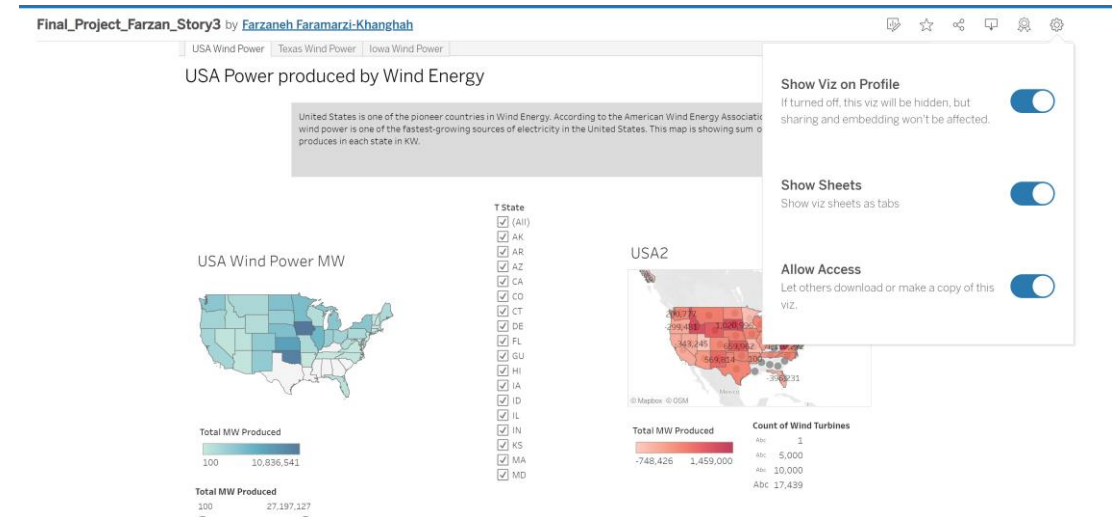
- Copy the Embed Code in <https://jsfiddle.net/>

- And then push the Tidy bottom.
- After that Copy the Code, and paste it your html file that you made in GitHub before. Save the HTML file and DONE!

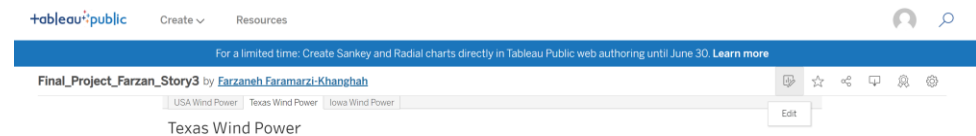
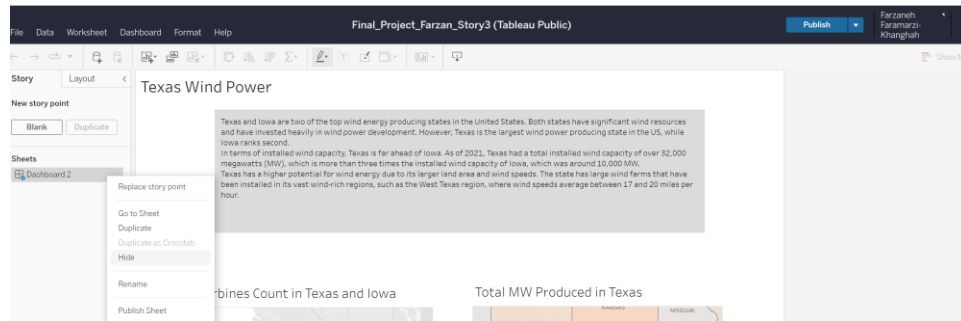


# Show All Sheets, Dashboards, Stories

- If you have more than one story page go this tab and activate the “Show Sheets”.



# Do not Show some Sheets if you Don't Want



- If you don't want to show all the sheets, go to the Edit then hide the sheets that you don't want to show.

FileDataWorksheetDashboardFormatHelp

Final\_Project\_Farzan\_Story3 (Tableau Public)

Publish

Farzaneh Faramarzi-Khanghah

StoryLayout

New story point

BlankDuplicate

Sheets

Dashboard 2Dashboard 1

Drag to add text

Show title

Size

Story (1016 x 964)

USA Power produced by Wind Energy

United States is one of the pioneer countries in Wind Energy. According to the American Wind Energy Association (AWEA), wind power is one of the fastest-growing sources of electricity in the United States. This map is showing sum of Power produces in each state in KW.

USA Wind Power MW

Total MW Produced

10010,836,541

T State

☒ (All)

☒ AK

☒ AR

☒ AZ

☒ CA

☒ CO

☒ CT

☒ DE

☒ FL

☒ GU

☒ HI

☒ IA

☒ ID

☒ IL

☒ IN

☒ KS

☒ MA

☒ MN

USA2

200,777

299,481

343,245

569,814

100

396,231

1,020,996

460,134

449,708

659,962

1,110,272

© Mapbox © OSM

Total MW Produced

-748,4261,459,000

Count of Wind Turbines

Abc1

Abc5,000

Abc10,000

Data SourceUSA Wind PowerTexas Wind PowerIowa Wind PowerDashboard 2