

Coursera : Developing Data Products :Week4 Assignment

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First Objective for this assignment :

- To create a Shiny Application :

The files is available at Github repository <https://github.com/saadbinmanjur/Developing-Data-Products>

Review criteria for this assignment is as below :

- Was there enough documentation on the shiny site for a user to get started using the application?
- Did the application run as described in the documentation?
- Was there some form of widget input (slider, textbox, radio buttons, checkbox, ...) in either ui.R or a custom web page?
- Did server.R perform some calculations on the input in server.R?
- Was the server calculation displayed in the html page?
- Was the app substantively different than the very simple applications built in the class? Note, it's OK if the app is simple and based on the one presented in class. I just don't want it to be basically a carbon copy of the examples we covered. For example, if someone simply changed the variable names, then this would not count. However, a prediction algorithm that had a similar layout would be fine.
- Here's your opportunity to give the app +1 for being well done, or neat, or even just a solid effort.

Second Objective for this assignment :

- To create a R Presentation :

The Presentation is available at <https://github.com/saadbinmanjur/Developing-Data-Products>

Review criteria for this assignment is as below :

- Was the presentation completed in slidify or R Presenter?
- Was it 5 pages?
- Did it contain an R expression that got evaluated and displayed?
- Did it contain an R expression that got evaluated and displayed?
- Was it hosted on github or Rpubs?
- Was the server calculation displayed in the html page?
- Here's your opportunity to give this presentation a +1 for being well done. Did they tinker around with the default style? Was the presentation particularly lucid and well organized? In other words, the student made a legitimate try.
- There were no R errors displayed in the presentation.

Data

The latest data is pulled from site <https://data.giss.nasa.gov/gistemp/>

Note :There are four files in Datasets and Images tab under heading “GISS Surface Temperature Analysis (GISTEMP)” as below :

- Global-mean monthly, seasonal, and annual means, 1880-present, updated through most recent month
- Northern Hemisphere-mean monthly, seasonal, and annual means, 1880-present, updated through most recent month
- Southern Hemisphere-mean monthly, seasonal, and annual means, 1880-present, updated through most recent month
- Zonal annual means, 1880-present, updated through most recent complete year

R Code

```
library(shiny)
library(ggplot2)

# Read Data
GlobalData <- read.csv("E:/RWorkingDirectory/Data/World_Temperatures/GLBTs_dSST.csv",
                      stringsAsFactors = FALSE)

str(GlobalData)
```

```
## 'data.frame': 138 obs. of 19 variables:
## $ Year: int 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 ...
## $ Jan : num -0.29 -0.1 0.09 -0.34 -0.18 -0.65 -0.42 -0.66 -0.43 -0.21 ...
## $ Feb : chr "-0.21" "-0.14" "0.08" "-0.42" ...
## $ Mar : chr "-0.18" "0.01" "0.01" "-0.18" ...
## $ Apr : chr "-0.27" "-0.03" "-0.2" "-0.24" ...
## $ May : chr "-0.14" "-0.04" "-0.17" "-0.26" ...
## $ Jun : chr "-0.29" "-0.28" "-0.25" "-0.13" ...
## $ Jul : chr "-0.23" "-0.06" "-0.11" "-0.09" ...
## $ Aug : chr "-0.08" "-0.02" "0.03" "-0.14" ...
## $ Sep : chr "-0.16" "-0.09" "0" "-0.19" ...
## $ Oct : chr "-0.15" "-0.2" "-0.23" "-0.12" ...
## $ Nov : chr "-0.18" "-0.26" "-0.21" "-0.21" ...
## $ Dec : chr "-0.22" "-0.16" "-0.25" "-0.19" ...
## $ J.D : chr "-0.2" "-0.11" "-0.1" "-0.21" ...
## $ D.N : chr "****" "-0.12" "-0.09" "-0.21" ...
## $ DJF : chr "****" "-0.15" "0" "-0.34" ...
## $ MAM : chr "-0.2" "-0.02" "-0.12" "-0.23" ...
## $ JJA : chr "-0.2" "-0.12" "-0.11" "-0.12" ...
## $ SON : chr "-0.17" "-0.18" "-0.15" "-0.17" ...
```

```
NorthPoleData <- read.csv("E:/RWorkingDirectory/Data/World_Temperatures/NHTs_dSST.csv",
                          stringsAsFactors = FALSE)

str(NorthPoleData)
```

```
## 'data.frame':    138 obs. of  19 variables:
## $ Year: int  1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 ...
## $ Jan : num  -0.53 -0.07 0.16 -0.58 -0.22 -1.11 -0.66 -1.01 -0.58 -0.41 ...
## $ Feb : chr  "-0.44" "-0.25" "0.18" "-0.67" ...
## $ Mar : chr  "-0.3" "-0.02" "-0.04" "-0.18" ...
## $ Apr : chr  "-0.46" "-0.08" "-0.41" "-0.31" ...
## $ May : chr  "-0.11" "-0.13" "-0.33" "-0.31" ...
## $ Jun : chr  "-0.27" "-0.44" "-0.32" "-0.24" ...
## $ Jul : chr  "-0.28" "-0.05" "-0.18" "-0.14" ...
## $ Aug : chr  "-0.29" "-0.04" "0.01" "-0.27" ...
## $ Sep : chr  "-0.33" "-0.22" "-0.03" "-0.31" ...
## $ Oct : chr  "-0.26" "-0.36" "-0.5" "-0.13" ...
## $ Nov : chr  "-0.39" "-0.42" "-0.37" "-0.34" ...
## $ Dec : chr  "-0.41" "-0.31" "-0.39" "-0.25" ...
## $ J.D : chr  "-0.34" "-0.2" "-0.18" "-0.31" ...
## $ D.N : chr  "****" "-0.21" "-0.18" "-0.32" ...
## $ DJF : chr  "****" "-0.24" "0.01" "-0.55" ...
## $ MAM : chr  "-0.29" "-0.07" "-0.26" "-0.26" ...
## $ JJA : chr  "-0.28" "-0.17" "-0.16" "-0.22" ...
## $ SON : chr  "-0.33" "-0.33" "-0.3" "-0.26" ...
```

```
SouthPoleData <- read.csv("E:/RWorkingDirectory/Data/World_Temperatures/SHTs_dSST.csv",  
                           stringsAsFactors = FALSE)  
  
str(SouthPoleData)
```

```
## 'data.frame': 138 obs. of 19 variables:  
## $ Year: int 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 ...  
## $ Jan : num -0.05 -0.12 0.02 -0.1 -0.14 -0.23 -0.2 -0.32 -0.28 -0.02 ...  
## $ Feb : chr "0.02" "-0.03" "-0.01" "-0.17" ...  
## $ Mar : chr "-0.06" "0.03" "0.07" "-0.18" ...  
## $ Apr : chr "-0.08" "0.02" "0.01" "-0.18" ...  
## $ May : chr "-0.17" "0.05" "-0.02" "-0.21" ...  
## $ Jun : chr "-0.31" "-0.13" "-0.18" "-0.01" ...  
## $ Jul : chr "-0.18" "-0.08" "-0.03" "-0.04" ...  
## $ Aug : chr "0.14" "0" "0.06" "0" ...  
## $ Sep : chr "0" "0.03" "0.02" "-0.08" ...  
## $ Oct : chr "-0.05" "-0.05" "0.03" "-0.11" ...  
## $ Nov : chr "0.02" "-0.11" "-0.06" "-0.08" ...  
## $ Dec : chr "-0.02" "-0.01" "-0.12" "-0.12" ...  
## $ J.D : chr "-0.06" "-0.03" "-0.02" "-0.11" ...  
## $ D.N : chr "****" "-0.03" "-0.01" "-0.11" ...  
## $ DJF : chr "****" "-0.06" "0" "-0.13" ...  
## $ MAM : chr "-0.1" "0.03" "0.02" "-0.19" ...  
## $ JJA : chr "-0.12" "-0.07" "-0.05" "-0.02" ...  
## $ SON : chr "-0.01" "-0.04" "0" "-0.09" ...
```

Application :

URL for Shiny application is <https://github.com/saadbinmanjur/Developing-Data-Products>

The Application contains :

Left Pane :

- Select data options using radio buttons from North Pole, South Pole or Global Data
- Select Year Range using Slider Range. Data Range contains minimum year as 1880 and maximum year as 2016.
- Select Variable from Dataset. This is a multi select text field which contains months from January to December.

Main Panel :

There are four panes in main panel as below :

- Summary : This displays summary for the data as per user selection.
- Structure : This displays Structure for the data as per user selection.
- Data : This displays data frame for the user selected options.
- Plot : This displays plot for corresponding dataframe

Summary Tab

GISS Surface Temperature Analysis

Select Data:

☐ North Pole data

☐ South Pole Data

☒ Global Data

Select Year Range :

1,8801,900

2,016

Select Variable from Dataset

Jan

Summary

Structure

Data

Plot

Year	Jan
Min. :1880	Min. : -0.690
1st Qu.:1885	1st Qu.: -0.460
Median :1890	Median : -0.340
Mean :1890	Mean : -0.341
3rd Qu.:1895	3rd Qu.: -0.210
Max. :1900	Max. : 0.090

Structure Tab

GISS Surface Temperature Analysis

Select Data:

☒ North Pole data

☐ South Pole Data

☐ Global Data

Select Year Range :

1,880 2,016

1,880 1,884 1,908 1,922 1,936 1,950 1,964 1,978 1,992 2,006 2,016

Select Variable from Dataset

Jan

Summary Structure Data Plot

```
'data.frame':  137 obs. of  2 variables:
 $ Year: int   1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 ...
 $ Jan : num  -0.53 -0.07 0.16 -0.58 -0.22 -1.11 -0.66 -1.01 -0.58 -0.41 ...
```

Data Tab

GISS Surface Temperature Analysis

Select Data:

☒ North Pole data

☐ South Pole Data

☐ Global Data

Select Year Range :

1,880

2,018

1,880

1,884

1,908

1,922

1,936

1,950

1,964

1,978

1,992

2,006

2,018

Select Variable from Dataset

Jan

Mar

Jun

Summary

Structure

Data

Plot

Year	Jan	Mar	Jun
1880	-0.53	-0.3	-0.27
1881	-0.07	-0.02	-0.44
1882	0.16	-0.04	-0.32
1883	-0.58	-0.18	-0.24
1884	-0.22	-0.65	-0.5
1885	-1.11	-0.18	-0.55
1886	-0.66	-0.57	-0.42
1887	-1.01	-0.32	-0.13
1888	-0.58	-0.63	-0.04
1889	-0.41	0.03	-0.13
1890	-0.66	-0.42	-0.15
1891	-0.63	-0.08	-0.12
1892	-0.05	-0.58	-0.04

Plot Tab

GISS Surface Temperature Analysis

Select Data:

☒ North Pole data

☐ South Pole Data

☐ Global Data

Select Year Range :

1,880

2,016

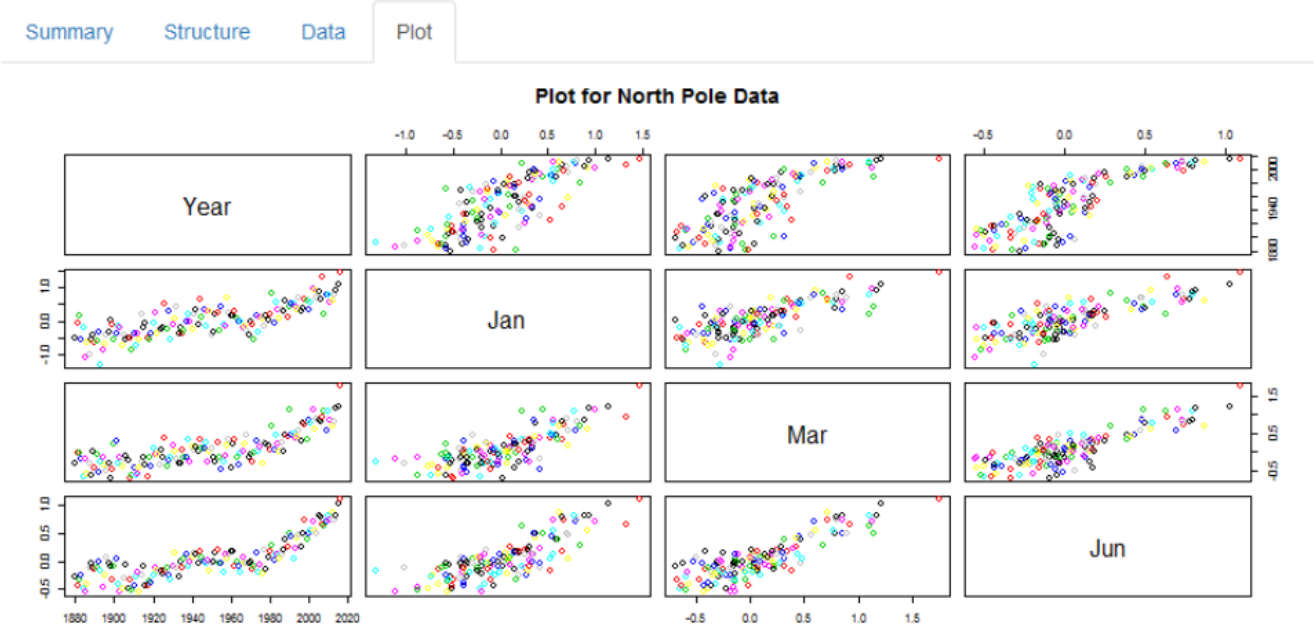
1,880 1,894 1,908 1,922 1,936 1,950 1,964 1,978 1,992 2,006 2,016

Select Variable from Dataset

Jan

Mar

Jun



Thank you