Assignment 3

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Name and Student number

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Visualisation link

https://vikranty.shinyapps.io/house-price/

Data Source

https://www.data.vic.gov.au/data/dataset/2015-local-government-area-profiles

News story

https://www.abc.net.au/news/2018-10-23/house-prices-falling-as-interest-rates-wage-growth-move/
10418278

Code

```
## app.R ##
require(maptools)
require(leaflet)

library(leaflet)
library(maptools)
library(dplyr)
library(ggplot2)
library(shiny)

vic.lga.shp <- readShapeSpatial("vmlite_lga_cm/vmlite_lga_cm.shp")
# lga.shp.f <- tidy(vic.lga.shp, region = "lga_name")
# lga.shp.f$lga_name <- tolower(lga.shp.f$id)

# lga.data <- read.xlsx("Data Sheet.xlsx", sheetName = "LGAs")
lga.data <- read.csv("lga_data.csv")

lga.data <- lga.data %>% select(
  Median.house.price,
  Median.household.income,
```

```r
    Median.weekly.rent.for.3.bedroom.home,
    New.settler.arrivals.per.100.000.population,
    New.dwellings.approved.per.1.000.population,
    Rental.housing.that.is.affordable,
    Homeless.people..estimated..per.1.000.population,
    Social.housing.dwellings,
    Unemployment.rate,
    LGA.Name
)

# Removing last row for summed values
lga.data <- lga.data[-c(80),]

for(i in 1:9){
  lga.data[[i]] <- gsub('\\$*\\%*\\,*', '', lga.data[[i]])
}
lga.data[1:9] <- lapply(lga.data[1:9], as.numeric)

# Matching the column name for merge
lga.data$lga_name <-
  toupper(gsub(' \\(\\w*\\)', '', lga.data$LGA.Name))

# Merging with spatial data
leaflet.data <- sp::merge(vic.lga.shp,
                          lga.data,
                          by = "lga_name",
                          duplicateGeoms = TRUE)
writeup = list(
  "Median.house.price" = "The house prices throughout Australia are said to be declining staedily.
This has been making people unsure weather to invest in property or not.
  Here we look at the housing market of Victoria to understand differnet aspects of the market.
  Meadian price to but a house in Victoria is $393,000. The map above shows median house prices for eac
  It can be seen that most of the fall close to this number. Although if we see the most expensive LGAs
  the most expensive area is Boroondara with $1.5 million. That is a huge shift from the median value o
  Zoom into the map and you can see that expensive areas are in and around the city. Try to see the med
  After this, click on median household income to see how are the household earnings for these places."
  "Median.household.income" = "Looking at median household earnings, it is interesting to see that the
Boroondara is again at top of the list at $1,893 while median for the entire state is $1,216. The map g
although Melbourne has pretty high house price, the modeian household income is not that high. One expl
more people who are renting than those who are living in their own home. Melton is also an interesting
the entire state but household income is greater than median for Victoria. Again try to see how your ar
  "Median.weekly.rent.for.3.bedroom.home" = "Rent prices show a slightly different story. For rent price
Weekly rent of a 3 bedroom apartment in Port Phillp is more than twice costlier than the median for the
  "New.settler.arrivals.per.100.000.population" = "Demand drives prices. For house prices to be steadily
can help this best is arrival of new settlers in the area. New settlers need some place to stay so they
allows more businesses to open to service their needs and helps drive the local economy, which in turn
Melbourne has the highest number of new settlers relative per 1,000 people already living there. The ar
number of new settlers but has a surprising place, Greater Dandenong. Although the median household inc
coming in.",
  "New.dwellings.approved.per.1.000.population" = "Future project plans can also be seen as the degree of
per 1,000 population. This is the plot which does not paint a good picture of the housing market. Apart
considerable number of new dwellings. Large portion of the map is red and the areas surrounding Melbour
parameter.",
```

```r
"Rental.housing.that.is.affordable" = "Affordable rental housings are scarce in the city area which mea
But there are more rental housings available as we move further away from the city. Areas nearest to the
housings are Murrindindi, Mitchell and Moorabool.",
"Homeless.people..estimated..per.1.000.population" = "The worrisome state of homelessness in Victoria ca

)


# UI of the dashboard
ui <- fluidPage(
  titlePanel("Victoria House prices"),
  sidebarLayout(
    position = "right",
    sidebarPanel(
      selectInput("var", "Variable", colnames(lga.data[1:7]), selected = colnames(lga.data[1])),
      plotOutput('plot2')
    ),
    mainPanel(
      leafletOutput("plot1"),
      p("Source: 2015 Local Government Area Profile"),
      a('https://www.data.vic.gov.au/data/dataset/2015-local-government-area-profiles'),
      br(),
      textOutput('writeup'),
      p("Latest news:", a('https://www.abc.net.au/news/2018-10-23/house-prices-falling-as-interest-rates
      hr(),
      p('Made by: Vikrant Yadav')
    )
  )

)



# Server code for dashboard
server <- function(input, output) {

  # Setting up map
  plot <- leaflet(leaflet.data) %>%
    setView(
      lng = 147.5,
      lat = -36.5,
      zoom = 6
  )

  output$plot1 <- renderLeaflet({
    if(input$var %in% c('Median.house.price', 'Median.weekly.rent.for.3.bedroom.home', 'Homeless.people
      pal <- colorNumeric(
        'YlOrRd',
        domain = lga.data[[input$var]]
      )
    }
    else {
      pal <- colorNumeric(
        'RdYlGn',
        domain = lga.data[[input$var]]
```

```
      )
  }

  labels <- sprintf(
    "<strong>%s</strong><br/>%g",
    leaflet.data$lga_name,
    leaflet.data[[input$var]]
  ) %>% lapply(htmltools::HTML)

  plot %>% addPolygons(
    fillColor = ~ pal(get(input$var)),
    weight = 2,
    opacity = 1,
    color = "white",
    dashArray = "3",
    fillOpacity = 0.7,
    highlight = highlightOptions(
      weight = 5,
      color = "#666",
      dashArray = "",
      fillOpacity = 0.7,
      bringToFront = TRUE
    ),
    label = labels,
    labelOptions = labelOptions(
      style = list("font-weight" = "normal", padding = "3px 8px"),
      textsize = "15px",
      direction = "auto"
    )
  ) %>%
    addLegend(
      pal = pal,
      values = ~get(input$var),
      opacity = 0.7,
      title = input$var,
      position = "bottomright"
    )
})

output$plot2 <- renderPlot({
  plot2.data <- lga.data
  plot2.data$lga_name <- plot2.data$lga_name %>% factor(levels = plot2.data$lga_name[order(plot2.data
  plot2.data <- plot2.data %>% select(lga_name, input$var) %>% arrange(desc(get(input$var))) %>% top_n
  ggplot(plot2.data, aes(y=get(input$var), x=lga_name)) +
    geom_bar(stat="identity",fill = "dodgerblue3") +
    expand_limits(y=max(lga.data[[input$var]])+sd(lga.data[[input$var]])) +
    geom_text(aes(label=get(input$var)), hjust=-0.1, size=3) +
    labs(x="Value", y="Local government areas", title ="Top 5 areas") + coord_flip()
})

output$writeup <- renderText({
  writeup[[input$var]]
})
```

```
}

shinyApp(ui, server)
```