

# Lab Assignment 2

## Plotly in R - Human Development Index and Corruption Perception Index Visualisation

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**LAB - L13+ L14**

### Question/Task

These data consist of Human Development Index and Corruption Perception Index scores for several countries. DataSet: EconomistData.csv (available in MsTeam)

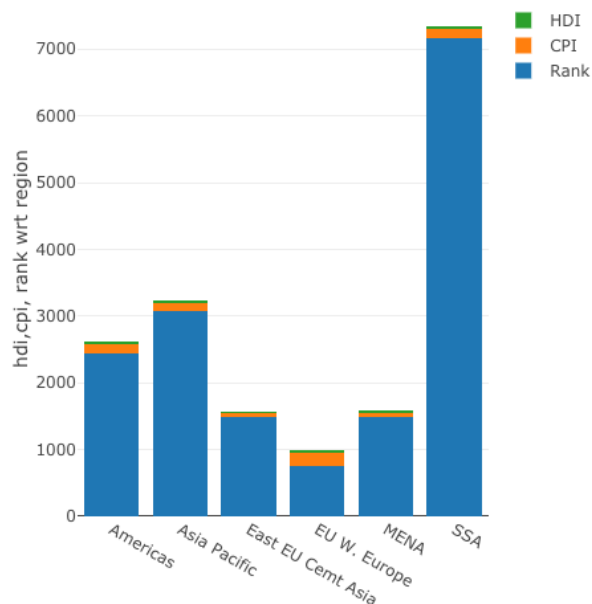
- Create stacked bar chart for Rank(group based on Region).
- Create a scatter plot with CPI on the x axis and HDI on the y axis.
- Colour the points green.
- Map the colour of the points to Region.
- Make the points bigger by setting size to 4
- Map the size of the points to HDI.Rank
- Mapping Data to Symbols
- HDI.Rank-Data Labels on Hover
- Add an appropriate title to the plot using the layout function and title argument.
- Add an appropriate x-axis label using the x-axis argument. x-axis takes a list of attribute values.
- Add an appropriate y-axis label.
- display annotations for country which top and lowest HDI.Rank
- display annotations for our country (data label with HDI.Rank)
- Save plot

## Solutions

### 1. Create stacked bar chart for Rank(group based on Region).

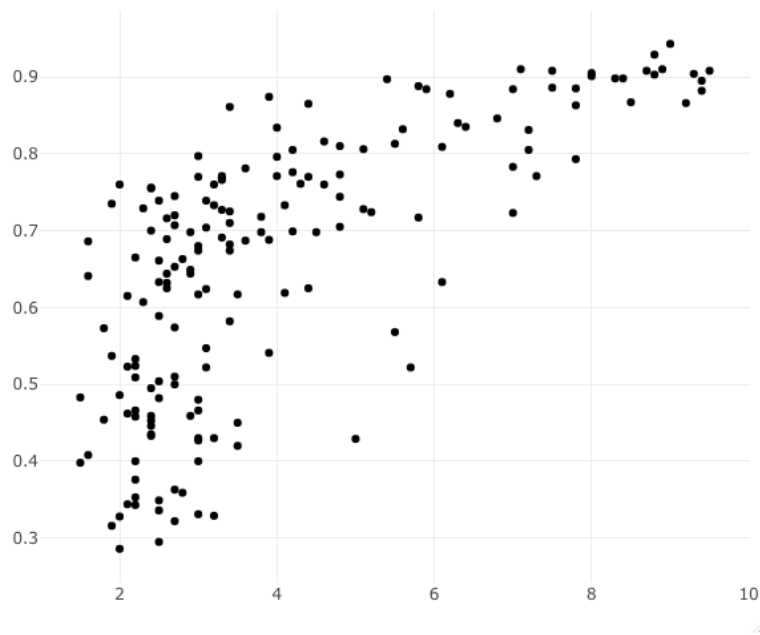
eco\$Region

```
plot_ly(eco, x = eco$Region, y=~HDI.Rank,type="bar",name="Rank")
%>%
  add_trace(y = ~CPI, name="CPI") %>%
  add_trace(y = ~HDI, name="HDI") %>%
  layout(yaxis=list(title='hdi,cpi, rank wrt
region'),barmode='stack')
```



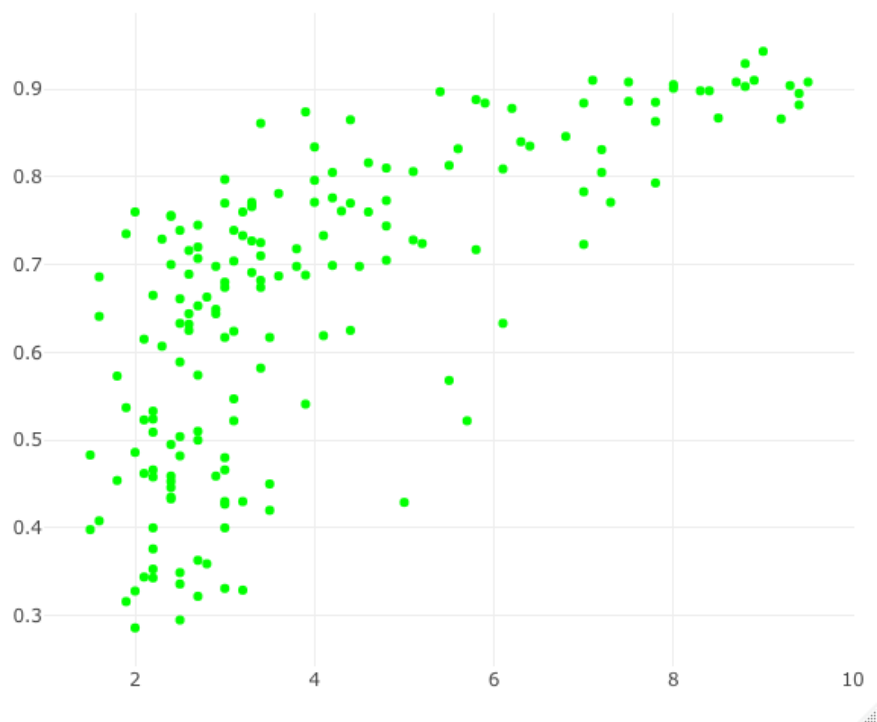
### 2. Create a scatter plot with CPI on the x axis and HDI on the y axis.

```
p = plot_ly(data=eco,
            x=eco$CPI,
            y=eco$HDI,
            type = "scatter",
            color = I("black"))
p
p
```



### 3. Color the points green

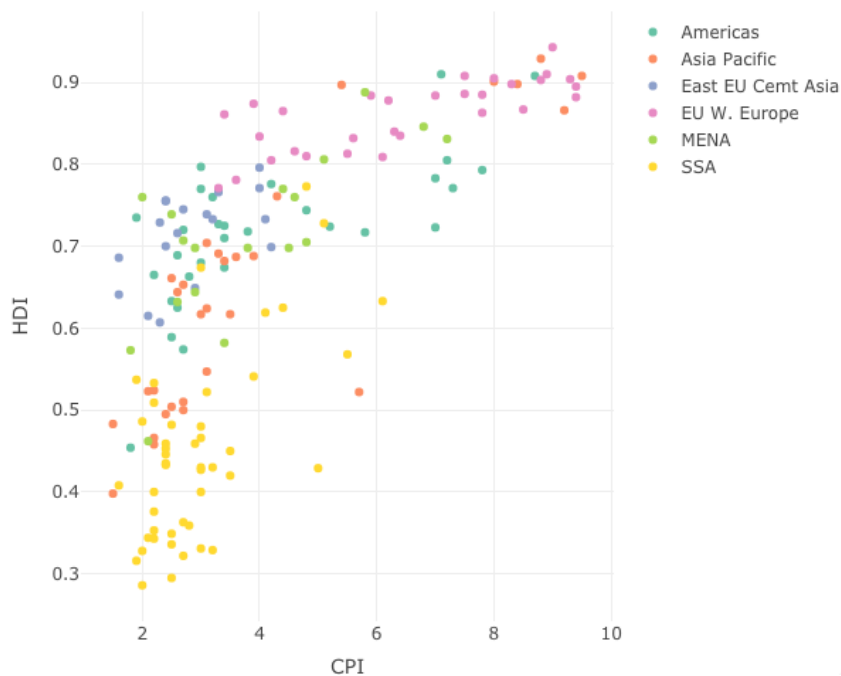
```
p = plot_ly(data=eco,
             x=eco$CPI,
             y=eco$HDI,
             type = "scatter",
             color = I("green"))
p
```



#### 4. Map the color of the points to Region.

```
# Mapping Color of Points to Region
p = plot_ly(data=eco,
            x=~CPI,
            y=~HDI,
            type = "scatter",
            mode = "markers",
            color = ~as.factor(Region))
```

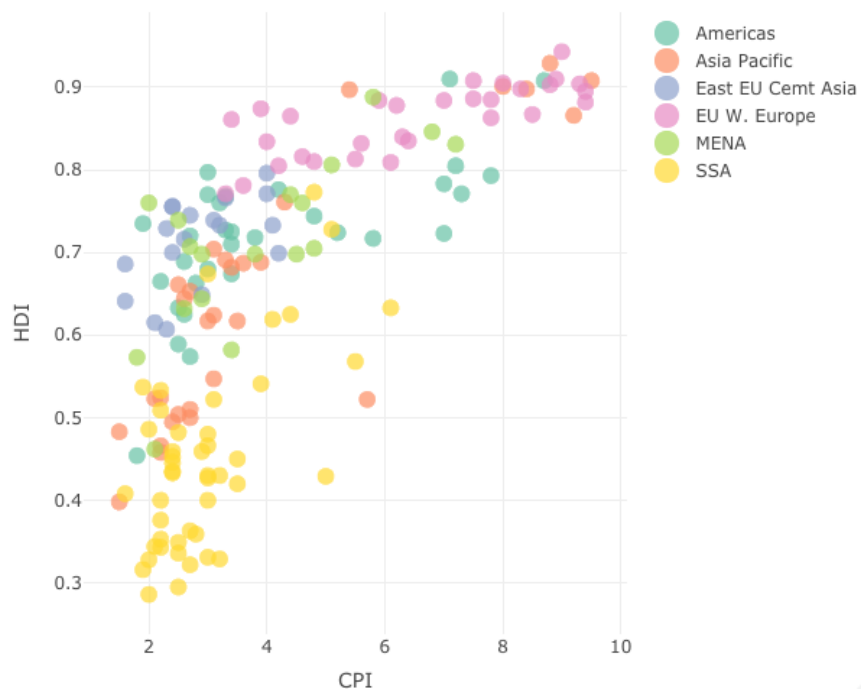
p



#### 5. Make the points bigger by setting size to 4

```
p = plot_ly(data=eco,
            x=~CPI,
            y=~HDI,
            type = "scatter",
            mode = "markers",
            size=4,
            color = ~as.factor(Region))
```

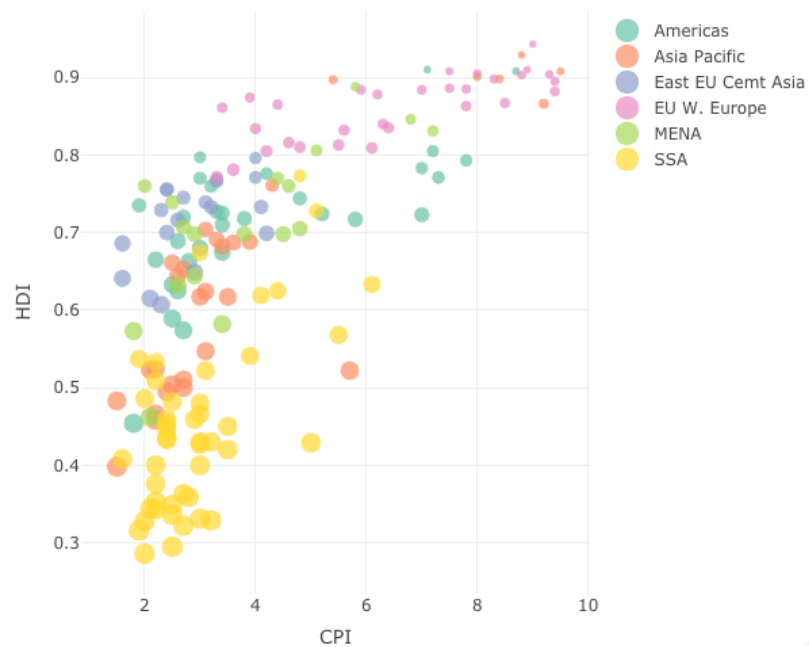
p



## 6. Map the size of the points to HDI.Rank

```
p = plot_ly(data=eco,
            x=~CPI,
            y=~HDI,
            type = "scatter",
            mode = "markers",
            size=eco$HDI.Rank,
            color = ~as.factor(Region))
```

p



## 7. Mapping Data to Symbols

```
p = plot_ly(data=eco,  
            x=~CPI,  
            y=~HDI,  
            type = "scatter",  
            mode = "markers",  
            size=eco$HDI.Rank,  
            symbol = ~as.factor(Region),  
            color = ~as.factor(Region))
```

p



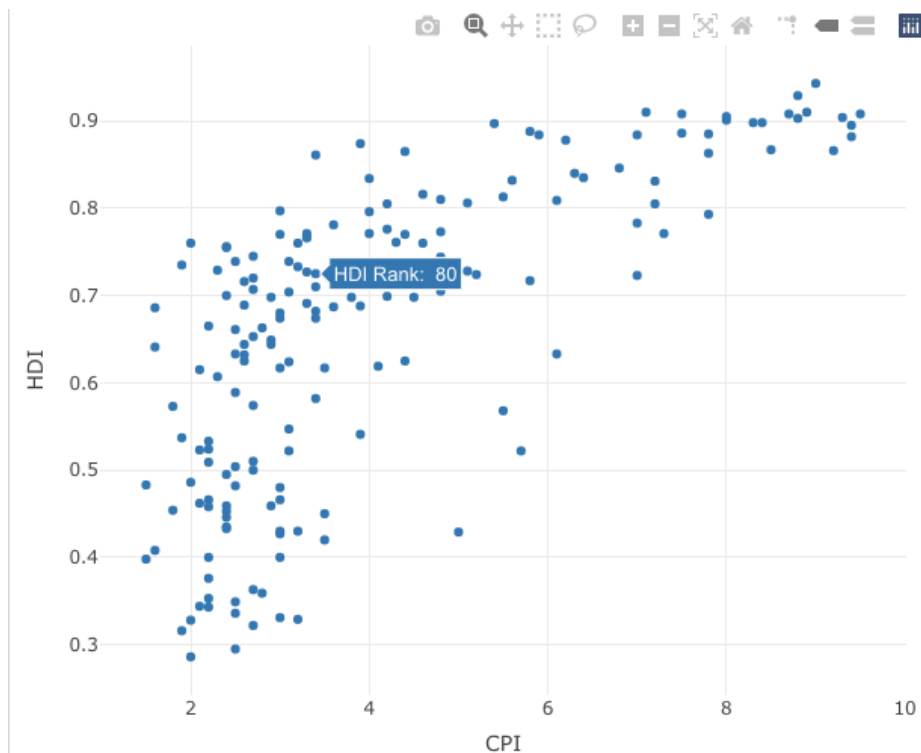
## 8. HDI.Rank-Data Labels on Hover

```
p = plot_ly(data=eco,  
            x=~CPI,  
            y=~HDI,  
            type = "scatter",  
            hoverinfo = "text",
```

```

    text = paste("HDI Rank: ", eco$HDI.Rank)
  )
  p

```

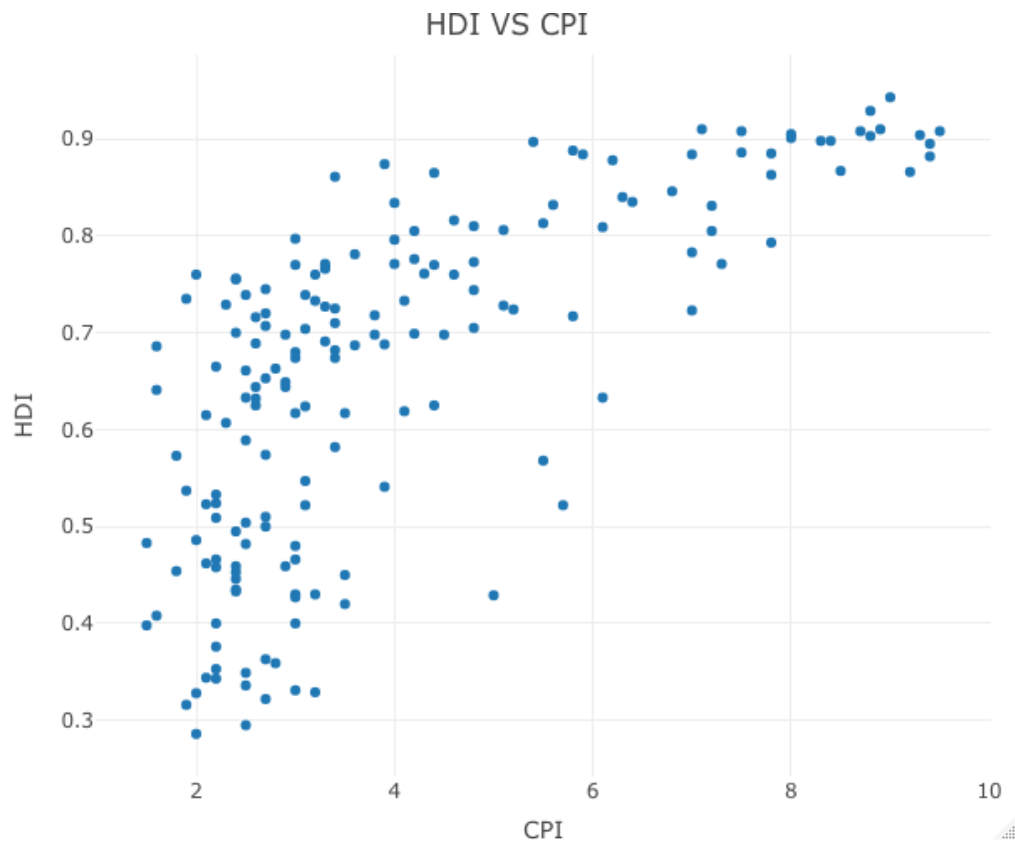


**9. Add an appropriate title to the plot using the `layout` function and `title` argument.**

```

p = plot_ly(data=eco,
             x=~CPI,
             y=~HDI,
             type = "scatter",
             hoverinfo = "text",
             text = paste("HDI Rank: ", eco$HDI.Rank)
) %>%
  layout(title='HDI VS CPI')

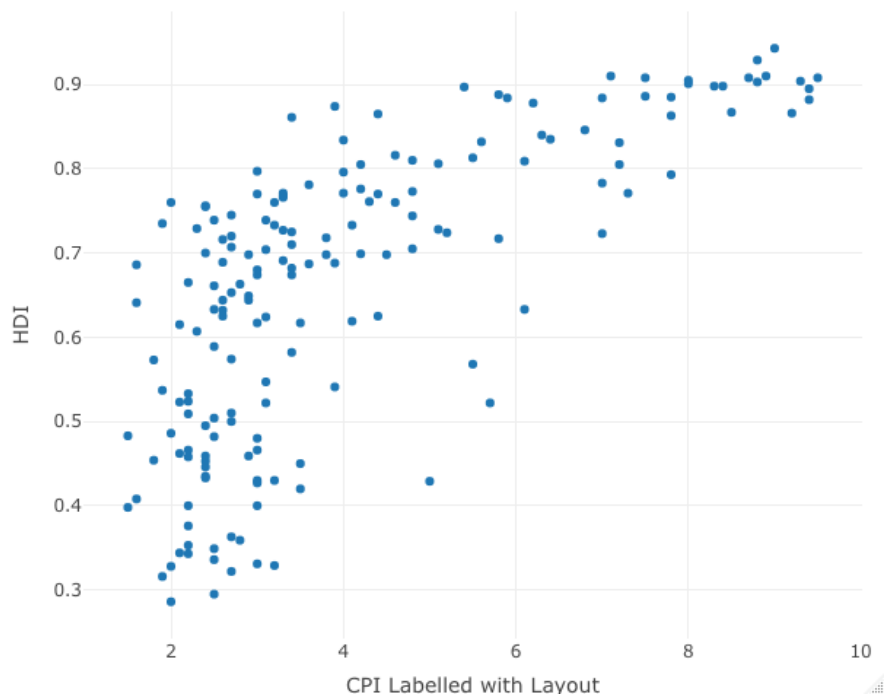
```



**10. Add an appropriate x-axis label using the `xaxis` argument. `xaxis` takes a list of attribute values.**

```
p = plot_ly(data=eco,
            x=~CPI,
            y=~HDI,
            type = "scatter",
            hoverinfo = "text",
            text = paste("HDI Rank: ", eco$HDI.Rank)
) %>%
  layout(xaxis=list(title='CPI Labelled with Layout'))
```

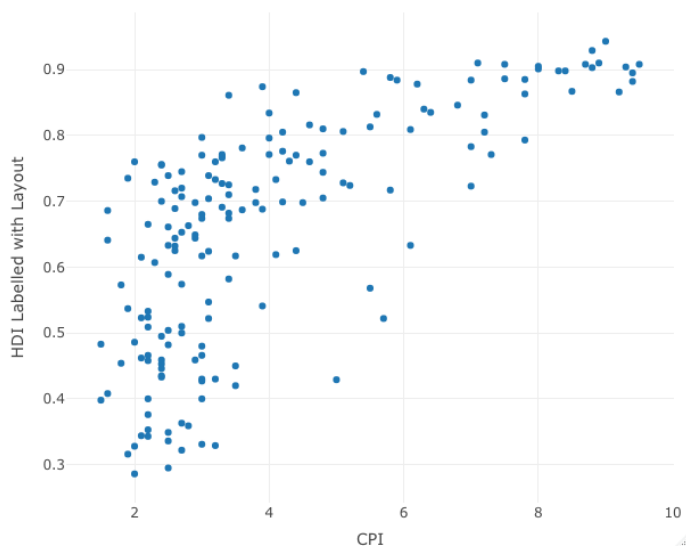




## 11. Add an appropriate y-axis label

```
p = plot_ly(data=eco,
            x=~CPI,
            y=~HDI,
            type = "scatter",
            hoverinfo = "text",
            text = paste("HDI Rank: ", eco$HDI.Rank)
) %>%
  layout(yaxis=list(title='HDI Labelled with Layout'))

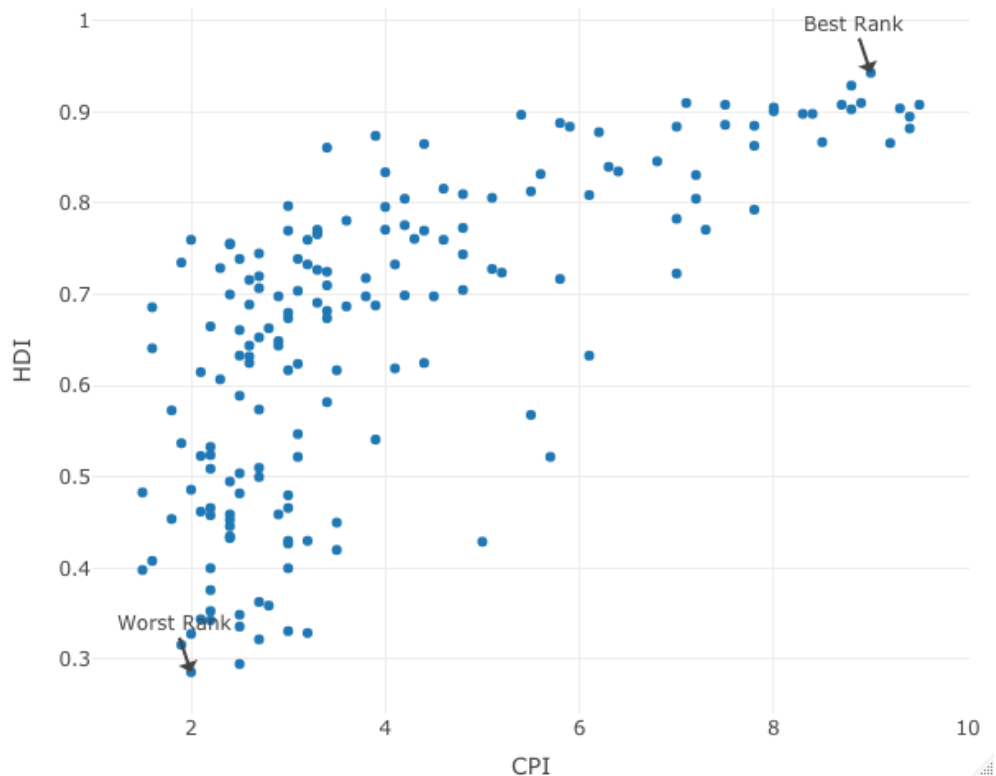
p
```



## 12. display annotations for country which top and lowest HDI.Rank

```
p = plot_ly(data=eco,  
            x=~CPI,  
            y=~HDI,  
            type = "scatter",  
            hoverinfo = "text",  
            text = paste("HDI Rank: ", eco$HDI.Rank)  
) %>%  
  add_annotaions(  
    x=eco$CPI[which.min(eco$HDI.Rank)],  
    y=eco$HDI[which.min(eco$HDI.Rank)],  
    text="Best Rank",  
    showarrow=T  
) %>%  
  add_annotaions(  
    x=eco$CPI[which.max(eco$HDI.Rank)],  
    y=eco$HDI[which.max(eco$HDI.Rank)],  
    text="Worst Rank",  
    showarrow=T  
)
```

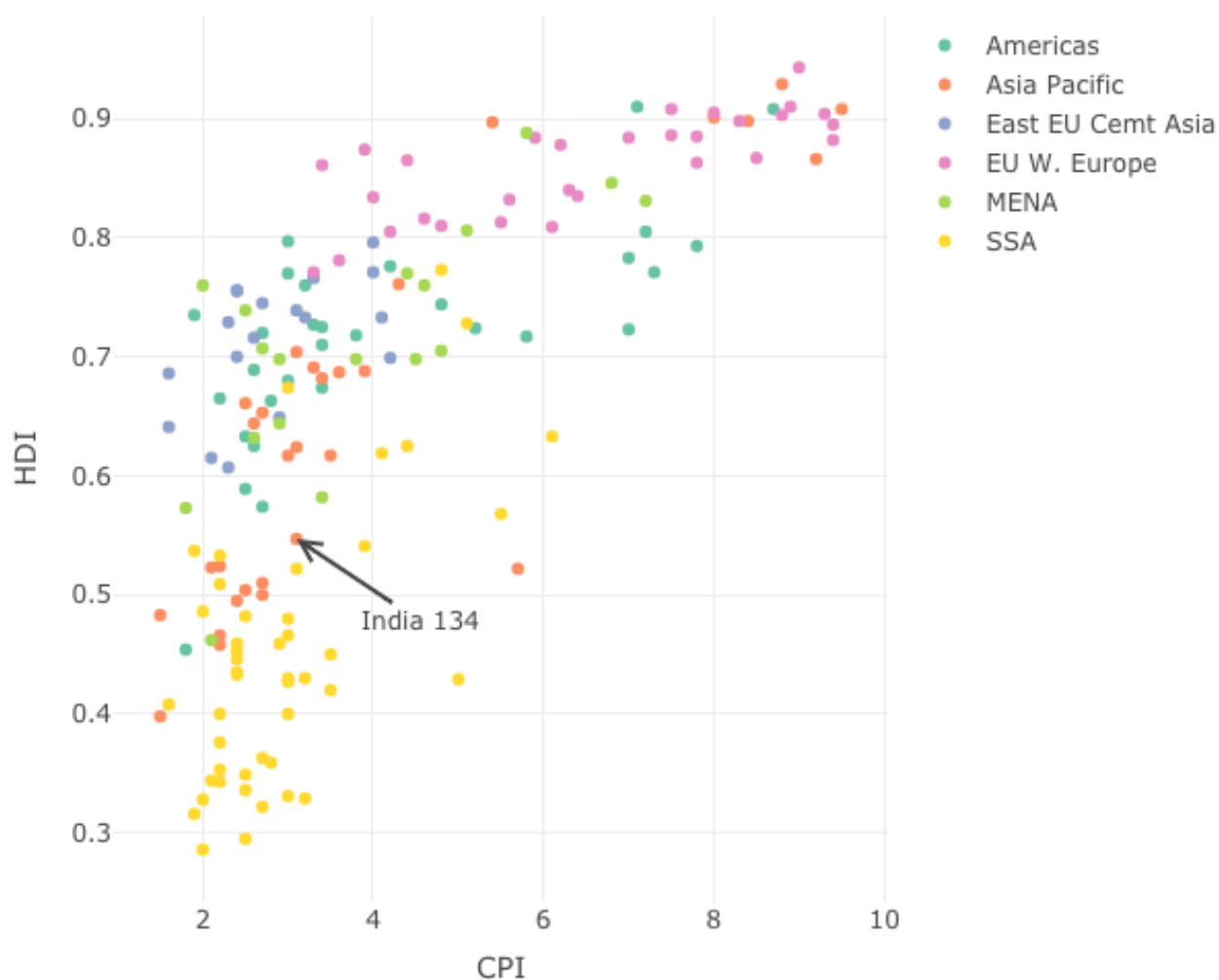
p



### 13. display annotations for our country (data label with HDI.Rank)

```
oc <- eco[which(eco$Country== "India"), ]
p <- plot_ly(data = eco, x = ~CPI, y = ~HDI, type = 'scatter',
mode = 'markers',
              color=~Region) %>%
  add_annotations(x = oc$CPI, y = oc$HDI,
                  text = paste(oc$Country,oc$HDI.Rank, sep=" "),
                  xref = "x", yref = "y", showarrow = TRUE,
arrowhead = 5, ax = 60, ay = 40)
```

p



## 14. Save plot (Locally on the machine)

```
htmlwidgets::saveWidget(p, “/Users/sanjitkumar/Documents/VIT_DOC/  
vit_semester_6/B2_Data_Visualisation/lab/submission2/plot.html”)
```

