Python, R, Tableau Charts Heat Map, Spatial Chart, Contour Chart

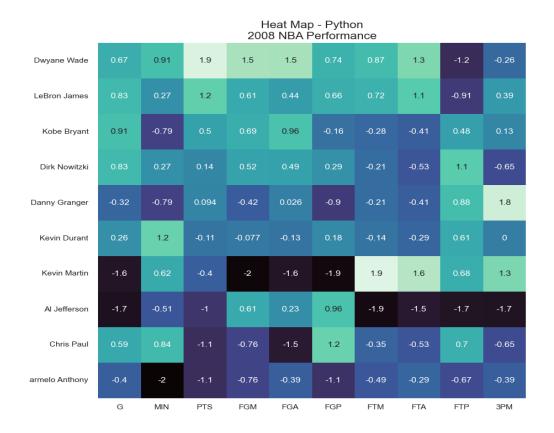
Heat Map

Python

```
# Use only the first 10 rows and first 10 columns
ppg_ten_df = ppg_df.iloc[:10, :10]
ppg_ten_df
```

```
# Normalize Basketball data
ppg_ten_df_norm = (ppg_ten_df - ppg_ten_df.mean()) / ppg_ten_df.std()
ppg_ten_df_norm.head()
```

Save figure heatmap_chart.figure.savefig('images/heat-map-python.png')



```
"``{r}
# | label: firsten

# Use only the first 10 rows and first 10 columns
ppg_ten_df <- ppg_df[c(1:10), c(1:11)]
head(ppg_ten_df)
"``{r}
```

```
"``{r}
# | label: normalize

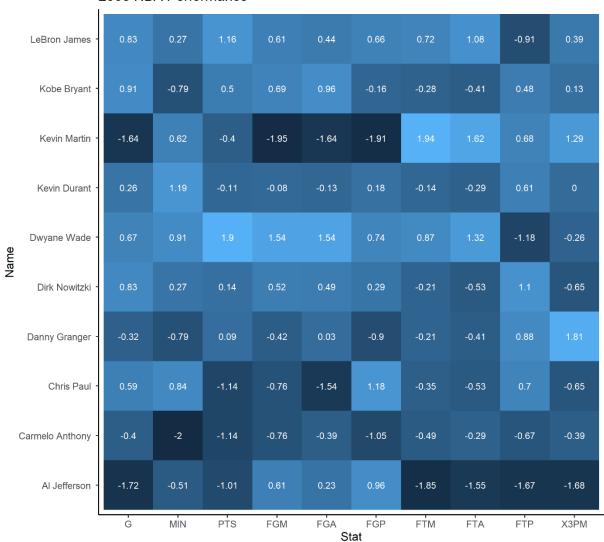
# copy dataset
ppg_df_norm <- data.frame(ppg_ten_df)

# normalize the columns
ppg_df_norm[c(2:11)] <- scale(ppg_df_norm[c(2:11)])

head(ppg_df_norm)
"``
```

```
```{r}
#| label: heatmap
fig <- ggplot(ppg_df_long, aes(x = factor(Type, level = c('G', 'MIN', 'PTS',
 'FGM', 'FGA', 'FGP',
 'FTM', 'FTA', 'FTP',
 'X3PM')),
 y = Name, fill = Stat)) +
 geom_tile(show.legend = FALSE) +
 geom_text(aes(label = round(Stat, digits = 2)), color = 'white', size = 3) +
 coord fixed()+
 guides(fill = guide colorbar(barwidth = 20, barheight = 0.5)) +
 ggtitle("Heat Map - R\n2008 NBA Performance") +
 xlab('Stat')
 theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust = 1,
 size = 8),
 legend.position = 'top')
ggsave("images/heat-map-r.png", width = 8, height = 10, units = "in")
```

Heat Map - R 2008 NBA Performance



**Tableau** (see Weeks9\_10\_Tableau.twb for code)

# Heat Map - Tableau 2008 NBA Performance

Name	G	MIN	PTS	FGM	FGA	FGP	FTM	FTA	FTP	ЗРМ
Al Jefferson	-1.72	-0.51	-1.01	0.61	0.23	0.96	-1.85	-1.55	-1.67	-1.68
Carmelo Anthony	-0.40	-2.00	-1.14	-0.76	-0.39	-1.05	-0.49	-0.29	-0.67	-0.39
Chris Paul	0.59	0.84	-1.14	-0.76	-1.54	1.18	-0.35	-0.53	0.70	-0.65
Danny Granger	-0.32	-0.79	0.09	-0.42	0.03	-0.90	-0.21	-0.41	0.88	1.81
Dirk Nowitzki	0.83	0.27	0.14	0.52	0.49	0.29	-0.21	-0.53	1.10	-0.65
Dwyane Wade	0.67	0.91	1.90	1.54	1.54	0.74	0.87	1.32	-1.18	-0.26
Kevin Durant	0.26	1.19	-0.11	-0.08	-0.13	0.18	-0.14	-0.29	0.61	0.00
Kevin Martin	-1.64	0.62	-0.40	-1.95	-1.64	-1.91	1.94	1.62	0.68	1.29
Kobe Bryant	0.91	-0.79	0.50	0.69	0.96	-0.16	-0.28	-0.41	0.48	0.13
LeBron James	0.83	0.27	1.16	0.61	0.44	0.66	0.72	1.08	-0.91	0.39

# **Spatial Chart**

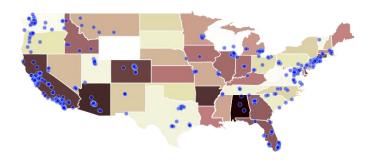
crs = {'init':'EPSG:4326'}

#### **Python**

```
Read Shape File
states = gpd.read_file('Data/States_shapefile.shp')
type(states)
```







```
""{r}
#| label: readshape

usa_states <- readOGR("Data/States_shapefile.shp", stringsAsFactors = FALSE)

""{r}
#| label: transform
```

```
""{r}
#| label: transform
latLong <- data.frame(lon = costcos_df$Longitude, lat = costcos_df$Latitude)
transformed_data <- usmap_transform(latLong)
transformed_data
""
```

```
""{r}
| label: spatialchart

map the counties

fig <- plot_usmap(regions = "states") +
 labs(title = "Spatial Chart - R", subtitle = "USA Costco Locations") +
 theme(panel.background=element_blank()) +
 geom_point(data = transformed_data, aes(x = x, y = y), color = 'blue', alpha = 0.5)

#fig
ggsave("images/spatial-chart-r.png", width = 8, height = 10, units = "in")
""
```



# Tableau

(see Weeks9\_10\_Tableau.twb for code)

### Spatial Chart - Tableau US Costco Locations

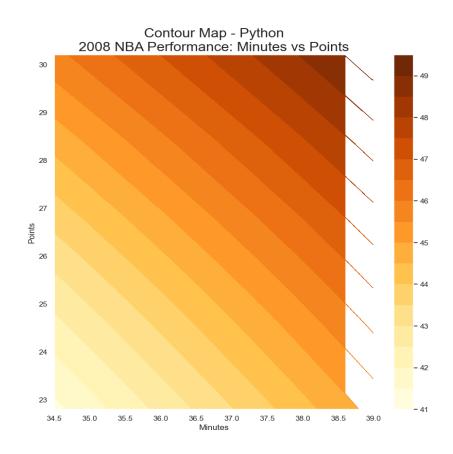


### **Contour Chart**

#### **Python**

```
create meshgrid for basketball games and points
[X, Y] = np.meshgrid(ppg_ten_df['MIN'], ppg_ten_df['PTS'])
```

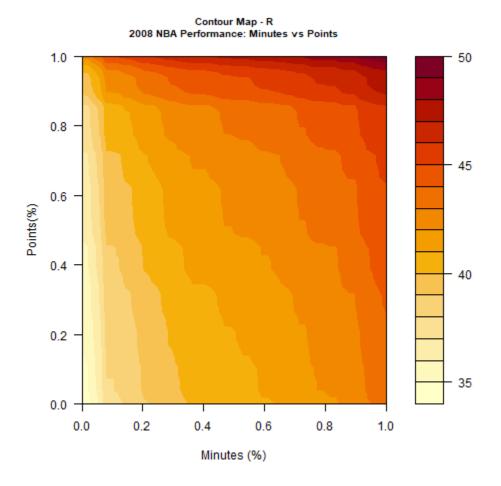
```
Create Z
Z = np.sqrt(X ** 2 + Y ** 2)
```



```
"``{r}
#| label: bbvars

X <- sort(ppg_df$MIN, decreasing = FALSE)
Y <- sort(ppg_df$PTS, decreasing = FALSE)

Z <- sqrt(outer(X ^ 2, Y ^ 2, '+'))
"``
```



### **Tableau**

(see Weeks9\_10\_Tableau.twb for code)

Funnel Chart - Tableau 2008 NBA Percentage of Points Summary

