R Notebook

Code

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```
library(ggplot2)
```

```
package 愀牶ggplot2愀牷 was built under R version 4.0.5
```

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```
library(tidyverse)
```

```
Registered S3 methods overwritten by 'dbplyr':
  method         from
  print.tbl_lazy
  print.tbl_sql
-- Attaching packages --------------------------------------------------- tidyverse 1.3.0 --
v tibble  3.0.6     v dplyr   1.0.4
v tidyr   1.1.2     v stringr 1.4.0
v readr   1.4.0     v forcats 0.5.1
v purrr   0.3.4
-- Conflicts ------------------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
```

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```
library(RColorBrewer)
```

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```
VolleyBall<- read.csv(file.choose(), stringsAsFactors = FALSE)
```

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```
VolleyBall<-na.omit(VolleyBall)
VolleyBallYear<-VolleyBall%>% group_by(year,gender) %>% summarize(totaces=mean(w_p1_tot_aces+w_p
2_tot_aces+l_p2_tot_aces+l_p1_tot_aces))
```

```
`summarise()` has grouped output by 'year'. You can override using the `.groups` argument.
```

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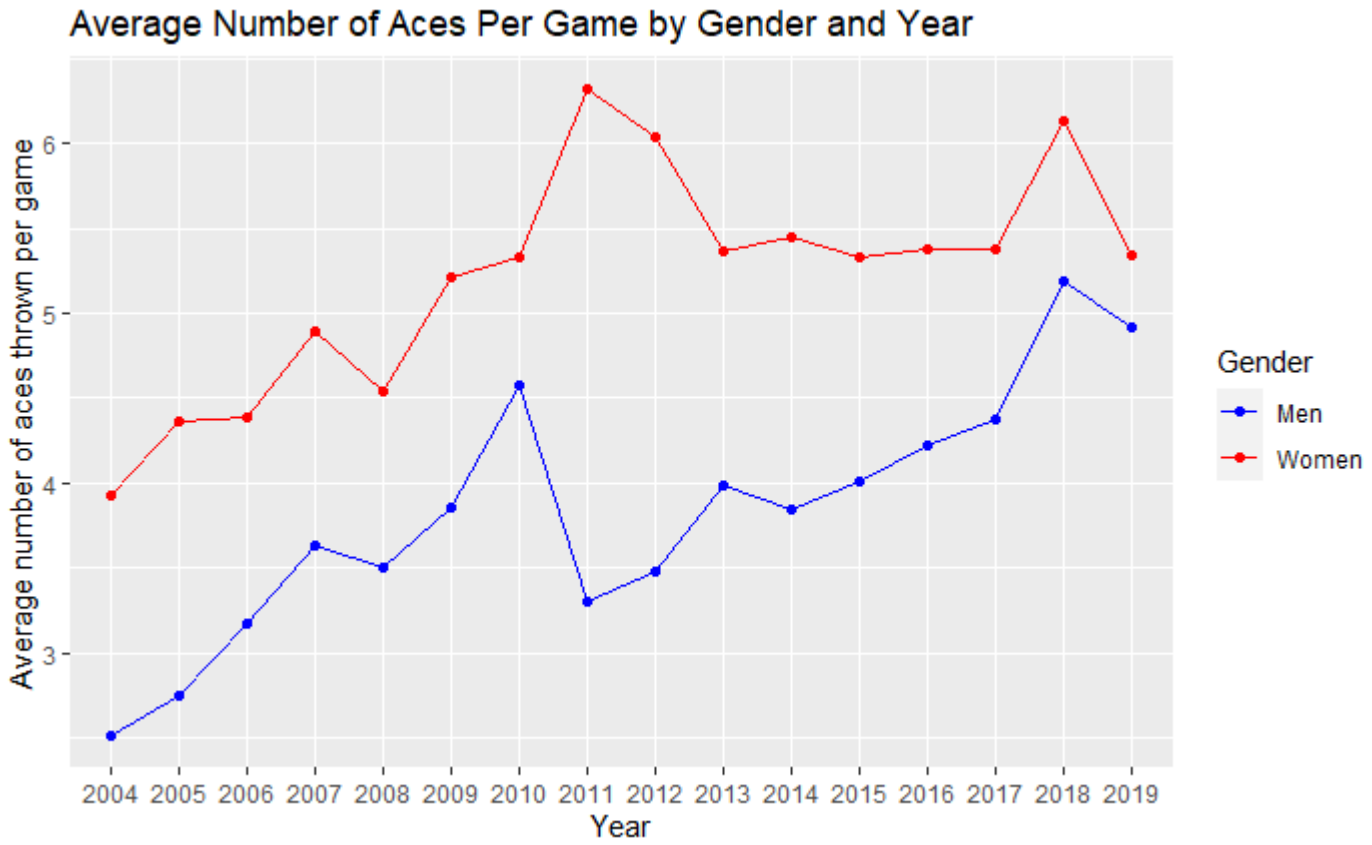
```
ggplot(VolleyBallYear,aes(x=year,y=totaces, color=gender))+geom_line()+geom_point()+labs(title=
"Average Number of Aces Per Game by Gender and Year",x="Year",y=
"Average number of aces thrown per game",color="Gender")+scale_x_discrete(limits=c(2004:2019))+
scale_color_manual(values = c("Blue", "Red"),labels = c( "Men", "Women"))
```

```
Continuous limits supplied to discrete scale.
Did you mean `limits = factor(...)` or `scale_*_continuous()`?
```



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```
#This visual shows the trends of average number of aces thrown per game by men and women from 20
04 to 2019. It illustrates two key details. First, in every year women threw more aces than men
 on average. This graph is also showing that  the averages for men and woman have both moved in
 similar direction over time. They both shared spikes in the average number of aces in 2018, 200
7 and 2009. They also share many of the same decrease in 2019 and 2008. The gap between the two
 genders in average number of aces thrown per game was the lowest in 2019.
```

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```
VolleyBallAtt<-VolleyBall%>% group_by(round) %>% summarize(AvgAtt=mean(w_p1_tot_attacks+l_p1_tot
_attacks+w_p2_tot_attacks+l_p2_tot_attacks))
VolleyBallAtt
```

	round <chr>	AvgAtt <dbl>
1	Round 1	103.3412
2	Round 2	106.3012
3	Round 3	108.4544
4	Round 4	110.5343

	round <chr>	AvgAtt <dbl>
5	Round 5	111.9701
6	Round 6	109.8649
7	Round 7	103.8750
8	Round 8	139.0000

8 rows

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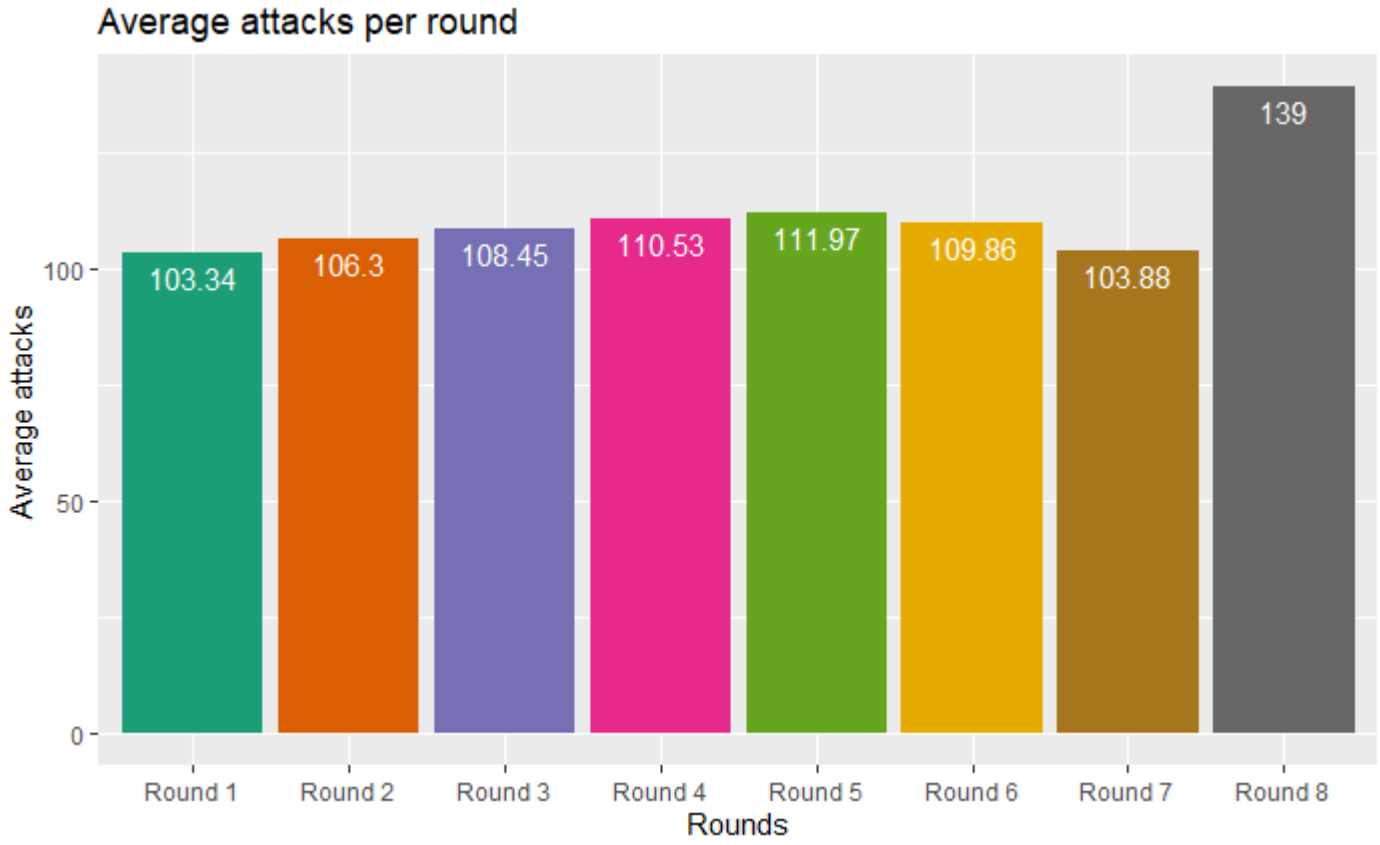
```
ggplot(VolleyBallAtt,aes(x=round,y=AvgAtt,fill=round))+geom_col()+labs(title="Average attacks pe
r round",x="Rounds",y=
"Average attacks")+ geom_text(aes(label = round(AvgAtt,digits = 2)), vjust = 1.5, colour = "whit
e")+scale_fill_brewer(palette="Dark2")+ theme(legend.position = "none")
```



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```
#This visual is showing how the average attacks(attacking swings over the net) per round change
 from round to round as we go from round 1 to round 8. From this graph we are able to tell that
 on average, players attack more often in round 8 as compared to all earlier rounds. This graph
 is also showing that round 7 and 1 have lower average attacks than other rounds.
```

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```
VolleyBallDig<-VolleyBall %>% mutate(AvgDig = (w_p1_tot_digs+l_p1_tot_digs+w_p2_tot_digs+l_p2_tot_digs)/4)
```

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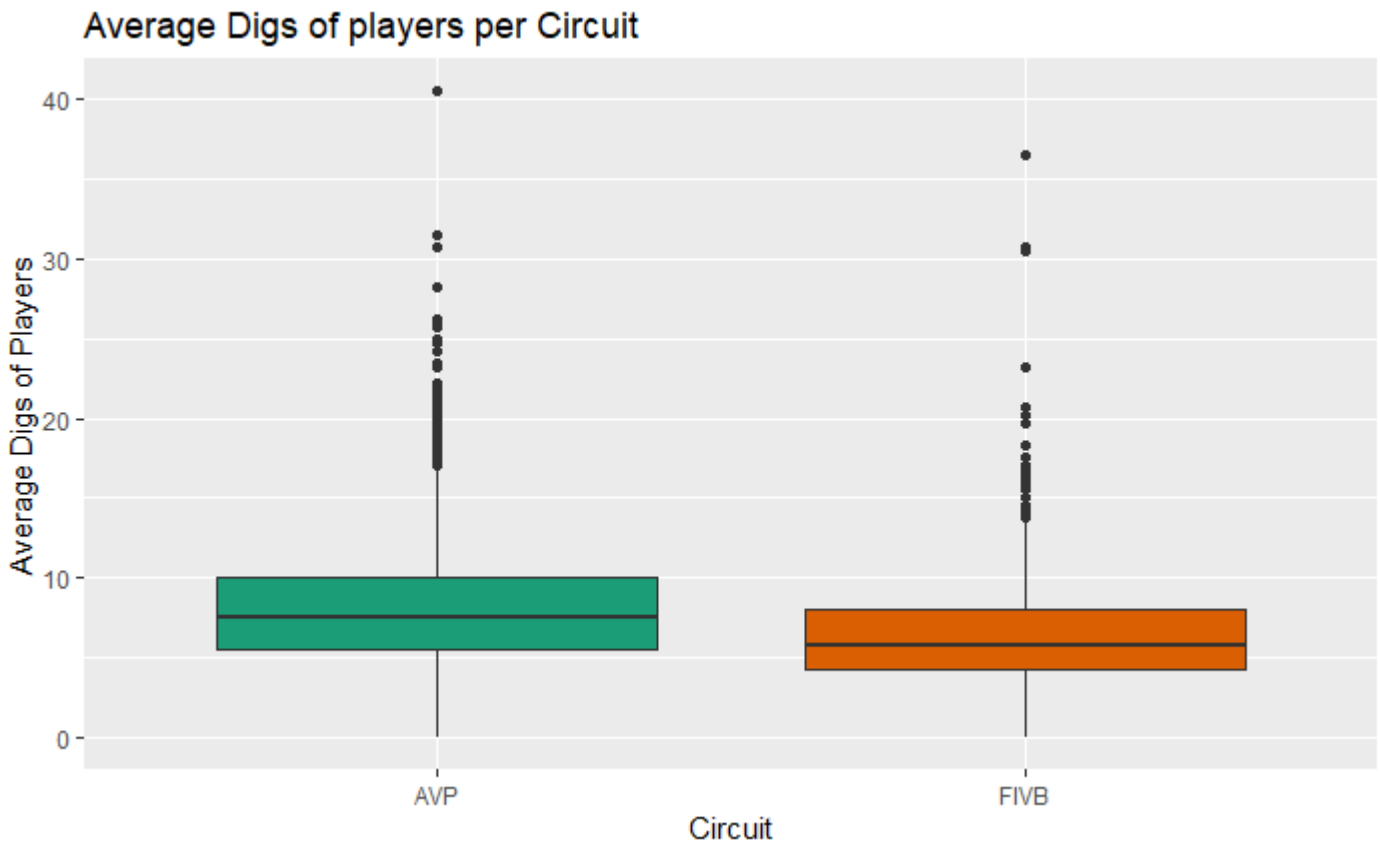
ggplot(VolleyBallDig,aes(x=circuit,y=AvgDig, fill=circuit))+geom_boxplot()+labs(x="Circuit",y="Average Digs of Players", title="Average Digs of players per Circuit")+ scale_fill_brewer(palette="Dark2")+ theme(legend.position = "none")
```



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```
#This graph is showing the difference in average digs(successful defense of an attack) between AVP(USA) circuit and FIVB(International) circuit. From this graph we are able to tell that the AVP circuit has more average digs per player than the FIVB circuit.
```