# A simple R Notebook for exploring 2012 time series data

#install the packages

#import the data

```
library(haven)
anes_timeseries_2012 <-
    read_sav("~/Documents/GitHub/Spring2021-Project1-Yuqi-Xing/data/anes_timeseries_2012.sav")
```

**Process variables for analysis**

```
anes_new=anes_timeseries_2012%>%
  mutate(
    turnout=as_factor(rvote2012_x),
    vote_for_president=as_factor(presvote2012_x),
    vote_for_USHouse=as_factor(hsevote2012_x),
    vote_for_senvote=as_factor(senvote2012_x),
    race=as_factor(dem_raceeth_x),
    gender=as_factor(gender_respondent_x),
  )

library(data.table)

data.table(anes_new%>%
             select(turnout, vote_for_president, vote_for_USHouse, vote_for_senvote, race, gender)%>%
             filter(turnout!="-9"&turnout!="-6"&turnout!="-2. Missing, 2012 voting status not determine
             sample_n(10))
```

```
##                                    turnout
##  1:        1. R voted in the 2012 elections
##  2:        1. R voted in the 2012 elections
##  3:        1. R voted in the 2012 elections
##  4:        1. R voted in the 2012 elections
##  5: 2. R did not vote in the 2012 elections
##  6: 2. R did not vote in the 2012 elections
##  7:        1. R voted in the 2012 elections
##  8:        1. R voted in the 2012 elections
##  9:        1. R voted in the 2012 elections
## 10:        1. R voted in the 2012 elections
##                                                                                vote_for_president
##  1:                                                                               1. Barack obama
##  2:                                                                               1. Barack obama
##  3:                                                                               1. Barack obama
##  4:                                                                                2. Mitt romney
##  5: -2. R did not vote for Pres or did not report vote for Pres in pre and no post-election data
```

```
##  6: -2. R did not vote for Pres or did not report vote for Pres in pre and no post-election data
##  7:                                                                                 1. Barack obama
##  8:                                                                                 1. Barack obama
##  9:                                                                                 1. Barack obama
## 10:                                                                                 1. Barack obama
##                                                                                    vote_for_USHouse
##  1:                                                    1. Voted for Democratic House candidate
##  2:                                                    1. Voted for Democratic House candidate
##  3:                                                    1. Voted for Democratic House candidate
##  4:                                                    2. Voted for Republican House candidate
##  5: -1. Inap, R did not or DK/RF if voted; voted but not (or DK/RF if voted for) for U.S. House
##  6: -1. Inap, R did not or DK/RF if voted; voted but not (or DK/RF if voted for) for U.S. House
##  7: -1. Inap, R did not or DK/RF if voted; voted but not (or DK/RF if voted for) for U.S. House
##  8: -1. Inap, R did not or DK/RF if voted; voted but not (or DK/RF if voted for) for U.S. House
##  9:                                                    1. Voted for Democratic House candidate
## 10:                                                    2. Voted for Republican House candidate
##
##  1:                                                                                  1. Voted for Democ
##  2:                                                                                  2. Voted for Republ
##  3:                                                                                  1. Voted for Democ
##  4:                                                                                  1. Voted for Democ
##  5: -1. Inap, R did not vote or DK/RF if voted; voted but not (or DK/RF if) for us Senate; no us Sen
##  6: -1. Inap, R did not vote or DK/RF if voted; voted but not (or DK/RF if) for us Senate; no us Sen
##  7:                                                                                  1. Voted for Democ
##  8: -1. Inap, R did not vote or DK/RF if voted; voted but not (or DK/RF if) for us Senate; no us Sen
##  9:                                                                                  1. Voted for Democ
## 10:                                                                                  2. Voted for Republ
##                                                                                              race
##  1:                                                                    2. Black, non-Hispanic
##  2:                                                                    2. Black, non-Hispanic
##  3:                                                                    2. Black, non-Hispanic
##  4:                                                                                5. Hispanic
##  5: 6. Other non-Hispanic incl multiple races (Web: blank 'Other' counted as a race)
##  6:                                                                    1. White, non-Hispanic
##  7:                                                                    1. White, non-Hispanic
##  8: 6. Other non-Hispanic incl multiple races (Web: blank 'Other' counted as a race)
##  9:                                                                    1. White, non-Hispanic
## 10:                                                                                5. Hispanic
##        gender
##  1: 2. Female
##  2:   1. Male
##  3:   1. Male
##  4:   1. Male
##  5: 2. Female
##  6: 2. Female
##  7: 2. Female
##  8: 2. Female
##  9: 2. Female
## 10: 2. Female
```

```r
anes_new = anes_new%>%
  filter(turnout!="-9"&turnout!="-6"&turnout!="-2. Missing, 2012 voting status not determined")%>%
  select(turnout, vote_for_president, vote_for_USHouse, vote_for_senvote, race, gender)
head(anes_new)
```

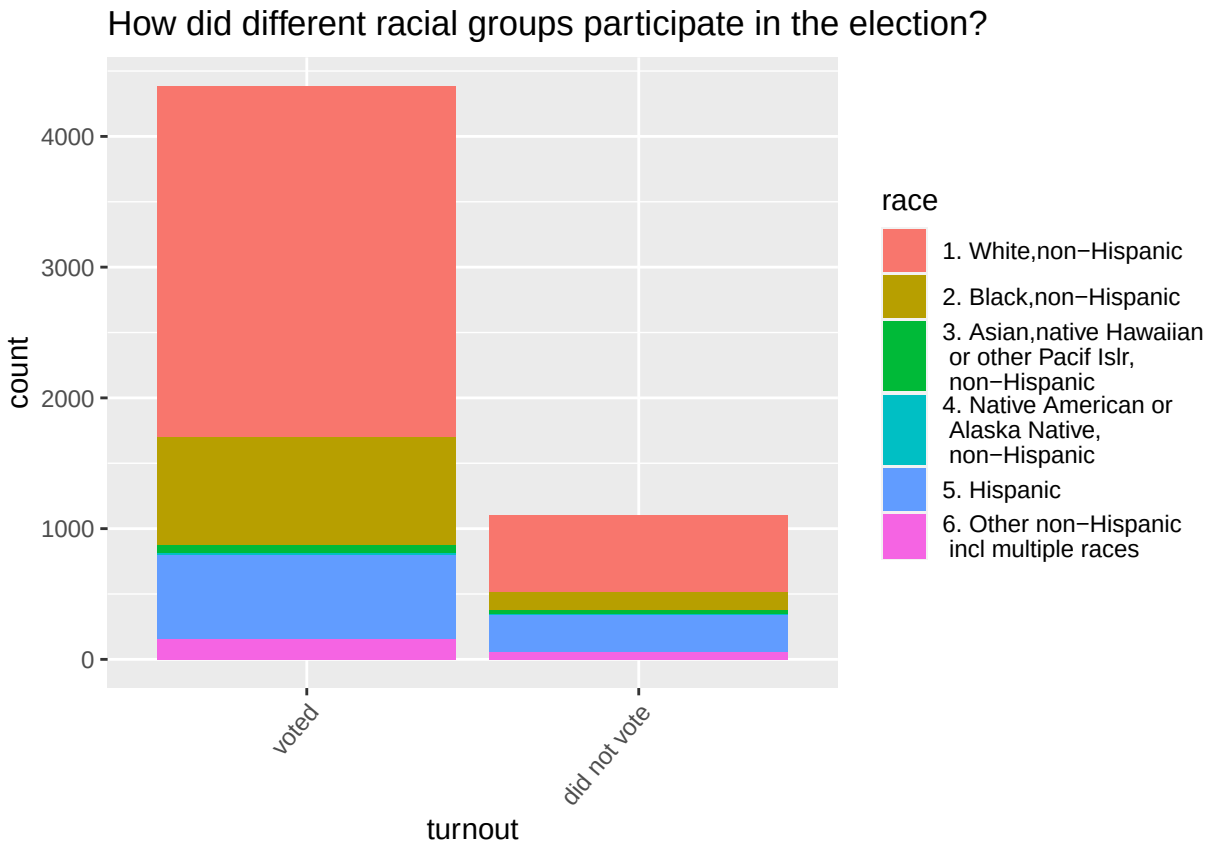
```
## # A tibble: 6 x 6
##   turnout  vote_for_president vote_for_USHouse   vote_for_senvote   race  gender
##   <fct>    <fct>              <fct>              <fct>              <fct> <fct>
## 1 1. R vo~ 1. Barack obama    -1. Inap, R did n~ -1. Inap, R did n~ 2. B~ 1. Ma~
## 2 1. R vo~ 1. Barack obama    -1. Inap, R did n~ -1. Inap, R did n~ 2. B~ 2. Fe~
## 3 1. R vo~ 1. Barack obama    -1. Inap, R did n~ -1. Inap, R did n~ 2. B~ 2. Fe~
## 4 1. R vo~ 1. Barack obama    -1. Inap, R did n~ -1. Inap, R did n~ 2. B~ 1. Ma~
## 5 2. R di~ -2. R did not vot~ -1. Inap, R did n~ -1. Inap, R did n~ 2. B~ 1. Ma~
## 6 1. R vo~ 1. Barack obama    -1. Inap, R did n~ -1. Inap, R did n~ 2. B~ 2. Fe~
```

```
save(anes_new, file="~/Documents/GitHub/Spring2021-Project1-Yuqi-Xing/output/data_use.RData")
```

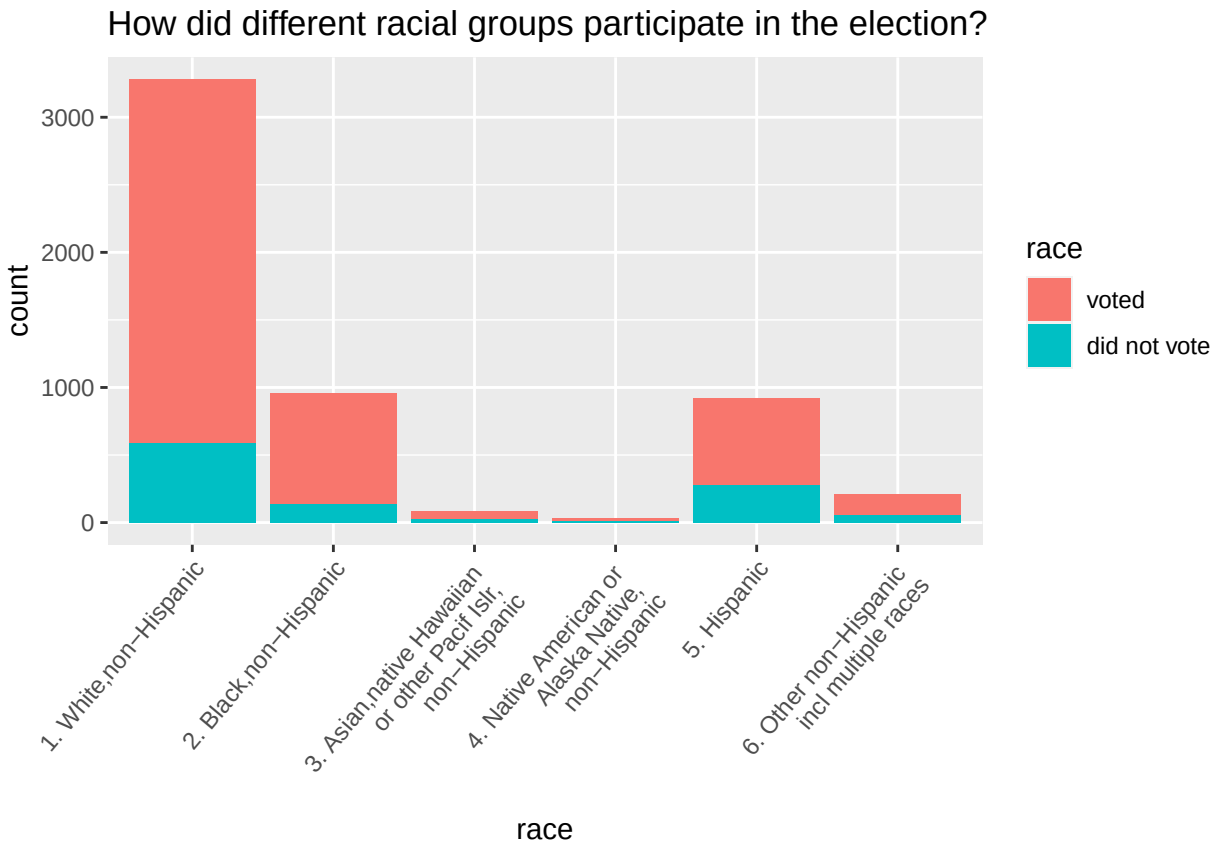
## A simple analysis

#Who went to vote in the election?

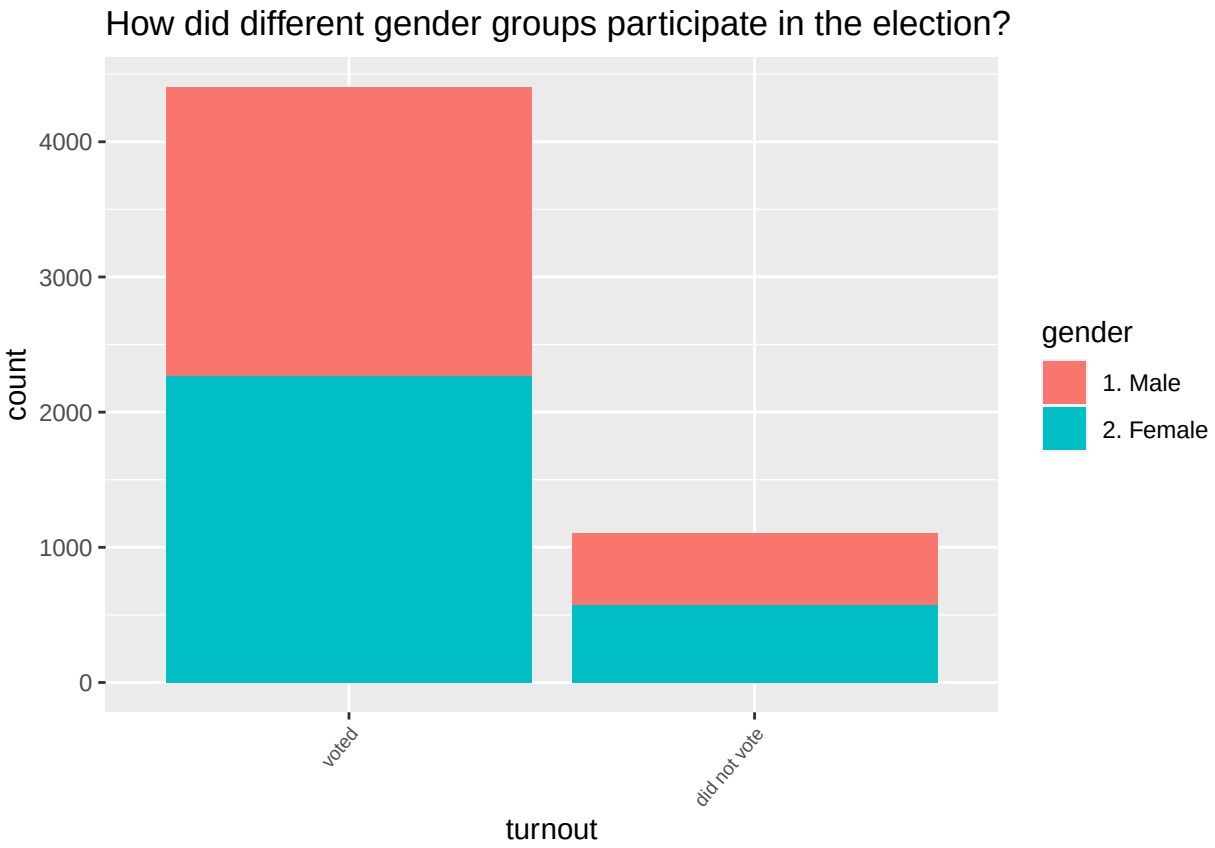
```
load(file="~/Documents/GitHub/Spring2021-Project1-Yuqi-Xing/output/data_use.RData")
anes_to_race = anes_new %>%
  filter(race!="-9. Missing")     ###delete useless data from race variable

anes_to_gender = anes_new

ggplot(anes_to_race)+
  geom_bar(aes(x=turnout, fill=race)) +
  theme(axis.text.x = element_text(angle = 50, hjust = 1))+
  labs(title="How did different racial groups participate in the election?")+
  scale_x_discrete(labels=c("1. R voted in the 2012 elections" = "voted", "2. R did not vote in the 201
  scale_fill_discrete(name="race", breaks=c("1. White, non-Hispanic", "2. Black, non-Hispanic", "3. Asi
```




```
ggplot(anes_to_race)+
  geom_bar(aes(x=race, fill=turnout)) +
  theme(axis.text.x = element_text(angle = 50, hjust = 1))+
labs(title="How did different racial groups participate in the election?")+
scale_x_discrete(labels=c("1. White,non-Hispanic", "2. Black,non-Hispanic", "3. Asian,native Hawaiian \
  scale_fill_discrete(name="race", breaks=c("1. R voted in the 2012 elections", "2. R did not vote in t
```



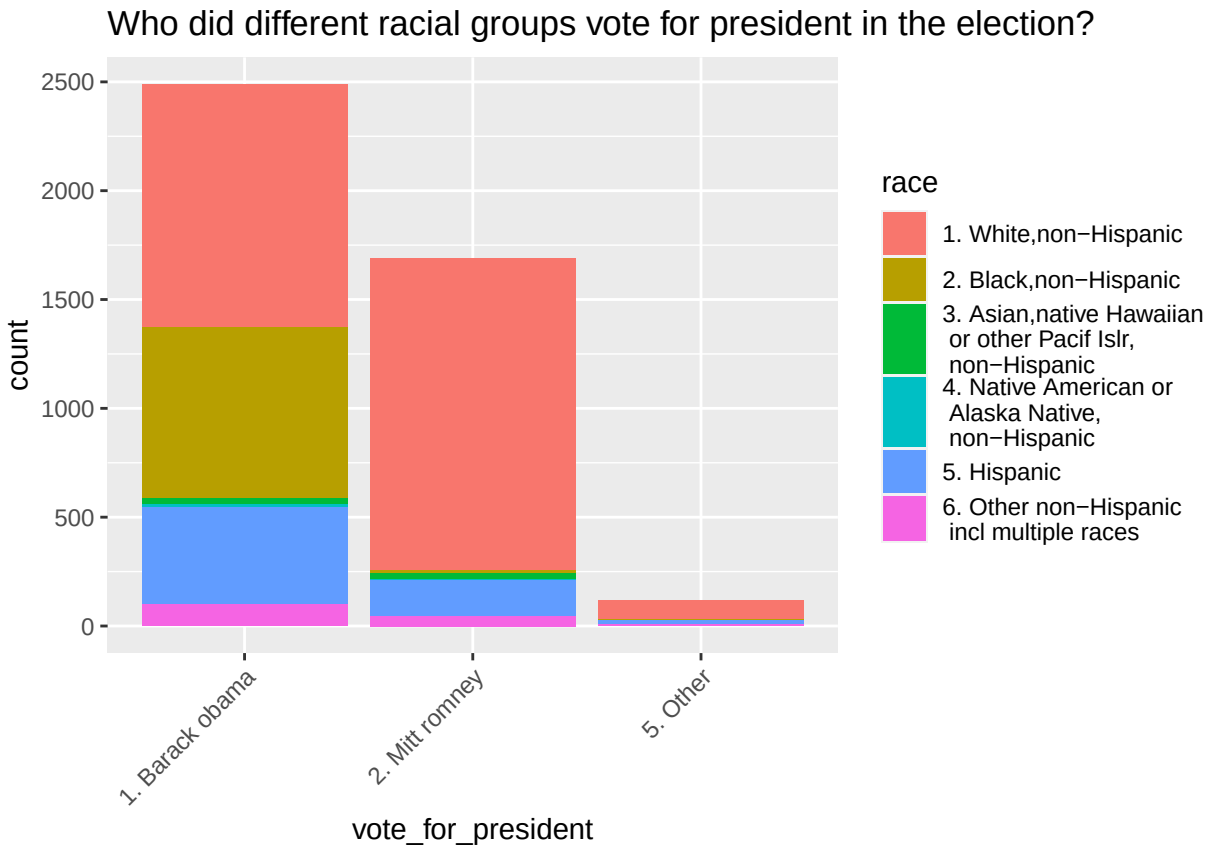

```
ggplot(anes_to_gender)+
  geom_bar(aes(x=turnout, fill=gender)) +
  theme(axis.text.x = element_text(angle = 50, hjust = 1, size=7))+
  labs(title="How did different gender groups participate in the election?")+
  scale_x_discrete(labels=c("1. R voted in the 2012 elections" = "voted", "2. R did not vote in the 201
```



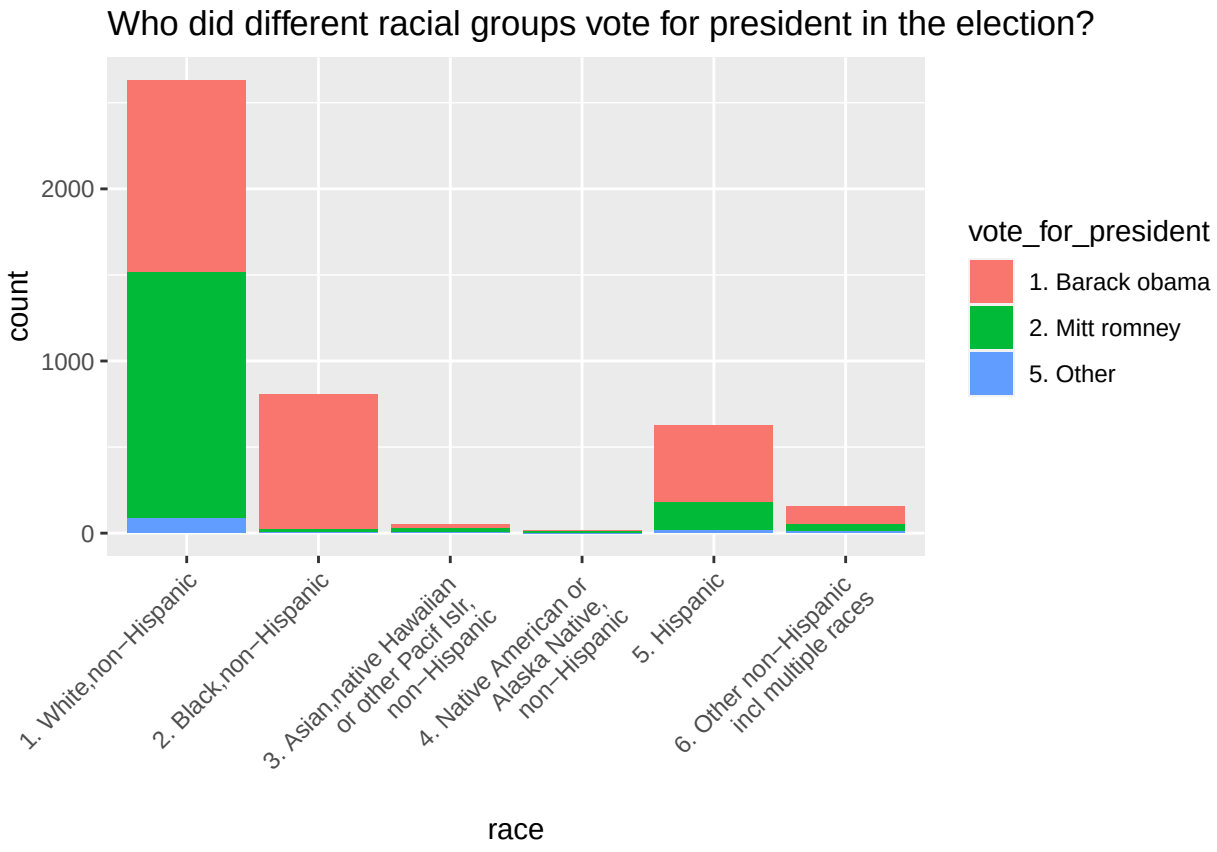

conclusion: Overall, most people turned out to vote. For each race, the number of people who voted was significantly greater than the number who did not vote. Because of the large white population in the United States, whites play an important role in voting, like whites voting more than all other races combining. There is no obvious gender bias in voting participation.

#Who did they vote for as president in the election?

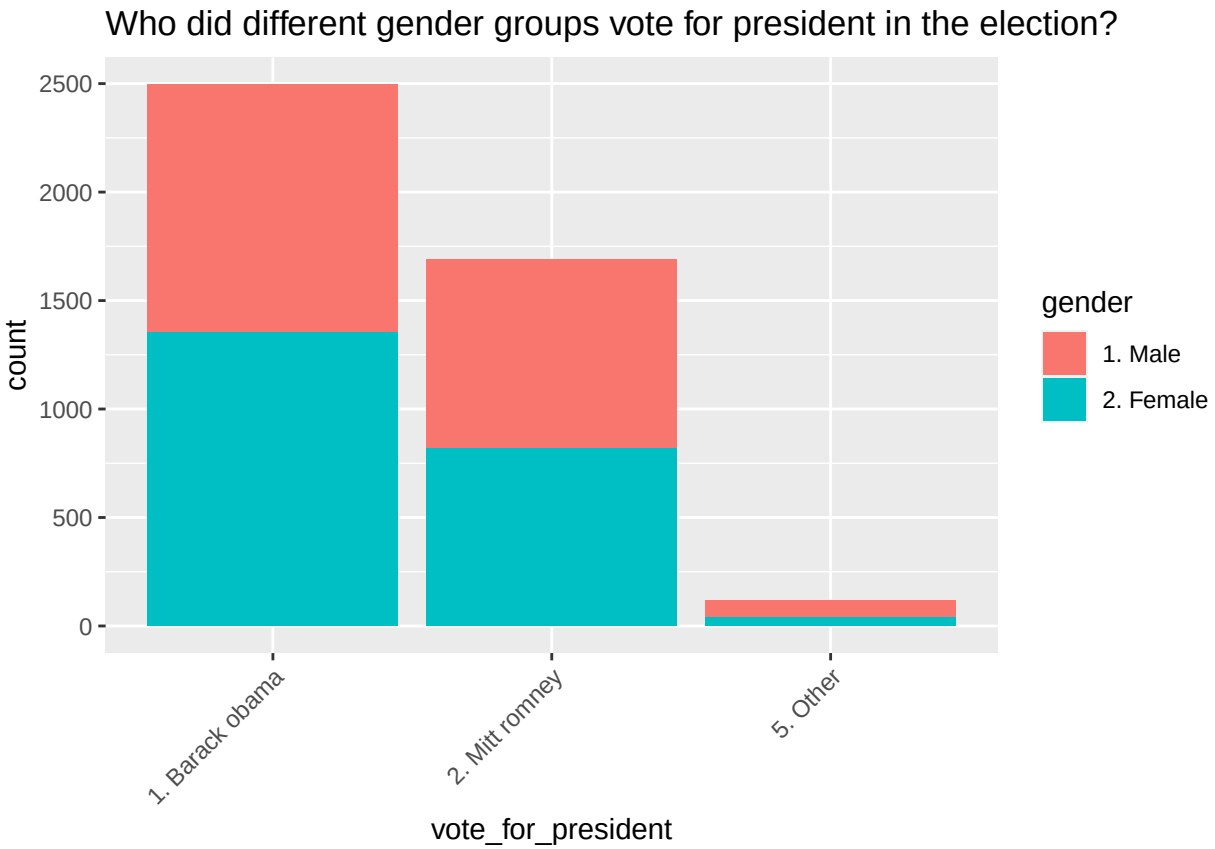
```
anes_vote_for_president=anes_new %>%
  filter(vote_for_president!="-9"&vote_for_president!="-6"&vote_for_president!="-2. R did not vote for

anes_vote_for_president_by_race = anes_vote_for_president%>%
  filter(race!="-9. Missing")    # delete the useless race data for vote_for_president variable


anes_vote_for_president_by_gender= anes_vote_for_president

ggplot(anes_vote_for_president_by_race)+
geom_bar(aes(x=vote_for_president, fill=race))+
labs(title="Who did different racial groups vote for president in the election?")+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
scale_fill_discrete(name="race", breaks=c("1. White, non-Hispanic", "2. Black, non-Hispanic", "3. Asian
```




```
ggplot(anes_vote_for_president_by_race)+
geom_bar(aes(x=race, fill=vote_for_president))+
labs(title="Who did different racial groups vote for president in the election?")+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
labs(title="Who did different racial groups vote for president in the election?")+
scale_x_discrete(labels=c("1. White,non-Hispanic", "2. Black,non-Hispanic", "3. Asian,native Hawaiian \n
```



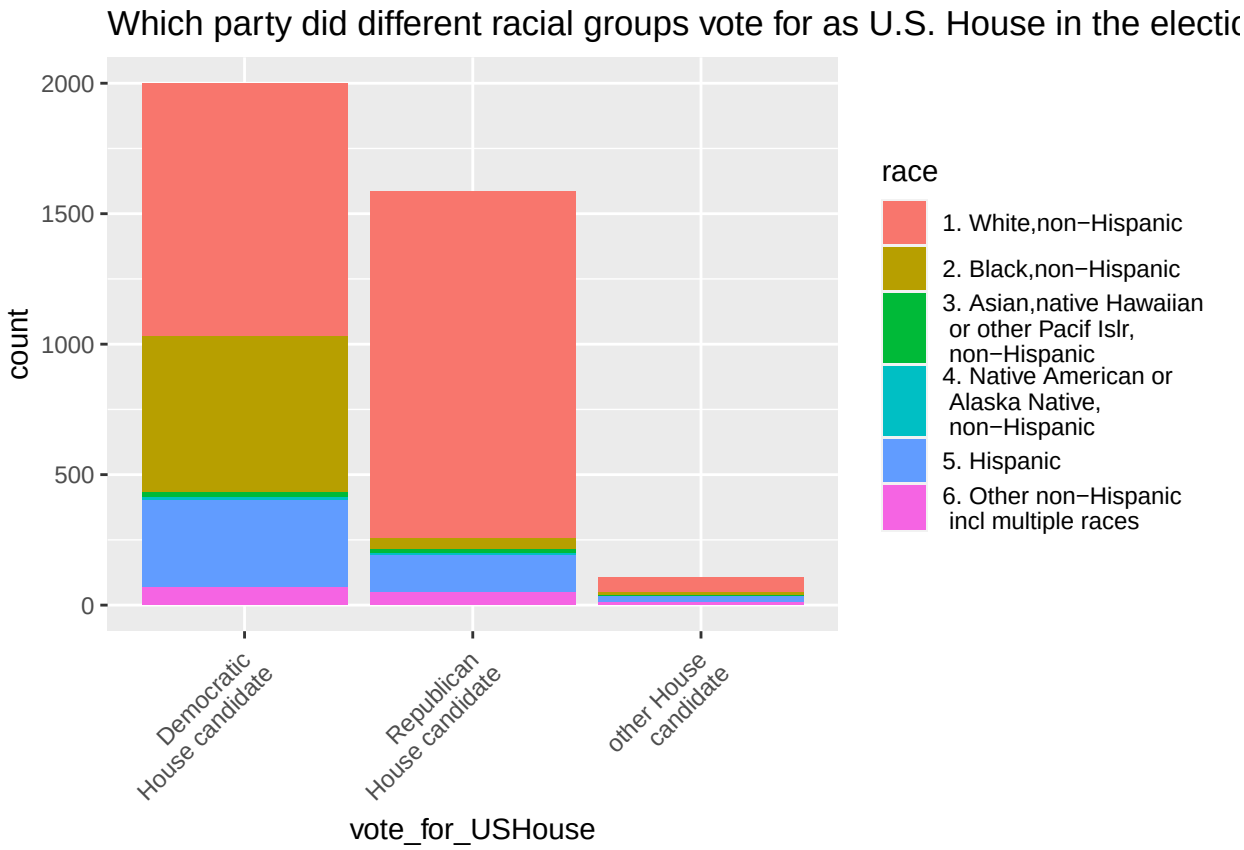

```
ggplot(anes_vote_for_president_by_gender)+
geom_bar(aes(x=vote_for_president, fill=gender))+
labs(title="Who did different gender groups vote for president in the election?")+
theme(axis.text.x = element_text(angle = 45, hjust = 1))    ##create bar graph for vote_for_president, a
```



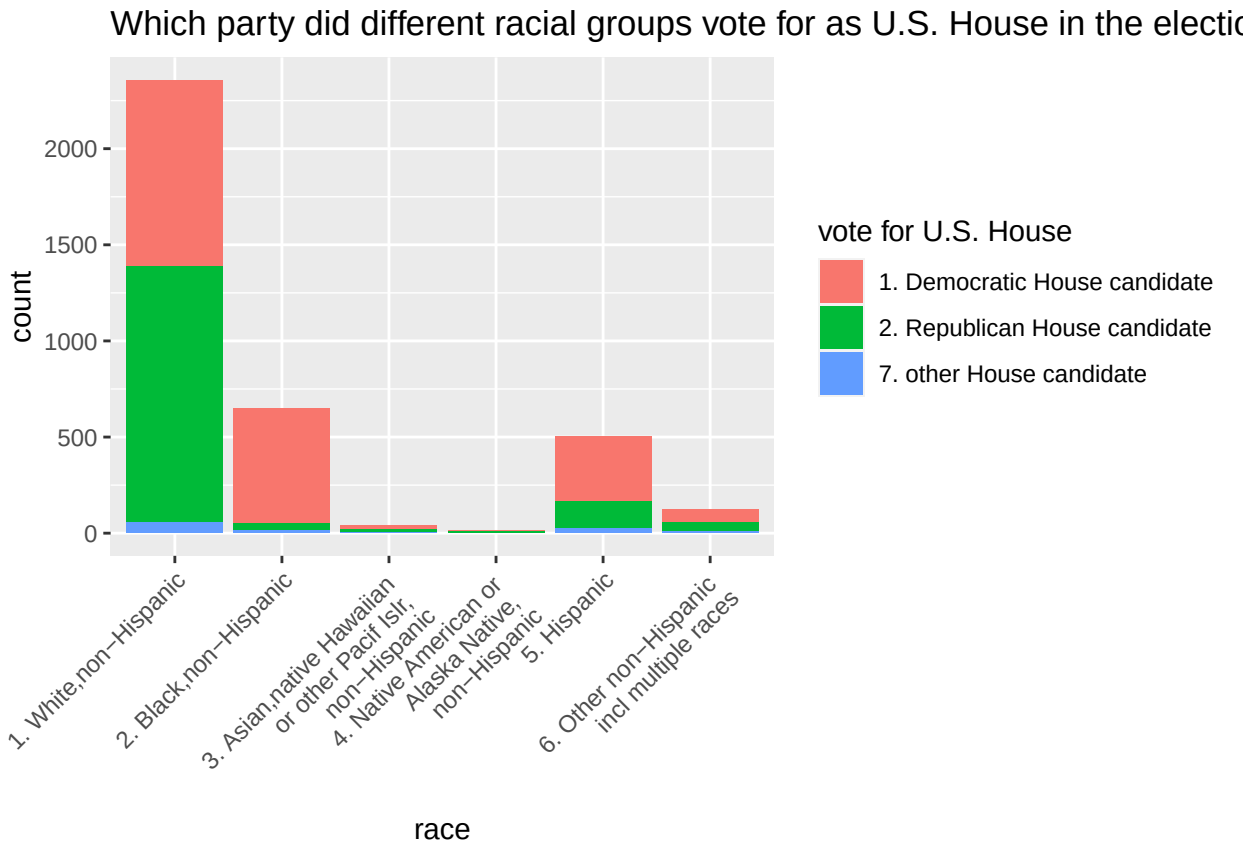

conclusion: Mr Obama scored significantly higher than the other two. Among whites, nearly half support Barack Obama, but more than half support Mitt Romney. Among blacks, nearly all voted for Obama (Obanma is black, so there may exist racial bias). Among Hispanic, most people voted for Obanma. For the other races, the vote was evenly split, or close to evenly split by Obama and Romney. There is no obvious gender bias in voting for president.

#which party did they vote for as U.S. House in the election?

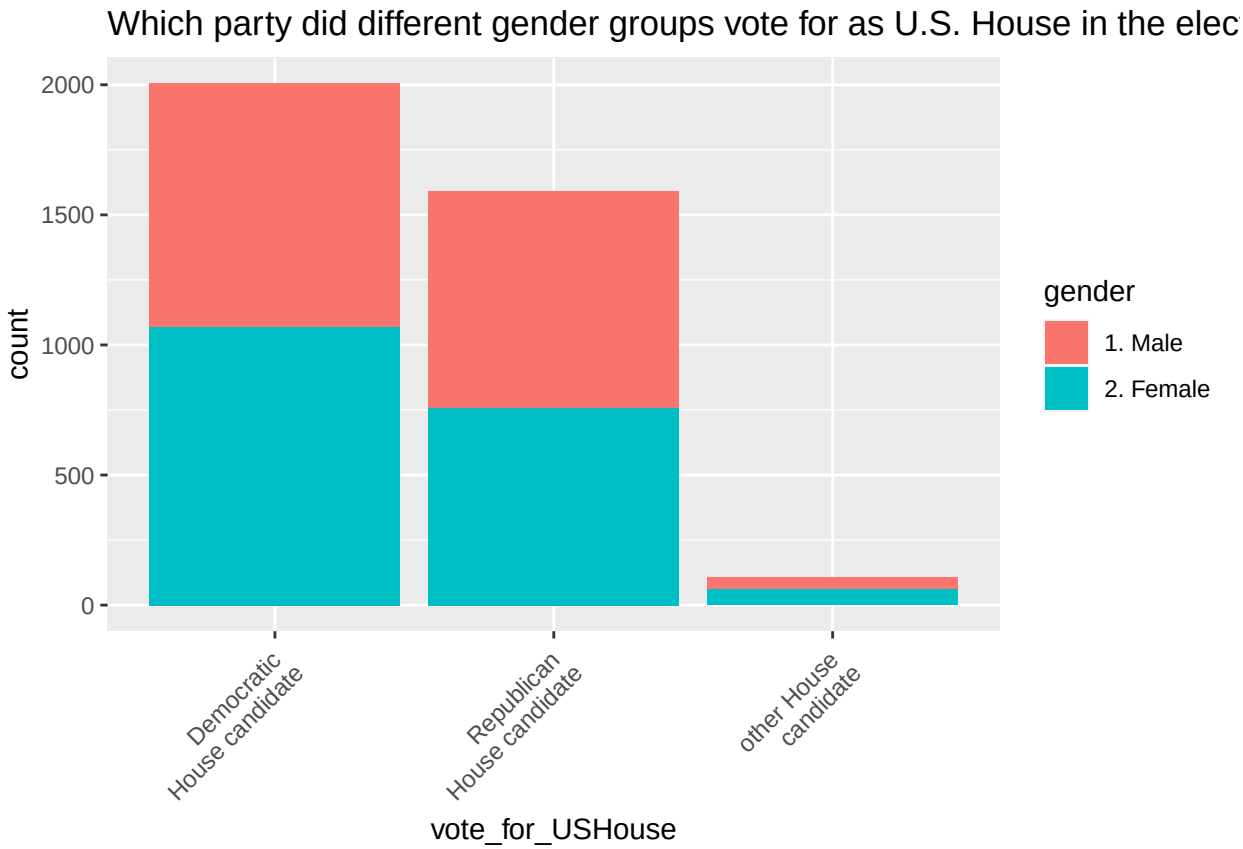
```
anes_vote_for_USHouse=anes_new %>%
  filter(vote_for_USHouse!="-1. Inap, R did not or DK/RF if voted; voted but not (or DK/RF if voted for)

anes_vote_for_USHouse_by_race = anes_vote_for_USHouse%>%
  filter(race!="-9. Missing")   # delete the useless race data for vote_for_USHouse variable


anes_vote_for_USHouse_by_gender= anes_vote_for_USHouse

ggplot(anes_vote_for_USHouse_by_race)+
geom_bar(aes(x=vote_for_USHouse, fill=race))+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
  scale_x_discrete(labels=c("1. Voted for Democratic House candidate" = "Democratic \n House candidate"
  labs(title="Which party did different racial groups vote for as U.S. House in the election?")+
  scale_fill_discrete(name="race", breaks=c("1. White, non-Hispanic", "2. Black, non-Hispanic", "3. Asi
```




```
ggplot(anes_vote_for_USHouse_by_race)+
geom_bar(aes(x=race, fill=vote_for_USHouse))+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
labs(title="Which party did different racial groups vote for as U.S. House in the election?")+
scale_x_discrete(labels=c("1. White,non-Hispanic", "2. Black,non-Hispanic", "3. Asian,native Hawaiian \n
  scale_fill_discrete(name="vote for U.S. House", breaks=c("1. Voted for Democratic House candidate", "
```



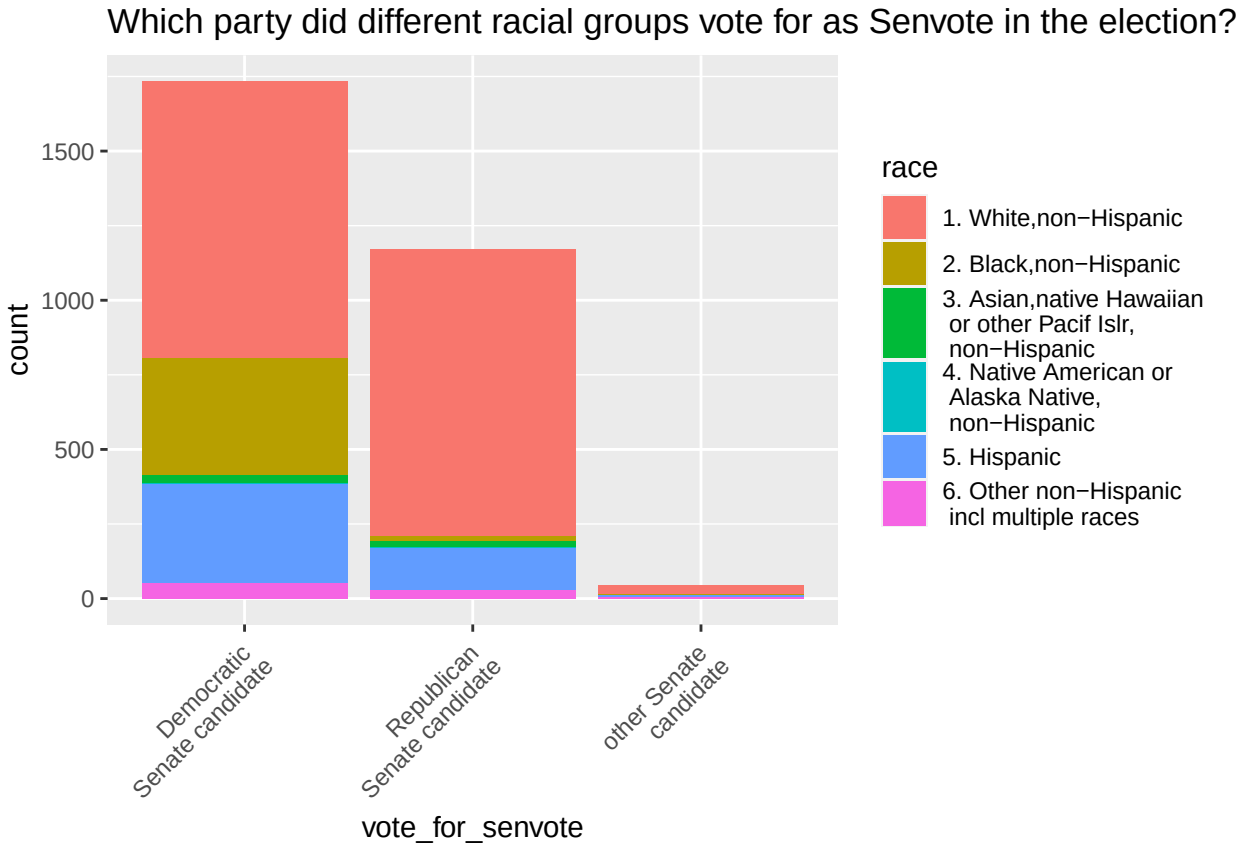

```
ggplot(anes_vote_for_USHouse_by_gender)+
geom_bar(aes(x=vote_for_USHouse, fill=gender))+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
  labs(title="Which party did different gender groups vote for as U.S. House in the election?")+
  scale_x_discrete(labels=c("1. Voted for Democratic House candidate" = "Democratic \n House candidate"
```



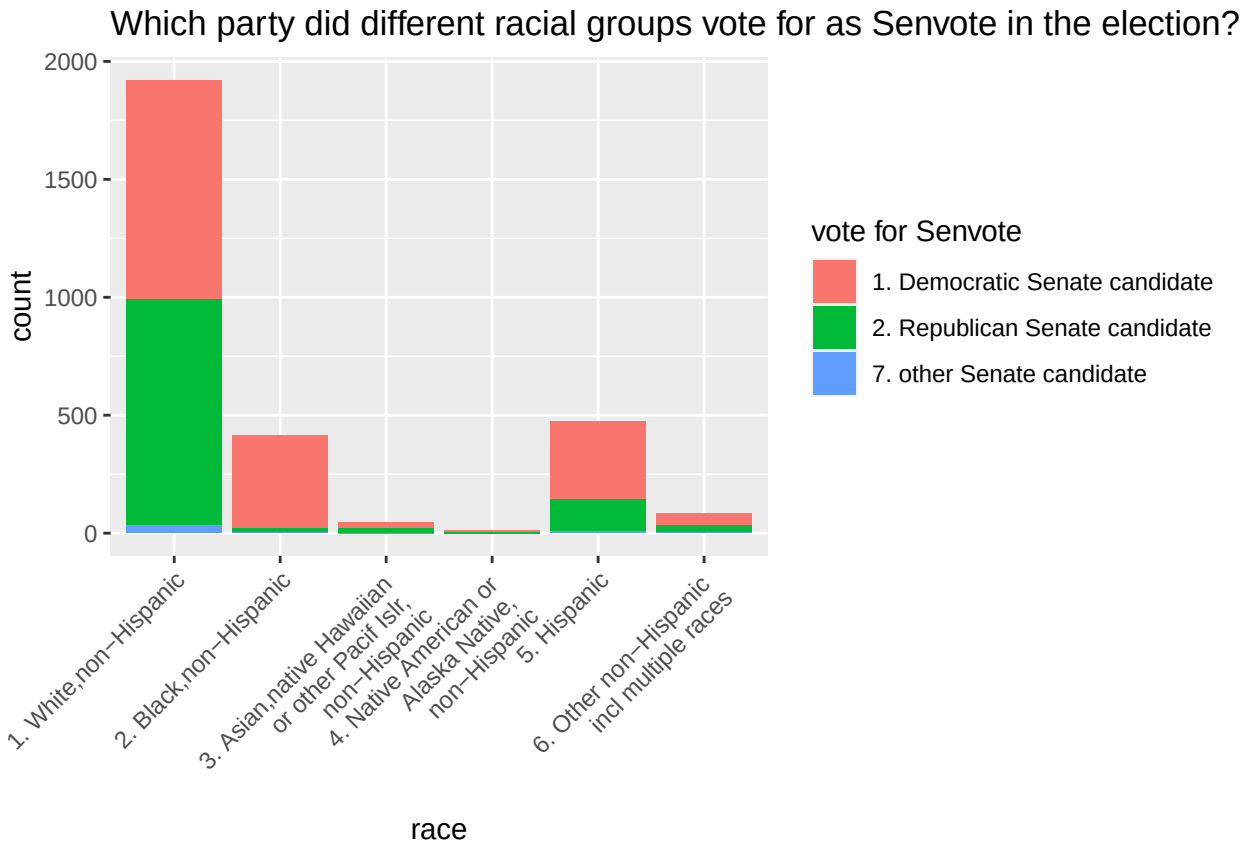

conclusion: Overall, the majority favored Democrats, followed by Republicans. Most whites supported the Republicans. Among blacks, nearly all voted for Democrats (Obanma is black & Democrats, so there may exist racial bias). Among Hispanic, most people voted for Democrats. For the other races, the vote was evenly split, or close to evenly split by Democats and Republican. There is no obvious gender bias in voting for USHouse.

#which party did they vote for as Senvote in the election?

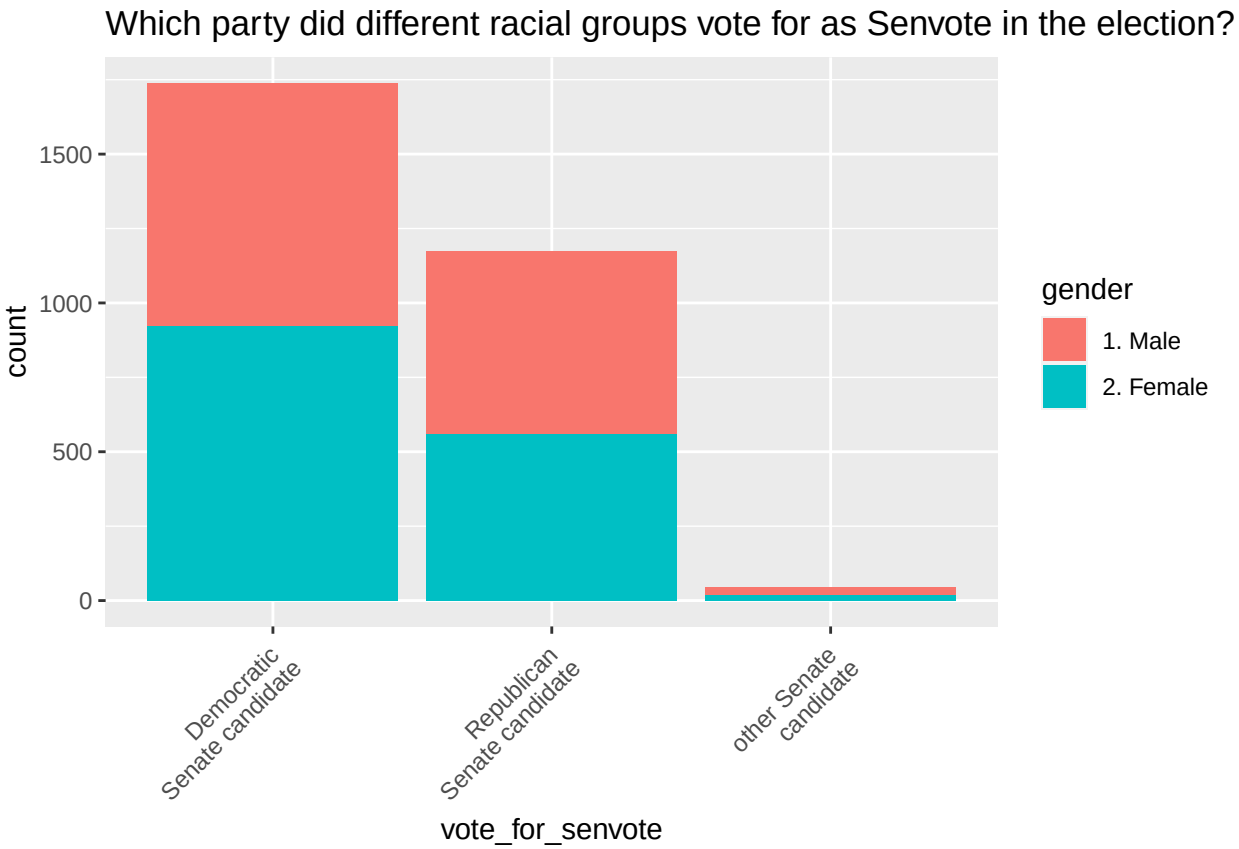
```
anes_vote_for_senvote=anes_new %>%
  filter(vote_for_senvote!="-1. Inap, R did not vote or DK/RF if voted; voted but not (or DK/RF if) for

anes_vote_for_senvote_by_race = anes_vote_for_senvote%>%
  filter(race!="-9. Missing")    # delete the useless race data for vote_for_senvote variable


anes_vote_for_senvote_by_gender= anes_vote_for_senvote

ggplot(anes_vote_for_senvote_by_race)+
geom_bar(aes(x=vote_for_senvote, fill=race))+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
labs(title="Which party did different racial groups vote for as Senvote in the election?")+
scale_x_discrete(labels=c("1. Voted for Democratic Senate candidate" = "Democratic \n Senate candidate"
  scale_fill_discrete(name="race", breaks=c("1. White, non-Hispanic", "2. Black, non-Hispanic", "3. Asi
```




```
ggplot(anes_vote_for_senvote_by_race)+
geom_bar(aes(x=race, fill=vote_for_senvote))+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
labs(title="Which party did different racial groups vote for as Senvote in the election?")+
scale_x_discrete(labels=c("1. White,non-Hispanic", "2. Black,non-Hispanic", "3. Asian,native Hawaiian \n
  scale_fill_discrete(name="vote for Senvote", breaks=c("1. Voted for Democratic Senate candidate", "2.
```




```
ggplot(anes_vote_for_senvote_by_gender)+
geom_bar(aes(x=vote_for_senvote, fill=gender))+
theme(axis.text.x = element_text(angle = 45, hjust = 1))+
labs(title="Which party did different racial groups vote for as Senvote in the election?")+
scale_x_discrete(labels=c("1. Voted for Democratic Senate candidate" = "Democratic \n Senate candidate"
```




conclusion: Overall, the majority favored Democrats, followed by Republicans. Half of whites voted Democratic and half of whites supported the Republicans. Among blacks, nearly all voted for Democrats (Obanma is black & Democrats, so there may exist racial bias). Among Hispanic, most people voted for Democrats. For the other races, the vote was evenly split, or close to evenly split by Democats and Republican. There is no obvious gender bias in voting for Senate.