Homework 1: This homework aims to consolidate the basic functions and data types we learnt in R.

Start by copying and pasting the following datasets into R. This data gives the voting age population and the total number of votes cast across the different US states. I provide some hints and steps you can take to complete the exercises.

```
vap<-voting.age.population<-c(3481823, 496387, 4582842, 2120139,26955438, 3617942,2673154,652189,472143
995937,1073799,9600372,4732010,2265860,2068253, 3213141,3188765,1033632,4242214,4997677,7620982,
3908159,2139918,4426278,731365,1321923,1870315,1012033, 6598368,1452962,14838076,6752018,494923,8697456
2850525,9612380,824854,3303593,594599,4636679, 17038979,1797941,487900,5841335,4876661,1421717,
4257230,392344)
```

```
total.votes<-tv<-c(NA, 238307, 1553032, 780409,8899059,1586105, 1162391,258053, 122356,4884544,
2143845,348988, 458927,3586292, 1719351,1071509, 864083,1370062, 954896,NA, 1809237,
2243835,3852008, 2217552,NA, 2178278, 411061,610499, 586274,418550, 2315643,568597,
4703830,2036451, 220479,4184072, NA,1399650, NA,392882, 1117311,341105, 1868363,NA,
582561, 263025,2398589, 2085074,473014, 2183155, 196217)
```

Task 1: Return all valid (non na) datapoints from the tv dataset. (use the `is.na()` function)

Task 2: Compare `vap` and `voting.age.population`. Are the values the same? (use `==`)

Task 2: Calculate the length of the vap and tv vectors.

Task 2: Subset the `voting.age.population` vector such that it only contains the population values that are less than the median of the voting age population in the country.

- Step 1: Find the median of the voting.age.population (similar to `mean()`) and store it in a variable `vap_median`
- Step 2: Compare each element of the `voting.age.population` vector to the median value (`vap_median`) using an appropriate condition (==><). It should return TRUE/FALSE values. Store this in a variable `chooser`.
- Step 3: Now use the result from the logical condition generated in step 2 (`chooser`) to subset the `voting.age.population` vector.

Task 3: Create an indicator variable for large states. Create a variable`state.size` where a value of 1 means the voting age population is greater than the median in the country and 0 if it's less.

- Step 1: Use `vap_median` calculated above and compare each value in the `voting.age.population/vap` variable.
- You can also use `!` instead. Can you think how?
- Step 2: Convert the TRUE/FALSE values generated to numeric.

Task 4: Calculate the total number of states where the voting age population is greater than the median.