

## Homework №2

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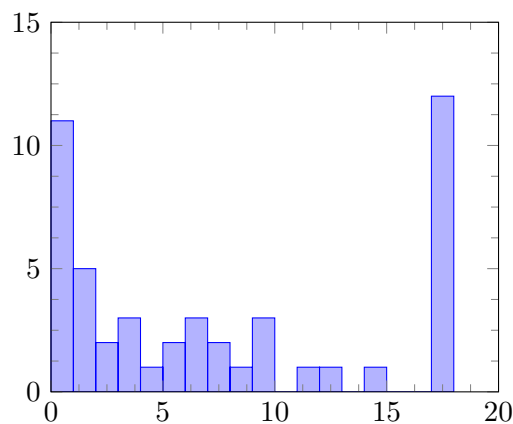
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2.4 Well, since \$270,900 is nowhere near \$340,300, it means that the distribution is not symmetric. Now, since the distribution is not symmetric, it means that it is skewed. In this case, it would be a right-skewed distribution and therefore the mean will be greater than the median. Finally, we have that the mean is \$340,300 and the median is \$270,900.

2.5 The mean is the sum of CO<sub>2</sub> emission for all states divided by 50. After a tedious calculation, one will get that the mean is approximately 4.606. The median, in this case, will be the 19<sup>th</sup> element in the list of this data in the sorted order. The data in the sorted order looks like this:

```
data = [0.0746, 0.1113, 0.1522, 0.1732, 0.3038,  
        0.3109, 0.3716, 0.4932, 0.4941, 0.8731,  
        0.9321, 1.5994, 1.6295, 1.6662, 1.7281,  
        1.8032, 2.1503, 2.6228, 3.3315, 3.7034,  
        3.7636, 4.131, 4.4469, 4.471, 5.5554,  
        5.8535, 6.1949, 6.6449, 6.7177, 7.6765,  
        7.9251, 8.3086, 9.1148, 9.1857, 9.2041,  
        11.4869, 12.2255, 14.6261, 17.5642]
```

Then it is easy to see that the 19<sup>th</sup> element is 3.3315 and therefore the median is 3.3315. Here is the histogram for the given data:



The mean is larger than the distribution since we have an outlier (the tallest bar in the end) which distorts the actual picture (the median, however, is resistant).

2.6 (a) The stemplot for the data of defensive linemen is

24		2	
25		2	4
26		0	
27		4	
28			
29		7	
30		0	3
31		1	
32		3	

**Five-number summary**

Minimum is 242.

$Q_1$  is 254.

Median is  $\frac{274 + 297}{2} = 285.5$ .

$Q_3$  is 303.

Maximum is 323.

(b) The stemplot for the data of offensive linemen is

29		8	
30		1	5
31		0	5 8
32		0	1
33		2	

**Five-number summary**

Minimum is 298.

$Q_1$  is  $\frac{301 + 305}{2} = 303$ .

Median is 315.

$Q_3$  is  $\frac{320 + 321}{2} = 320.5$ .

Maximum is 332.

(c) The stemplot for offensive linemen is symmetric and has not outliers. The stemplot for defensive linemen is almost symmetric and also does not have any outliers. The group of offensive linemen are heavier since its datapoints have higher values

7. **Five-number summary**

Minimum is 11.

$Q_1$  is 18.

Median is 21.

$Q_3$  is 26.

Maximum is 51.