For this assignment, you will mainly use the `parking_meter` dataset which is in the **parking_meter.csv** file on Canvas (go to Files --> Data). This dataset has 9975 observations and the following 10 variables:

```
meter_head - the meter head type
meter_rate - the hourly meter rate in dollars
time_in_effect - times that the meter is in effect.
time_limit - the time limit for the meter.
credit_card - Does the meter have credit card functionality (Yes or No)?
pay_phone - Pay by Phone number.
longitude - Longitude coordinate.
latitude - Latitude coordinate.
geo_local_area - The local region where the meter is located.
meter_id - Unique identifier of the meter.
```

Import the **parking_meter.csv** file as a **pandas DataFrame** named `parking_meter`.

1. What is the median meter rate? How many meters have a rate that is **greater than** five dollars?

2. How many missing values are there in the `pay_phone` variable?

3. How many unique meter rates are there in this dataset? Which meter rate is the most common in this dataset?

4. Compute the mean meter rate for those meters **with** credit card functionality and the mean meter rate for those meters **without** credit card functionality.

5. There are 18 regions in contained in the `geo_local_area` variable. Create a length-18 list where the components of the list are the names of these 18 regions.

6. There are 18 regions in contained in the `geo_local_area` variable. Create a dictionary with **18 key-value pairs**. The keys should be the region names. For each region, the value associated with the key should be a length-3 tuple that contains the mean, median, and standard deviation of the meter rate for that region.

   What are the mean, median, and standard deviation of the meter rates in the "Mount Pleasant" region?

7. Create a new variable in `parking_meter` called `neighborhood_avg`. This is the average meter rate among the collection of meters which are **both** within 0.001 latitude and 0.001 longitude of the meter. If there are no other meters within both 0.001 latitude and 0.001 longitude, the value of `neighborhood_avg` should be 0.

For example, the 50^{th} element of `neighborhood_avg` should be the average meter rate among all the meters whose latitude is within 0.001 of `parking_meter.latitude[49]` **and** whose longitude is within 0.001 of `parking.longitude[49]`.

8. Create another new variable in `parking_meter` called `region_avg`. This is the average meter rate among the collection of meters which are in the same local region of the meter.

9. What is the `meter_id` of the meter with the largest value of `longitude`? Also, what is the `meter_id` of the meter whose difference between the meter rate and the neighborhood average is the largest (i.e., use the meter rate minus the neighborhood average).

10. What is the correlation between latitude and meter rate? What is the correlation between longitude and meter rate?

11. Make 18 boxplots of the variable `meter_rate` for each of the 18 local regions. These 18 boxplots should be on a single graph.

12. Make a scatterplot of `meter_rate` vs. `latitude`.