Overview:

PM 2.5 are microparticles with a size around 2.5 or less micrometers in diameter. They posed a high health hazard due to their ability to get deep inside people’s lungs and even bloodstream. China has had particular problems with air pollution in recent years due to the rapid industrialization and lax air quality laws. This app aims to study the level of PM 2.5 in major cities in China.

Data:

The dataset used provides measurements of PM 2.5 levels in Beijing, Chengdu, Guangzhou, Shanghai, and Shenyang, from 2010 to 2015. In addition to PM 2.5 levels, the dataset also provides information on temperature, air pressure, humidity, and precipitation. PM 2.5 levels were measured in 3-4 locations within each city. For this study, those measurements are averaged to yield single PM 2.5 level at each city

Questions:

* How do the PM 2.5 levels differ in different regions in China?
* Do other variables like temperature, air pressure, and humidity affect PM 2.5 levels?
* Do PM 2.5 levels change at different times of the year?
* Have PM 2.5 levels improve over the 5 year period?

Conclusions:

* PM 2.5 levels in northern China (Beijing, Shenyang) is substantially worse than southern China(Guangzhou, Shanghai). Interior city such as Chengdu is also worse than costal cities like Guangzhou and Shanghai.
* PM 2.5 levels are in general negatively correlated with temperature. In all cities, it spiked during winter months.
* There is no clear relations between PM 2.5 level and Dew point and air pressure.
* Over the period of the dataset, there is improvement in PM 2.5 level in all cities studied.

Future Work:

* More quantitative analysis
* Incorporating data from other areas, i.e. industry, climate, coal / oil usage rate