

Improvements:

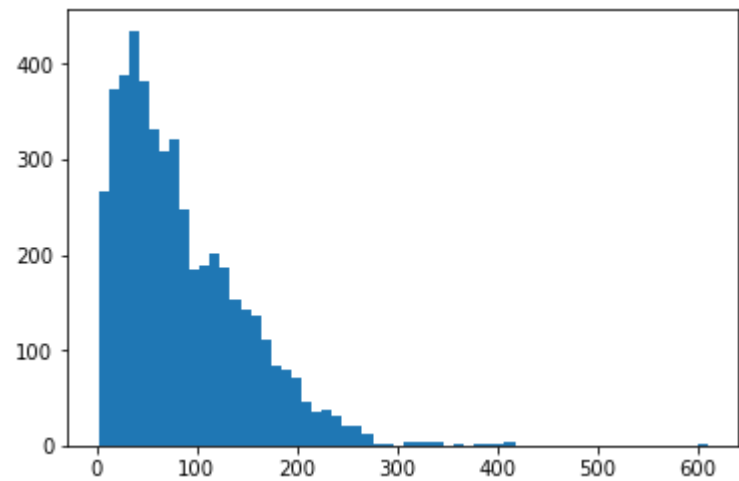
- 1. Bokeh to generate dynamic graphs, even on the same graph.
- 2. More types of graphs to show

```
In [70]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline

#08
for i in range(0,1):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

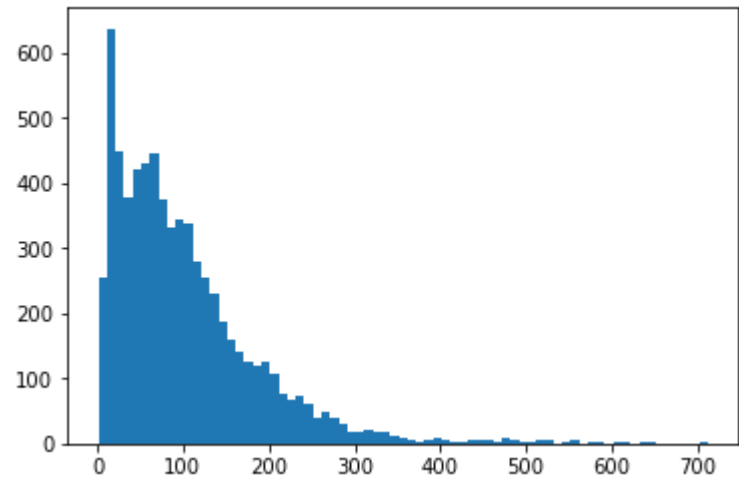
The average PM2.5 value in 2008 is 85.09 .



```
In [71]: #09
for i in range(1,2):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

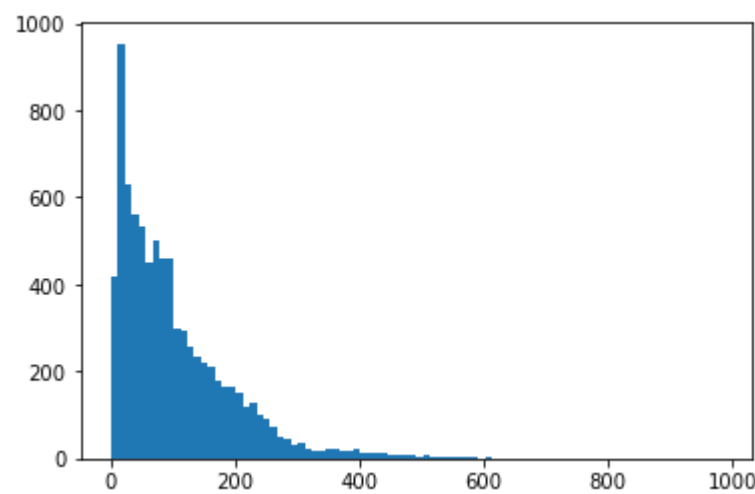
The average PM2.5 value in 2009 is 101.81 .



```
In [73]: #10
for i in range(2,3):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

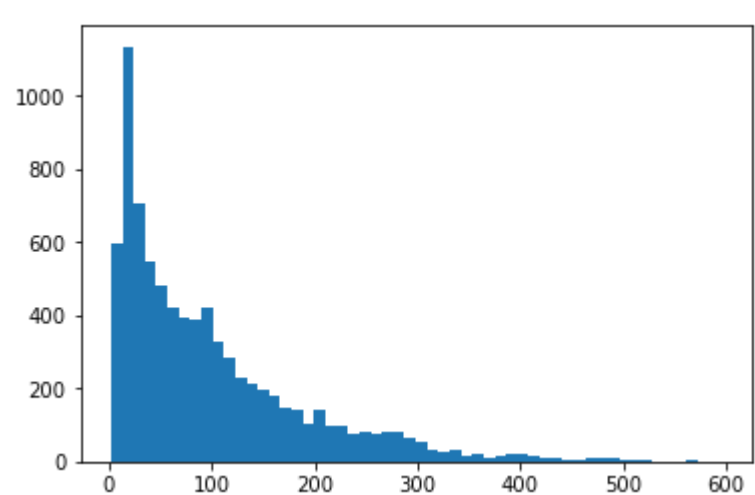
The average PM2.5 value in 2010 is 104.05 .



```
In [74]: #11
for i in range(3,4):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

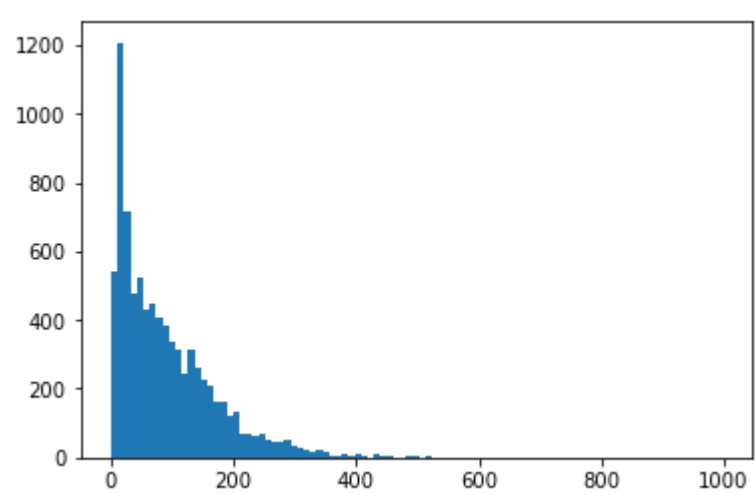
The average PM2.5 value in 2011 is 99.09 .



```
In [75]: #12
for i in range(4,5):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

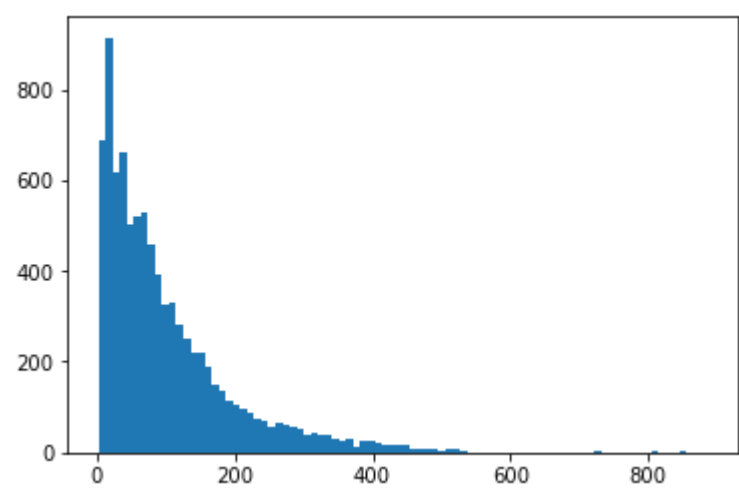
The average PM2.5 value in 2012 is 90.52 .



```
In [76]: #13
for i in range(5,6):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

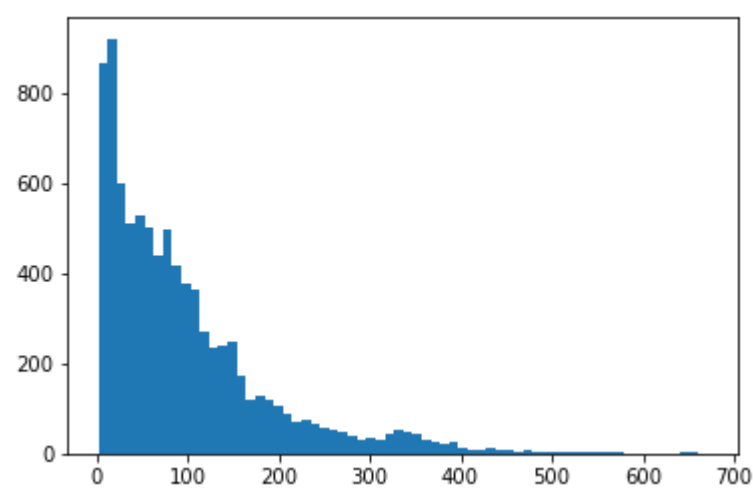
The average PM2.5 value in 2013 is 101.71 .



```
In [77]: #14
for i in range(6,7):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

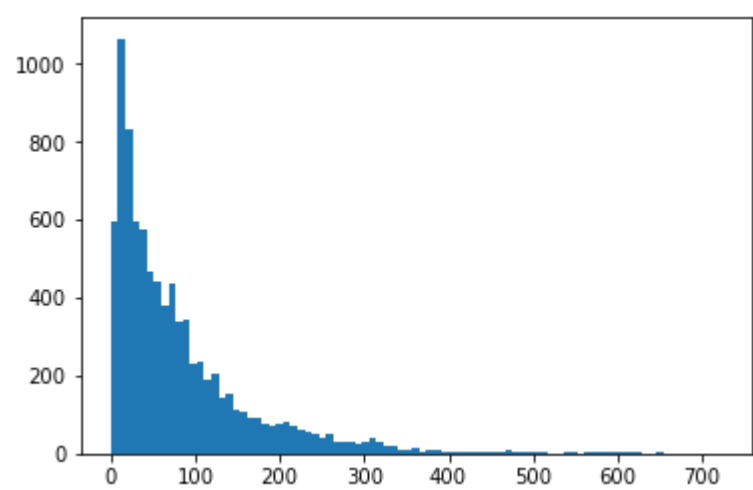
The average PM2.5 value in 2014 is 97.73 .



```
In [78]: #15
for i in range(7,8):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

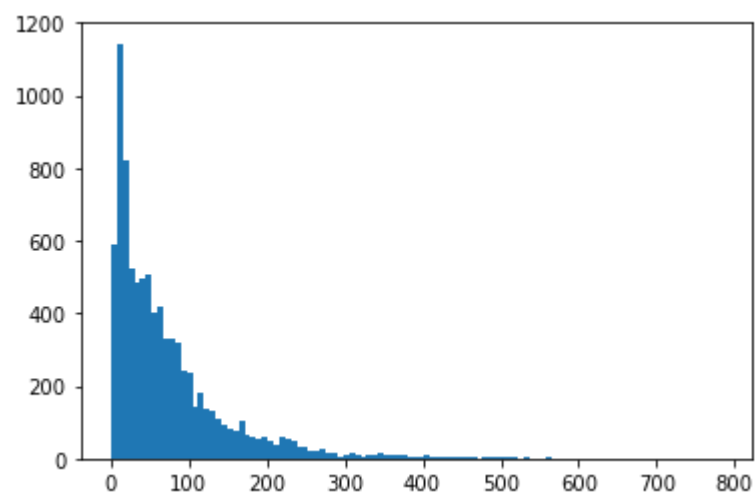
The average PM2.5 value in 2015 is 82.73 .



```
In [79]: #16
for i in range(8,9):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

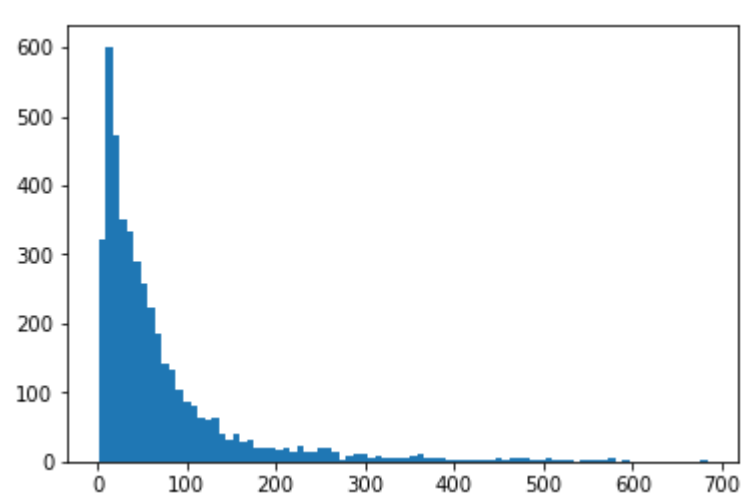
The average PM2.5 value in 2016 is 72.86 .



```
In [80]: #17
for i in range(9,10):
    df08 = pd.read_csv("./Beijing_"+str(int(2008)+i)+".csv")
    s08 = df08['column9'].loc[4:].astype(str).astype(int)
    plt.hist(s08, bins = 'auto')

    print ("The average PM2.5 value in",str(int(2008)+i),"is",round(np.mean(df08['column9'].loc[4:].astype(st
r).astype(int)),2),".")
```

The average PM2.5 value in 2017 is 70.13 .



In [ ]:

In [ ]: