

compareComplexities

August 6, 2019

```
[1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import os
```

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[2]: df_random = pd.read_csv("output_in.txt",",")
df_asc = pd.read_csv("output_Asc.txt",",")
df_Dsc = pd.read_csv("output_Dsc.txt",",")
```

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[3]: df_random.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 3 columns):
n      10 non-null int64
bub    10 non-null float64
ins    10 non-null float64
dtypes: float64(2), int64(1)
memory usage: 320.0 bytes
```

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[4]: df_random.head(10)
```

```
[4]:
```

	n	bub	ins
0	1000	0.002338	0.000026
1	2000	0.009268	0.000076
2	3000	0.021102	0.000158
3	4000	0.037540	0.000279
4	5000	0.057965	0.000407
5	6000	0.083312	0.000556
6	7000	0.113172	0.000749
7	8000	0.148364	0.000972
8	9000	0.187534	0.001218
9	10000	0.231523	0.001484

```
[5]: df_random.columns
```

```
[5]: Index(['n', 'bub', 'ins'], dtype='object')
```

```
[6]: df_random['ins']
```

```
[6]: 0    0.000026
      1    0.000076
      2    0.000158
      3    0.000279
      4    0.000407
      5    0.000556
      6    0.000749
      7    0.000972
      8    0.001218
      9    0.001484
      Name: ins, dtype: float64
```

```
[7]: df_asc['ins']
```

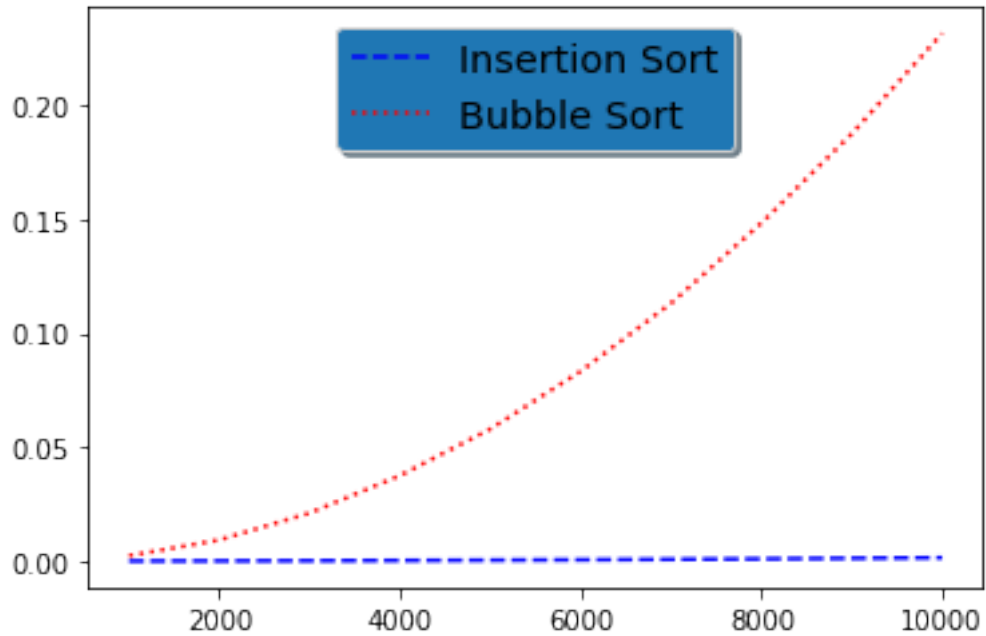
```
[7]: 0    0.000022
      1    0.000079
      2    0.000155
      3    0.000256
      4    0.000393
      5    0.000557
      6    0.000749
      7    0.000970
      8    0.001276
      9    0.001629
      Name: ins, dtype: float64
```

```
[8]: # Create plots with pre-defined labels.
fig, ax = plt.subplots()
ax.plot(df_random['n'], df_random['ins'], 'b--', label='Insertion Sort')
ax.plot(df_random['n'], df_random['bub'], 'r:', label='Bubble Sort')
#ax.plot(df_random['n'], df_random['ins'], 'k', label='Total message length')

legend = ax.legend(loc='upper center', shadow=True, fontsize='x-large')

# Put a nicer background color on the legend.
legend.get_frame().set_facecolor('C0')

plt.show()
```

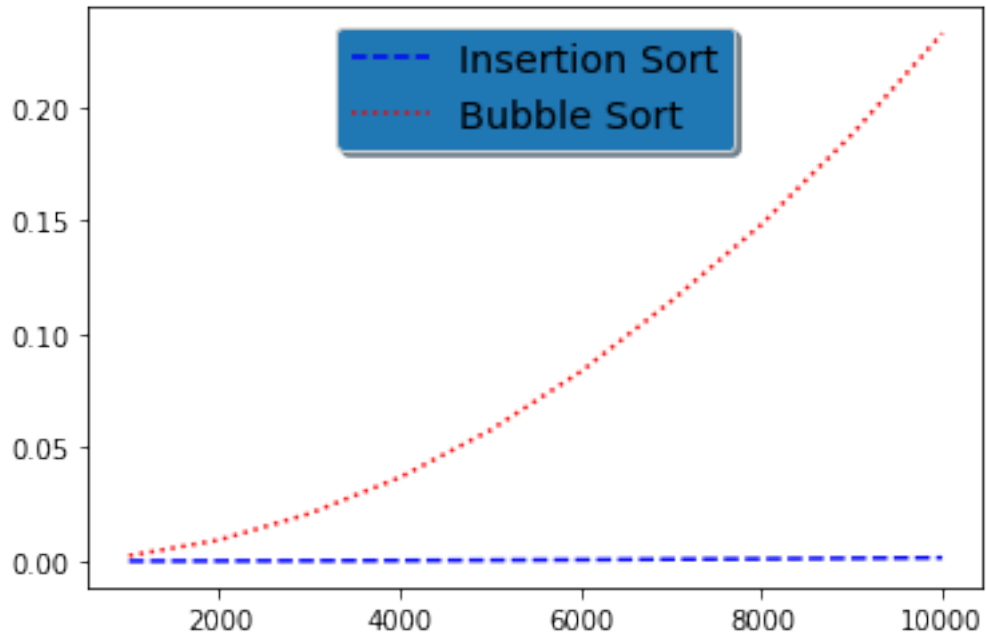


```
[9]: # Create plots with pre-defined labels.
fig, ax = plt.subplots()
ax.plot(df_random['n'], df_Dsc['ins'], 'b--', label='Insertion Sort')
ax.plot(df_random['n'], df_Dsc['bub'], 'r:', label='Bubble Sort')
#ax.plot(df_random['n'], df_random['ins'], 'k', label='Total message length')

legend = ax.legend(loc='upper center', shadow=True, fontsize='x-large')

# Put a nicer background color on the legend.
legend.get_frame().set_facecolor('C0')

plt.show()
```

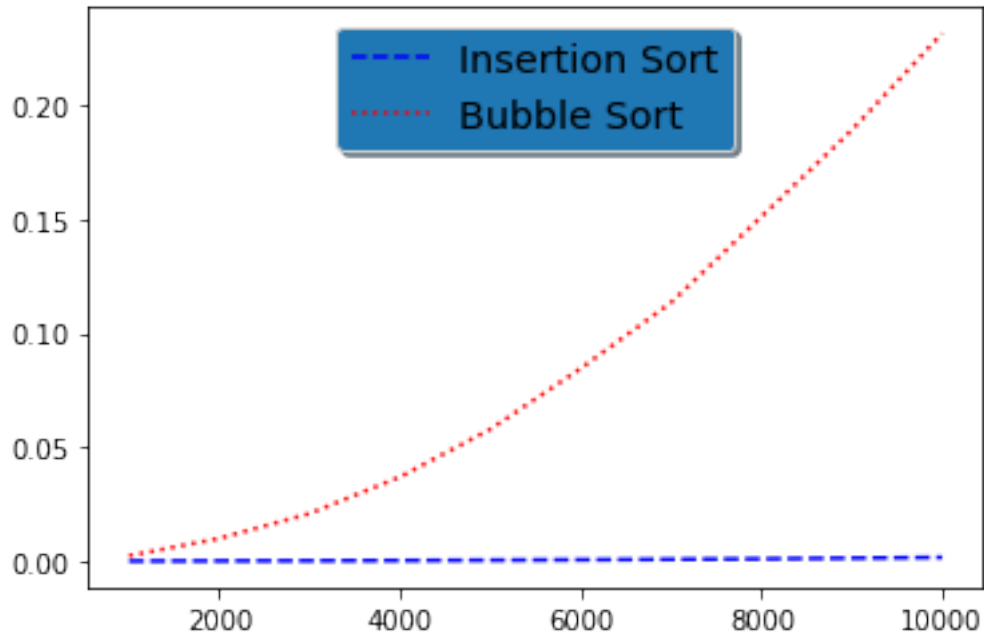


```
[10]: # Create plots with pre-defined labels.
fig, ax = plt.subplots()
ax.plot(df_random['n'], df_asc['ins'], 'b--', label='Insertion Sort')
ax.plot(df_random['n'], df_asc['bub'], 'r:', label='Bubble Sort')
#ax.plot(df_random['n'], df_random['ins'], 'k', label='Total message length')

legend = ax.legend(loc='upper center', shadow=True, fontsize='x-large')

# Put a nicer background color on the legend.
legend.get_frame().set_facecolor('C0')

plt.show()
```

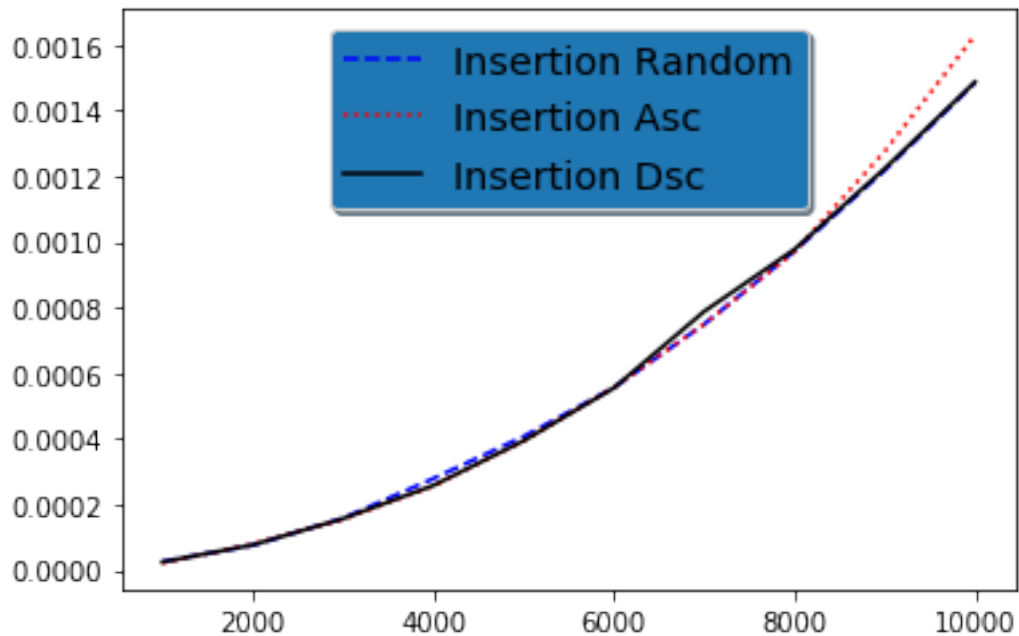


```
[11]: # Create plots with pre-defined labels.
fig, ax = plt.subplots()
ax.plot(df_random['n'], df_random['ins'], 'b--', label='Insertion Random')
ax.plot(df_random['n'], df_asc['ins'], 'r:', label='Insertion Asc')
ax.plot(df_random['n'], df_Dsc['ins'], 'k', label='Insertion Dsc')

legend = ax.legend(loc='upper center', shadow=True, fontsize='x-large')

# Put a nicer background color on the legend.
legend.get_frame().set_facecolor('C0')

plt.show()
```

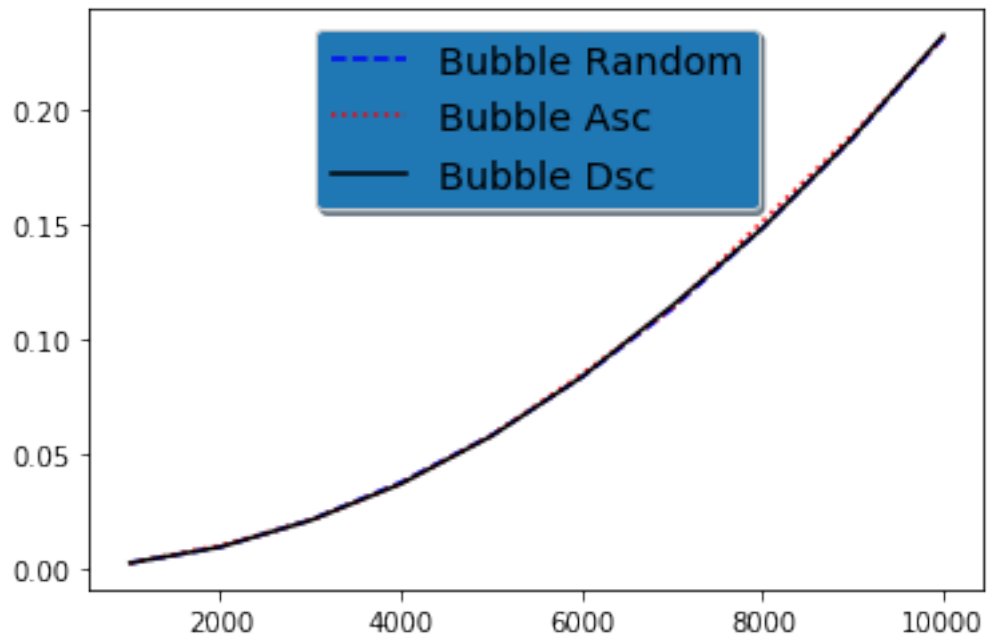


```
[12]: # Create plots with pre-defined labels.
fig, ax = plt.subplots()
ax.plot(df_random['n'], df_random['bub'], 'b--', label='Bubble Random')
ax.plot(df_random['n'], df_asc['bub'], 'r:', label='Bubble Asc')
ax.plot(df_random['n'], df_Dsc['bub'], 'k', label='Bubble Dsc')

legend = ax.legend(loc='upper center', shadow=True, fontsize='x-large')

# Put a nicer background color on the legend.
legend.get_frame().set_facecolor('C0')

plt.show()
```



[]):