

# Homework 1

February 6, 2020

## 0.1 Homework 1 Python Part

### 0.1.1 Nhi Le - DATA 3401 - 02/06/2020

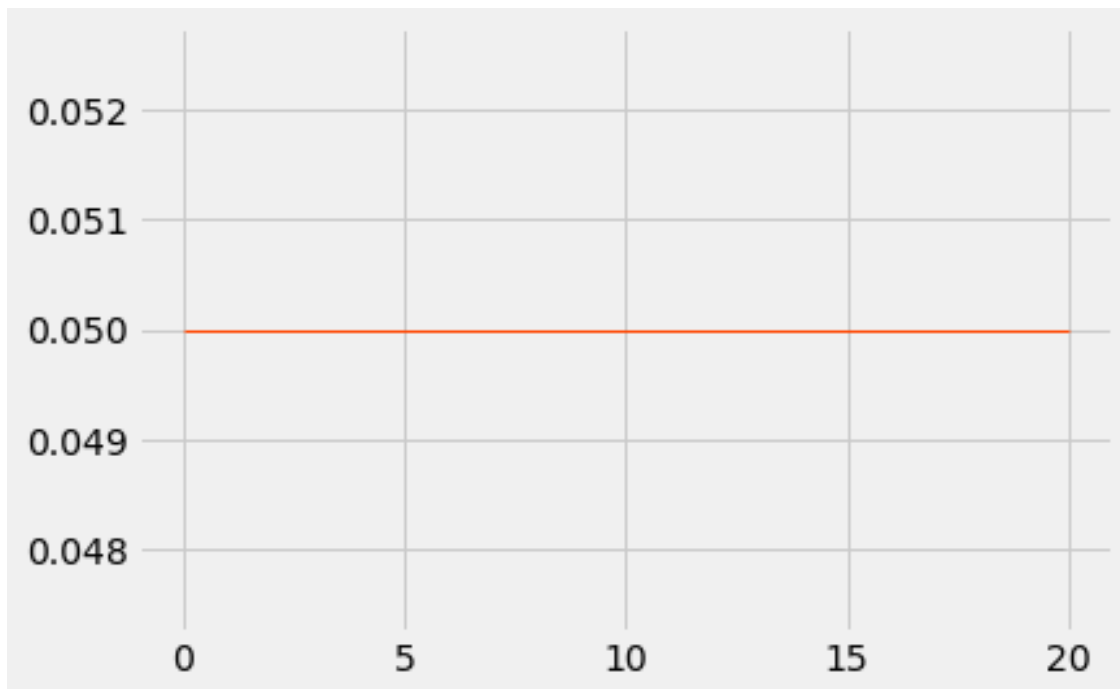
```
[24]: # the usual starting block:
import numpy as np
%matplotlib inline
import matplotlib.pyplot as plt
plt.style.use('fivethirtyeight')
import math
from scipy import stats
```

```
[25]: ec = np.arange(-2,22)
#1a
a = stats.uniform.cdf(7, 0, 20)
print(a)
```

0.35

```
[26]: xvec = np.arange(0,20.9, 1)
plt.plot(xvec, stats.uniform.pdf(xvec, 0,20), linewidth = 1, c = 'orangered')
#plt.plot(np.array([0,0]), np.array([0, stats.uniform.pdf(0)]), c='orangered',
→ linewidth = .5)
```

```
[26]: [<matplotlib.lines.Line2D at 0x1a23045190>]
```

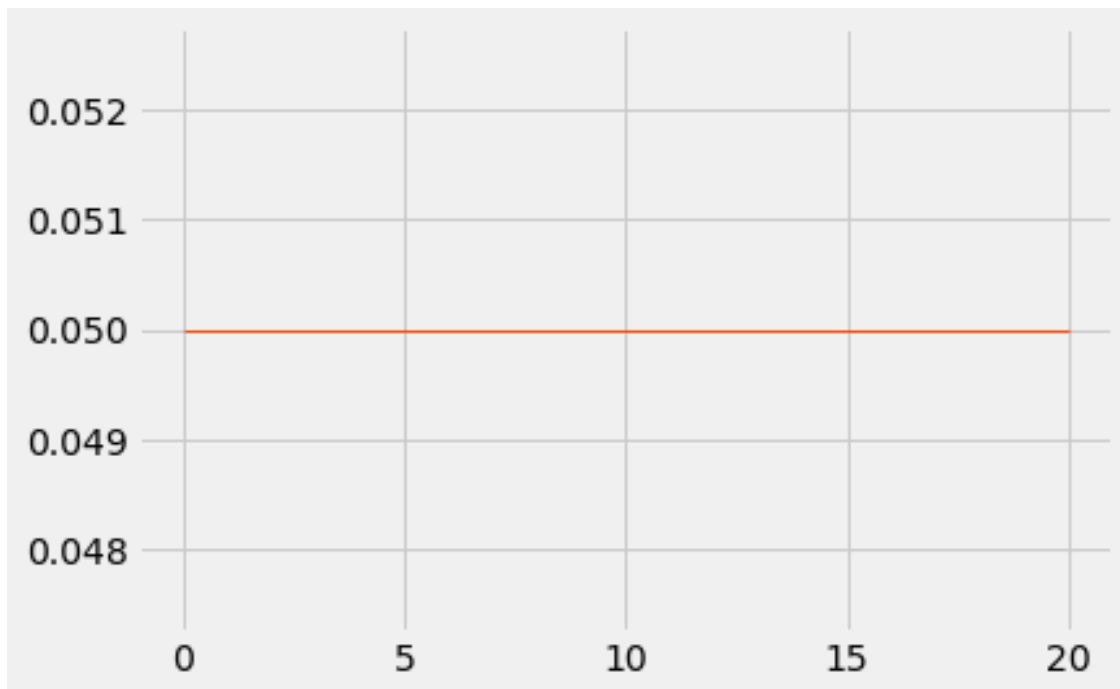


```
[27]: #1b
      b = 1 - stats.uniform.cdf(4, 0, 20)
      print(b)
```

0.8

```
[28]: xvec = np.arange(0,20.9, 1)
      plt.plot(xvec, stats.uniform.pdf(xvec, 0,20), linewidth = 1, c = 'orangered')
```

```
[28]: [<matplotlib.lines.Line2D at 0x1a23099a50>]
```

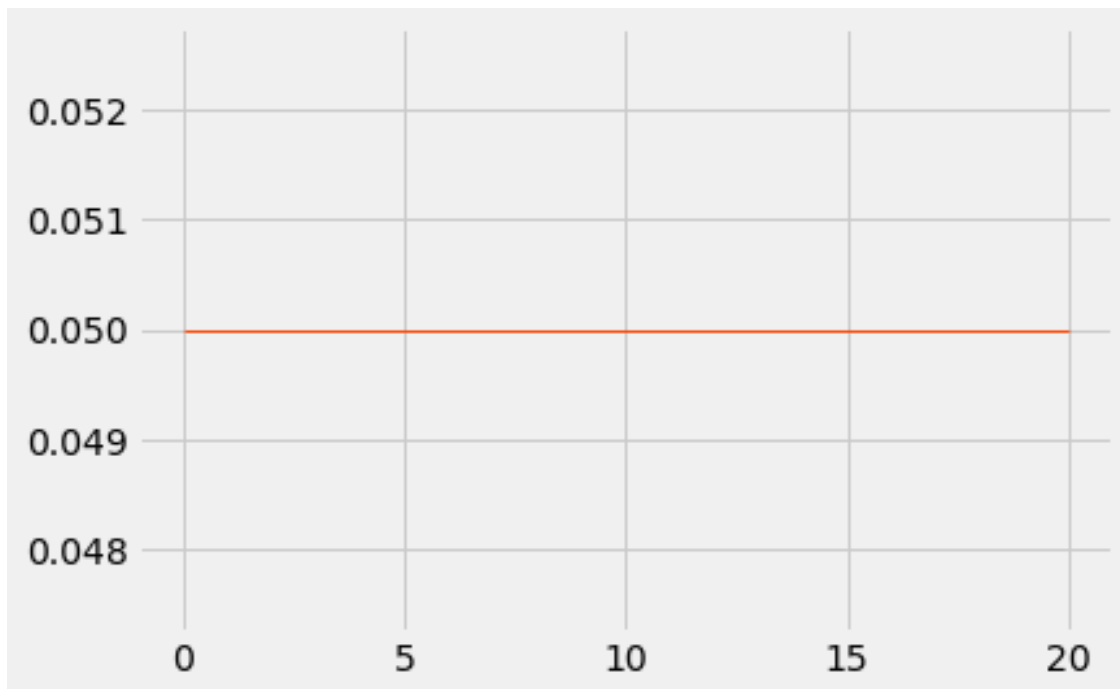


```
[29]: #1c
      c = 1 - stats.uniform.cdf(0, 0, 20)
      print(c)
```

```
1.0
```

```
[30]: xvec = np.arange(0,20.9, 1)
      plt.plot(xvec, stats.uniform.pdf(xvec, 0,20), linewidth = 1, c = 'orangered')
```

```
[30]: [<matplotlib.lines.Line2D at 0x1a231e62d0>]
```

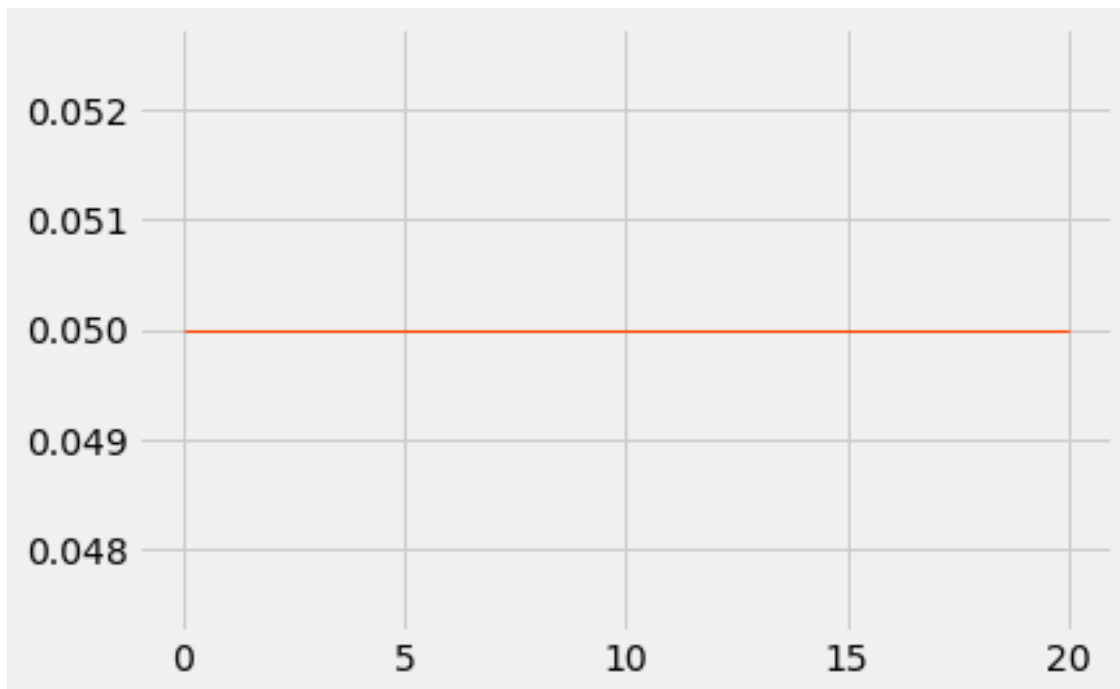


```
[31]: #2
      y = stats.uniform.cdf(17, 0, 20) - stats.uniform.cdf(1, 0, 20)
      print(y)
```

```
0.7999999999999999
```

```
[32]: xvec = np.arange(0,20.9, 1)
      plt.plot(xvec, stats.uniform.pdf(xvec, 0,20), linewidth = 1, c = 'orangered')
```

```
[32]: [<matplotlib.lines.Line2D at 0x1a23241b10>]
```



```
[33]: #3
      z = (stats.uniform.cdf(1, 0, 20) + (stats.uniform.cdf(15, 0, 20) - stats.
      ↪uniform.cdf(12, 0, 20)))*20/15
      print(z)
```

```
0.26666666666666666
```

```
[34]: xvec = np.arange(0,20.9, 1)
      plt.plot(xvec, stats.uniform.pdf(xvec, 0,20), linewidth = 1, c = 'orangered')
```

```
[34]: [<matplotlib.lines.Line2D at 0x1a2331c390>]
```

