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# Simulation of a continuous uniform RV on [0,1]
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Project 4

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```
import math  
import random  
import matplotlib.pyplot as plt
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n = 10000 # It serves our purposes to be a perfect square
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```
x = []  
y = []
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```
Lambda = 0.5 # Parameter in the exponential distribution
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for i in range(n):
    r = random.uniform(0,1)
    x.append(r) # List of uniform numbers on [0,1]
    e = (-1 / Lambda) * math.log(1 - r, math.e) # The inverse of the CDF of exponential
    y.append(e) # Exponentially distributed random numbers
```

```
b = max(x)
a = min(x)
R = b - a # Range in the sense of data
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intervals = int(math.ceil(math.sqrt(n)))
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width = (R / intervals) # Class width
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plt.subplot(2, 1, 1)
plt.hist(x, intervals, density = width)
plt.subplot(2, 1, 2)
```