A5 Simulation 2 Python code

Jaemin Park

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차 례

Exercises

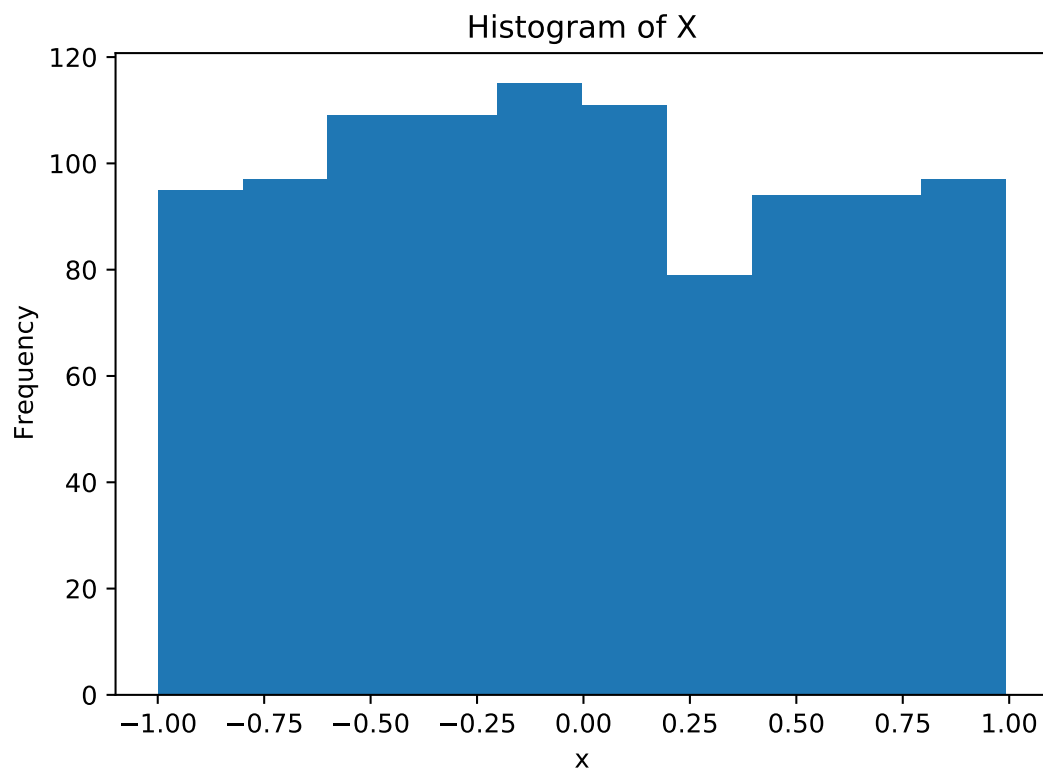## p.15 Uniform random numbers

R code

```r
X <- runif(n=1000, min=-1, max=1)
hist(X)
```

Python code

```python
rand_list= np.random.uniform(-1,1,1000)
plt.hist(rand_list,10)
```

```
## (array([ 95.,  97., 109., 109., 115., 111.,  79.,  94.,  94.,  97.]), array([-0.99948677, -0.8002
##         -0.00336481,  0.19585958,  0.39508397,  0.59430837,  0.79353276,
##          0.99275715]), <BarContainer object of 10 artists>)
```

```python
plt.title('Histogram of X')
plt.xlabel('x')
plt.ylabel('Frequency')
plt.show()
```

Histogram of X

p.16 Normal random numbers

R code

```r
X <- rnorm(n=1000, min=-1, max=1)
hist(X)
```

Python code

```python
rand_list= np.random.normal(3,2,1000)
plt.hist(rand_list,20)
```

```
## (array([  4.,    5.,    9.,   28.,   30.,   69.,   75.,  113.,  143.,  139.,  109.,
##         116.,   71.,   37.,   33.,   14.,    2.,    2.,    0.,    1.]), array([-3.22701974, -2.54053111, -
##          0.20542343,  0.89191206,  1.57840069,  2.26488933,  2.95137796,
##          3.6378666 ,  4.32435523,  5.01084386,  5.6973325 ,  6.38382113,
##          7.07030976,  7.7567984 ,  8.44328703,  9.12977567,  9.8162643 ,
##         10.50275293]), <BarContainer object of 20 artists>)
```

```python
plt.title('Histogram of X')
plt.xlabel('x')
plt.ylabel('Frequency')
plt.show()
```

Histogram of X
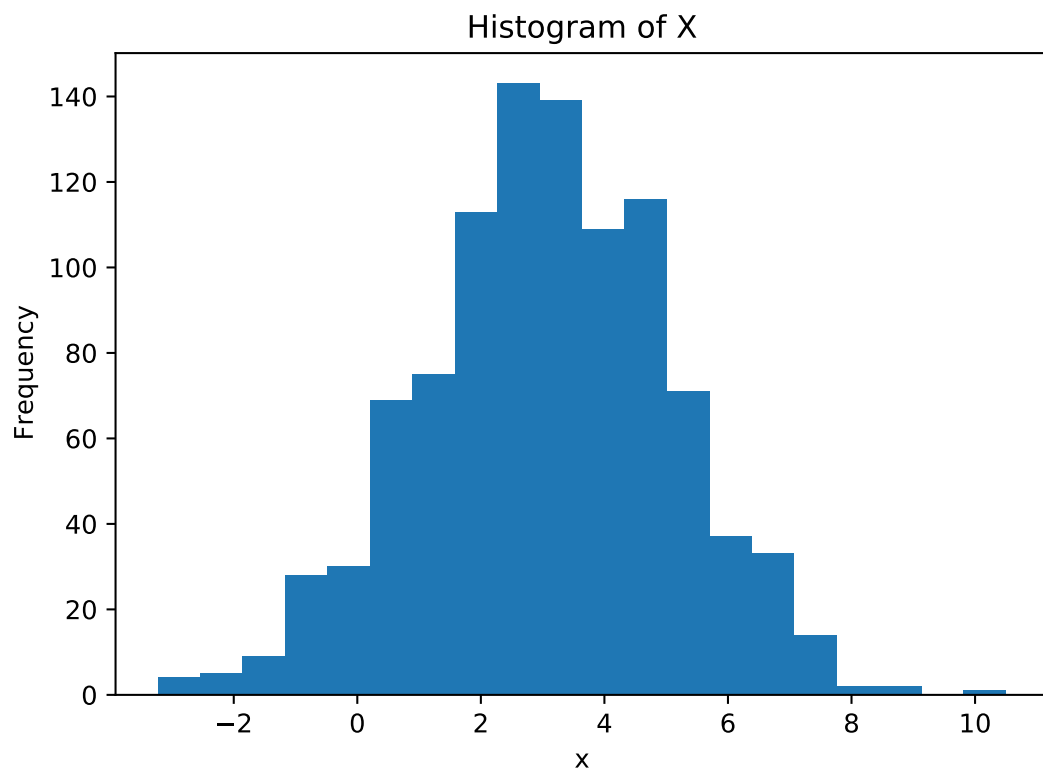
p.17 Exponential random numbers
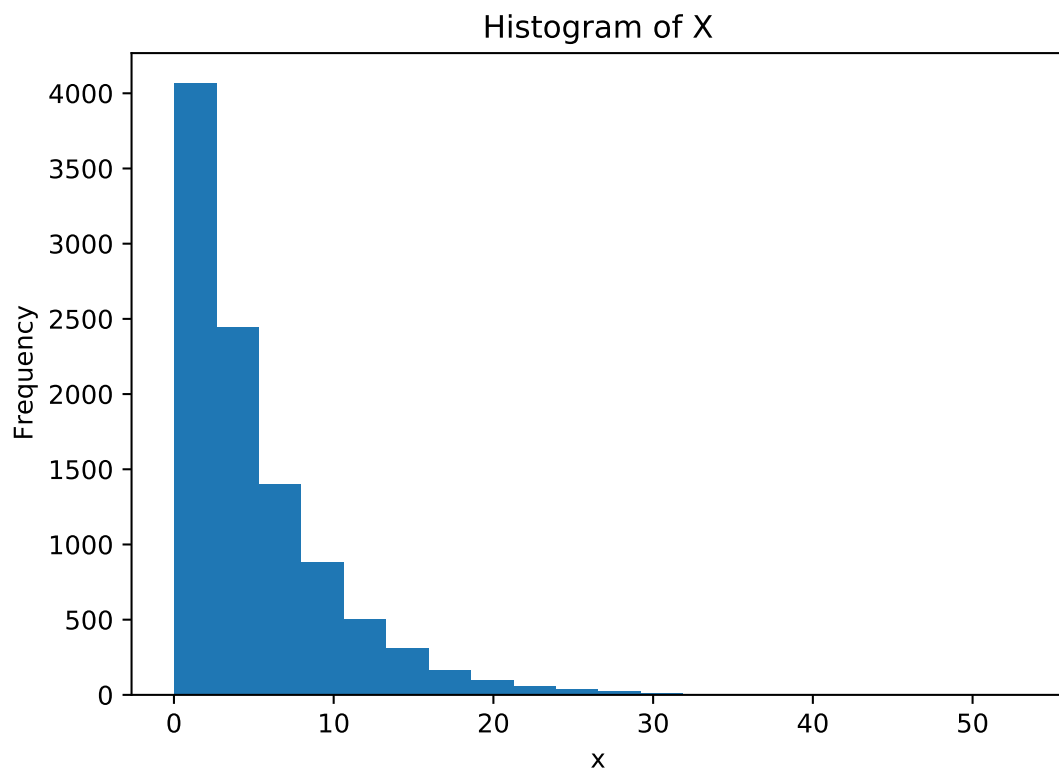
R code

```r
X <- rexp(n=1000, min=-1, max=1)
hist(X)
```

Python code

```python
rand_list= np.random.exponential(5,10000)
plt.hist(rand_list,20)
```

```
## (array([4.064e+03, 2.446e+03, 1.397e+03, 8.790e+02, 5.040e+02, 3.100e+02,
##         1.660e+02, 9.500e+01, 5.400e+01, 3.500e+01, 2.500e+01, 1.100e+01,
##         5.000e+00, 5.000e+00, 1.000e+00, 0.000e+00, 2.000e+00, 0.000e+00,
##         0.000e+00, 1.000e+00]), array([2.90244511e-04, 2.65533478e+00, 5.31037931e+00, 7.96542384e
##         1.06204684e+01, 1.32755129e+01, 1.59305574e+01, 1.85856020e+01,
##         2.12406465e+01, 2.38956910e+01, 2.65507356e+01, 2.92057801e+01,
##         3.18608246e+01, 3.45158692e+01, 3.71709137e+01, 3.98259582e+01,
##         4.24810027e+01, 4.51360473e+01, 4.77910918e+01, 5.04461363e+01,
##         5.31011809e+01]), <BarContainer object of 20 artists>)
```

```python
plt.title('Histogram of X')
plt.xlabel('x')
plt.ylabel('Frequency')
plt.show()
```

Histogram of X

p.18 Poisson random numbers

R code

```r
X <- rpois(n=1000, min=-1, max=1)
hist(X)
```

Python code

```python
rand_list= np.random.poisson(5,100000)
plt.hist(rand_list,20)
```

```
## (array([6.7200e+02, 3.3690e+03, 8.3820e+03, 1.4025e+04, 1.7646e+04,
##        1.7560e+04, 0.0000e+00, 1.4569e+04, 1.0471e+04, 6.5540e+03,
##        3.5530e+03, 1.8770e+03, 7.9300e+02, 0.0000e+00, 3.2300e+02,
##        1.3100e+02, 5.0000e+01, 1.9000e+01, 4.0000e+00, 2.0000e+00]), array([ 0.  ,  0.85,  1.7 ,
##         7.65,  8.5 ,  9.35, 10.2 , 11.05, 11.9 , 12.75, 13.6 , 14.45,
##        15.3 , 16.15, 17.  ]), <BarContainer object of 20 artists>)
```

```python
plt.title('Histogram of X')
plt.xlabel('x')
plt.ylabel('Frequency')
plt.show()
```

Histogram of X