

Statistics in Machine Learning

Assignment

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Assignment

Questions:

1. Consider a random 10 x 2 matrix representing Cartesian coordinates, convert them to Polar coordinates.
2. Create random vector of size 50 and replace the maximum value by 0 and minimum value by 100.
3. Create below matrix using scipy.

```
[[ 2.  0.  1.  0.  0.  0.  0.  0.  0.  0.]
 [ 0.  2.  0.  1.  0.  0.  0.  0.  0.  0.]
 [ 1.  0.  2.  0.  1.  0.  0.  0.  0.  0.]
 [ 0.  1.  0.  2.  0.  1.  0.  0.  0.  0.]
 [ 0.  0.  1.  0.  2.  0.  1.  0.  0.  0.]
 [ 0.  0.  0.  1.  0.  2.  0.  1.  0.  0.]
 [ 0.  0.  0.  0.  1.  0.  2.  0.  1.  0.]
 [ 0.  0.  0.  0.  0.  1.  0.  2.  0.  1.]
 [ 0.  0.  0.  0.  0.  0.  1.  0.  2.  0.]
 [ 0.  0.  0.  0.  0.  0.  0.  1.  0.  2.]]
```

4. Reproduce given plot by correcting the below code.

```
from pylab import *
n = 256
X = np.linspace(-np.pi,np.pi,n,endpoint=True)
Y = np.sin(2*X)
plot (X, Y+1, color='blue', alpha=1.00)
plot (X, Y-1, color='blue', alpha=1.00)
show()
```

