Vigomar Kim Algador

ENGR-120-01 SU

Computer Assignment 02

Task 1: Use Matlab to generate a sufficiently large matrix A of size N × N with IID entries. The entries of the matrix A can follow the distribution of your choice, except Gaussian.
Hint: Research these functions in Matlab to generate the random matrix entries: exprnd(), rand(), raylrnd(),..., and many more. You can use any distribution except Gaussian.

```
>> N = 500;
>> A = poissrnd(1,[N N]);
```

Task 2: Form a vector a (of size N × 1) by selecting the first column of the matrix A, i.e. a = A(:,1). The entries of this vector should follow the distribution of A.

```
>> a = A(:,1);
```

Task 3: Form a vector z (of size N × 1) by summing the columns (or rows) of the matrix A, i.e. z = sum(A')'. The entries of this vector should follow the Gaussian distribution by the CLT.

```
>> z = sum(A);
```

Task 4: Use the generated data in Tasks 2 and 3 to plot the PDF of a and z.
Hint: you may find this Matlab function helpful for this Task histogram(.).

```
>> subplot(2,1,1)
histogram(a,'Normalization','pdf')
subplot(2,1,2)
histogram(z,'Normalization','pdf')
```