LABORATORY EXERCISE-03

AIM :

The aim of this exercise to is identify the distribution followed by the given statistical data(set 1,as identified from given instructions on itslearning. (19940715)mod3+1=1) and plotting their

1. Normalized PDF

2. CCDF and

3. ECDF

REQUIREMENTS :

MATLAB(R2013a) installed on the hardware device. (Any version of MATLAB can be used. I have used 2013a because I've had it already)

PROCEDURE :

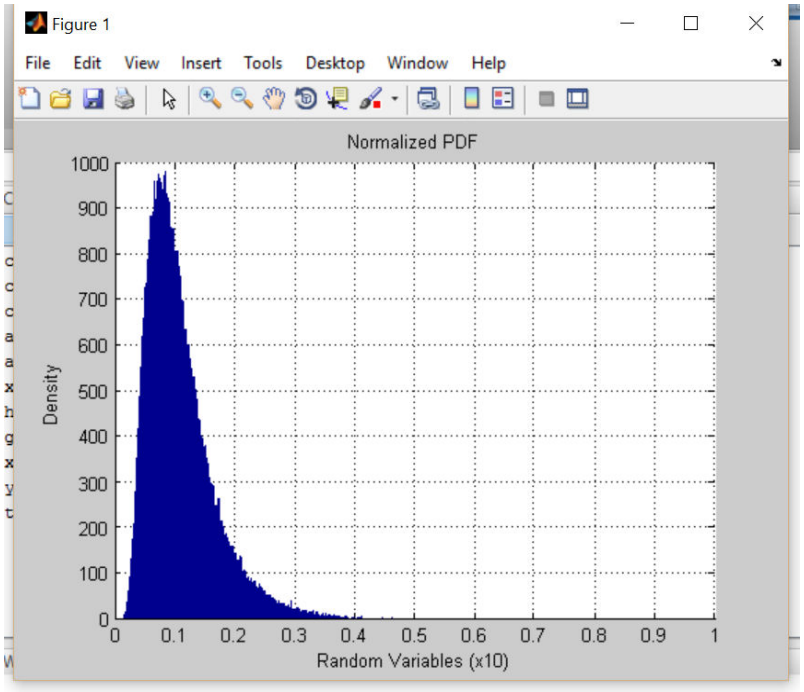
1. Identification of distribution

To do this, the given values(as a file) are loaded into a variable in MATLAB.

```
clc;
clear all;
close all;
a=load('1.asc');
```

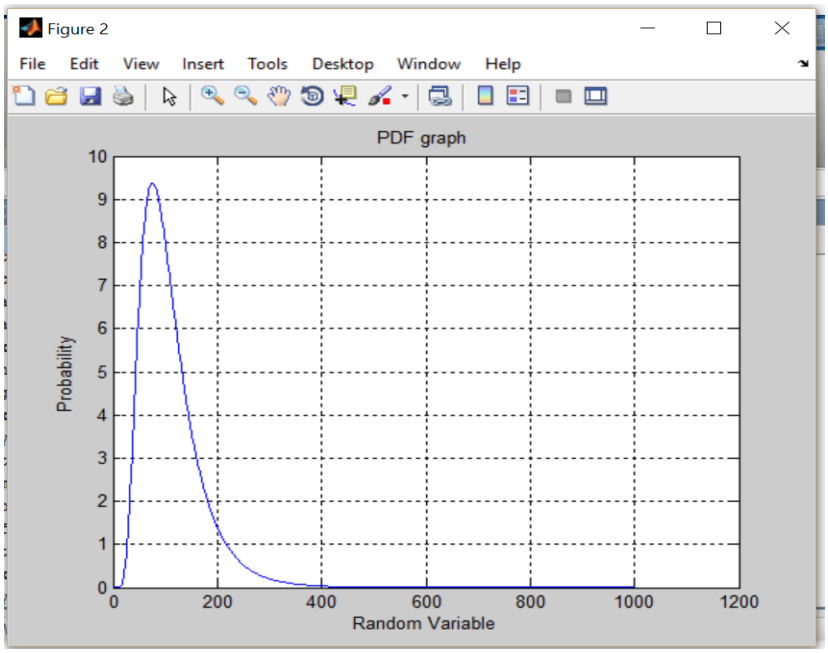
2. Plotting PDF

```
a=a/max(a);
x=0:0.001:1;
hist(a,x);
grid;axis([0 1 0 1000]);
xlabel('Random Variables (x10)');
ylabel('Density');
title('Normalized PDF');
```



3. PDF graph to extract parameters from

```
moments=lognfit(a);
pdflog=lognpdf(x,moments(1),moments(2));
figure,plot(pdflog),grid;
title('PDF graph ');
xlabel('Random Variable');
ylabel('Probability');
```



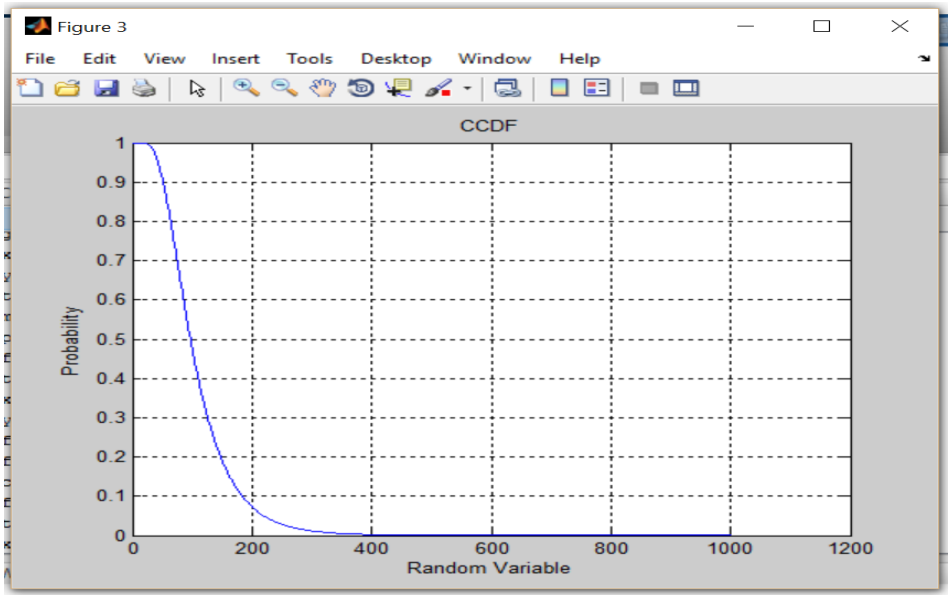
4. Finding parameters of dataset

```
fprintf('The Mean of the data-set is = %d\n',moments(1));
fprintf('The Standard Deviation of the data-set is = %d\n',moments(2));
```

```
Command Window
The Mean of the data-set is = -2.342696e+00
The Standard Deviation of the data-set is = 5.018774e-01
>>
```

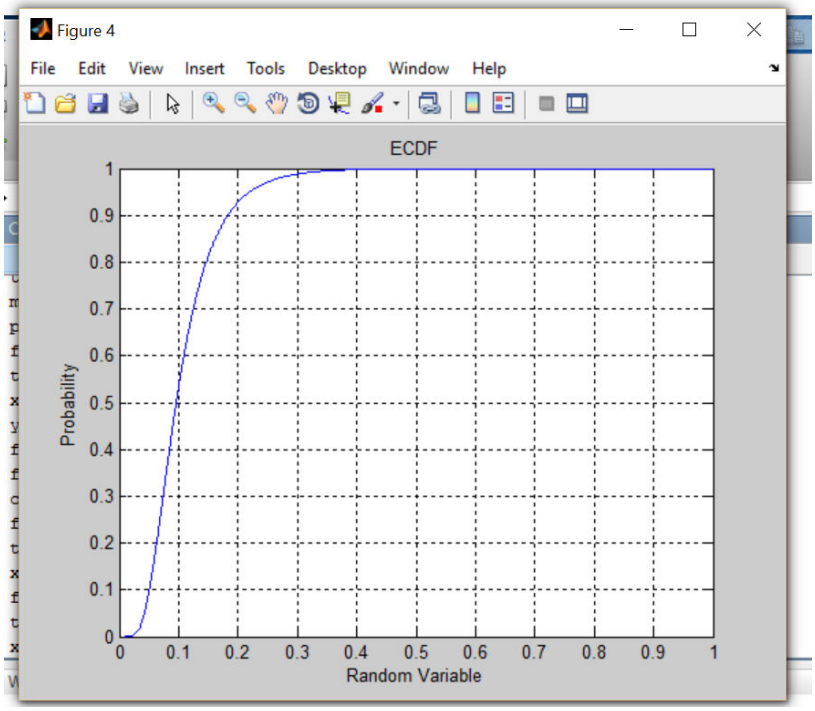
5. Plotting CCDF from extracted parameters

```
ccdflog=1-logncdf(x,moments(1),moments(2));
figure,plot(ccdflog),grid;
title('CCDF');
xlabel('Random Variable'),ylabel('Probability');
```



6. Plotting ECDF from extracted parameters

```
xlabel('Random Variable'),ylabel('Probability');
figure,ecdf(a),grid;
title('ECDF');
xlabel('Random Variable'),ylabel('Probability');
```



PROBLEMS FACED AND SOLUTIONS APPLIED:

1. Did not have 1.asc file and the MATLAB code files in the same location. This gave errors while loading file to variable.
2. Forgot to use clear all; command before running the new code.
3. Had problems inserting the.fig output files in Word document so used Snipping tool instead.

CONCLUSION :

The given data set appears to follow logarithmic distribution as observed from the graphs.