



Bhagwan Parshuram Institute of Technology

Probability, Statistics and Linear Programming Lab
Practical File

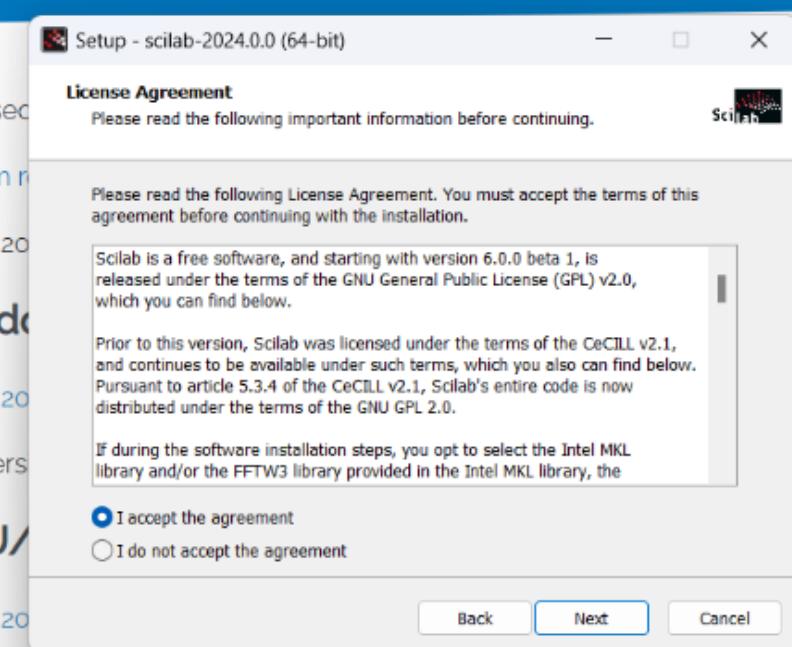
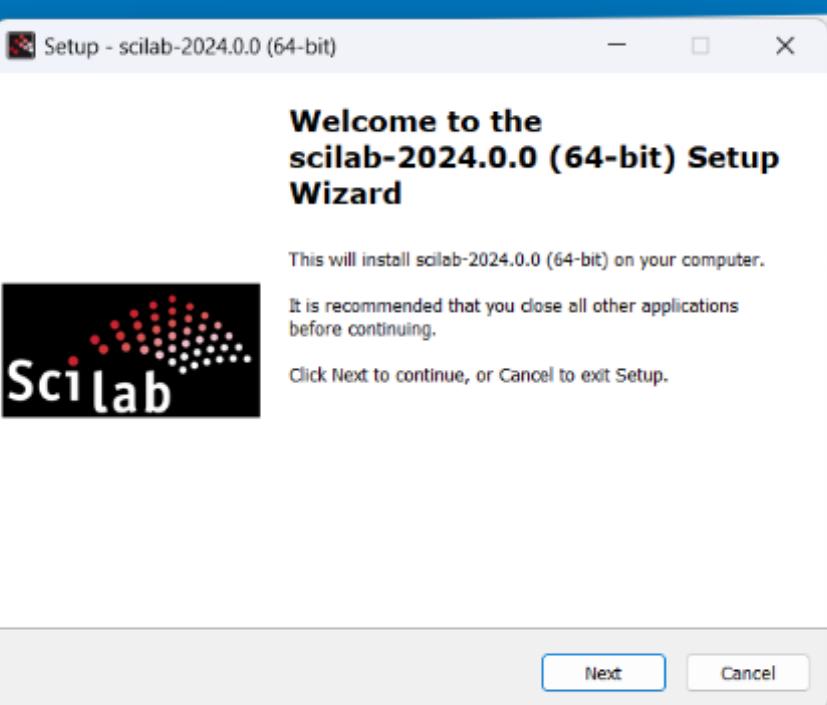
Submitted by	Samarth Khanna
Branch	ECE-B (Group-2)
Roll No.	108
Semester	4
Enrolment No.	20120802822

Submitted to	Dr. Muskan Kapoor (Assistant Professor)
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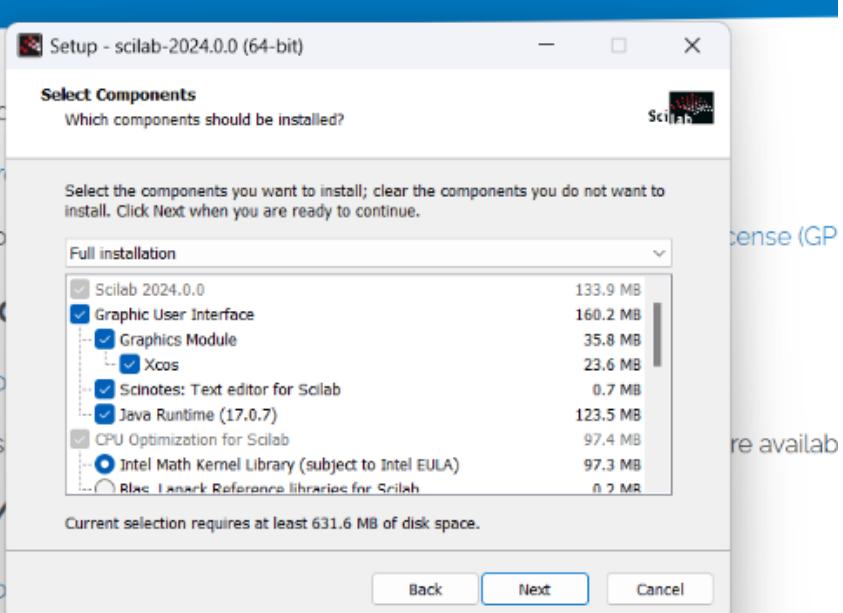
I n d e x

Sl. No.	Name of the Experiment	Page No.	Date of Experiment	Date of Submission	Remarks
①	Installation of Scilab		16/2/24		
②	Write a program in Scilab for addition of two matrices		16/2/24		801 2071007
③	Write a program in Scilab for multiplication of two matrices.		23/2/24		151 2071007
④	Write a program in Scilab to find the transpose of a matrix.		113/24		111 2071007
⑤	Fitting of Binomial Distribution :- Theory		8/3/24		
⑥	Write a program in Scilab for fitting of binomial dist ⁿ for given n & p.		8/3/24		111 2071007
⑦	Write a program in Scilab for fitting of binomial dist ⁿ after computing mean.		15/3/24		
⑧	Fitting of Poisson Distribution :- Theory		22/3/24		
⑨	Write a program in Scilab for fitting of Poisson dist ⁿ for given value of lambda (λ)		22/3/24		
⑩	Write a program in Scilab for fitting of Poisson dist ⁿ after computing mean (λ).		28/3/24		

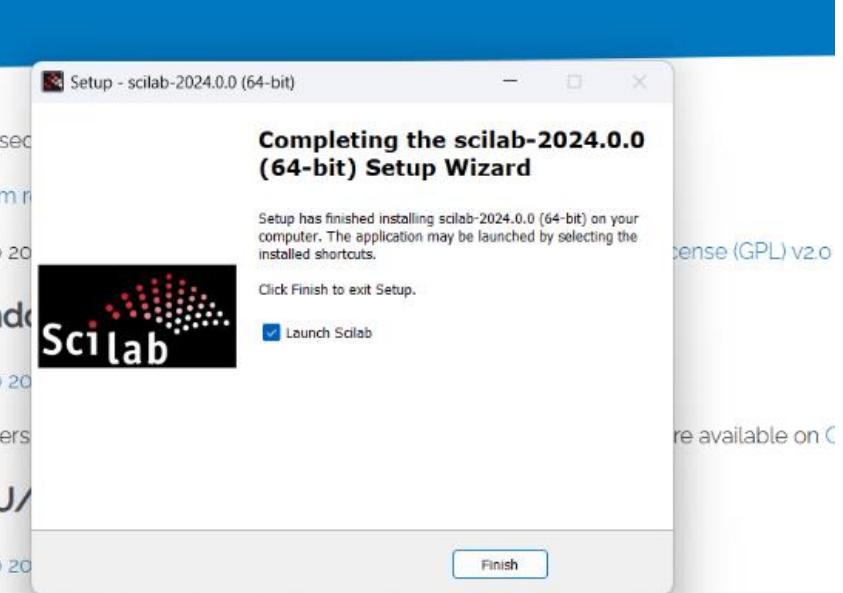
Teacher's Signature: _____



This version has been compiled by Dassault Systèmes and other builds are available.



This version has been compiled by Dassault Systèmes and other builds are available on [GitHub](#).



This version has been compiled by Dassault Systèmes and other builds are available on [GitHub](#).

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exp-1.sci

```
1 clc
2 clear all
3 printf("Samarth.Khanna || ECE-B || 108.\n")
4 printf("Addition of two matrices.\n\n")
1 function [] = addition(m,n,A,B)
2     C=zeros(m,n)
3     C=A+B
4     disp('The first matrix is . . . ');
5     disp(A);
6     disp('The second matrix is . . . ');
7     disp(B);
8     disp('The addition of the two matrices is . . . ');
9     disp(C);
10 endfunction
```

Samarth Khanna || ECE-B || 108

Addition of two matrices

```
--> addition(3,3,[3,5,8;6,1,0;6,3,9],[1,8,3;0,7,3;9,2,2])
```

"The first matrix is : "

```
3. 5. 8.  
6. 1. 0.  
6. 3. 9.
```

"The second matrix is : "

```
1. 8. 3.  
0. 7. 3.  
9. 2. 2.
```

"The addition of the two matrices is : "

```
4. 13. 11.  
6. 8. 3.  
15. 5. 11.
```

File Edit Format Options Window Execute ?



exp-2.sci

```
1 clc
2 clear all
3 printf("Samarth.Khanna || .ECE-B || .108.\n")
4 printf("Multiplication.of.two.matrices.\n\n")
1 function [ ] = multiplication(m, n, p, q, A, B)
2 C=zeros(m,n);
3 if n==p
4 ... disp('Matrices.are.conformable.for.multiplication');
5 else
6 ... disp('Matrices.are.not.conformable.for.multiplication');
7 ... break;
8 end
9 C=A*B
10 disp('The.first.matrix.is');
11 disp(A);
12 disp('The.Second.matrix.is');
13 disp(B);
14 disp('The.multiplication.of.the.two.matrices.is');
15 disp(C);
16 endfunction
21
```

File Edit Control Applications ?



Scilab 2024.0.0 Console

Samarth Khanna || ECE-B || 108

Multiplication of two matrices

```
--> multiplication(3,3,2,2,[2,5,7;9,5,3;8,1,0],[3,9;9,2])
```

"Matrices are not conformable for multiplication"

at line 9 of function multiplication (C:\Users\Samarth Khanna\D

Operator *: Wrong dimensions for operation [3x3] * [2x2].

```
--> multiplication(3,3,3,3,[2,5,7;9,5,3;8,1,0],[2,6,3;8,5,6;1,0,2])
```

"Matrices are conformable for multiplication"

"The first matrix is"

```
2. 5. 7.  
9. 5. 3.  
8. 1. 0.
```

"The Second matrix is"

```
2. 6. 3.  
8. 5. 6.  
1. 0. 2.
```

"The multiplication of the two matrices is"

```
51. 37. 50.  
61. 79. 63.  
24. 53. 30.
```

File Edit Format Options Window Execute ?



exp-3.sci

```
1 clc
2 clear all
3 printf("Samarth.Khanna || .ECE-B || .108.\n")
4 printf("Transpose .of .matrix .\n\n")
1 function []=transpose(m, n, A)
2 B=zeros(m,n);
3 B=A'
4 disp('The .matrix .is');
5 disp(A);
6 disp('Transpose .of .the .matrix .is');
7 disp(B);
8 endfunction
```

Samarth Khanna || ECE-B || 108

Transpose of matrix

```
--> transpose(3,3,[2,4,9;4,0,1;6,7,3])
```

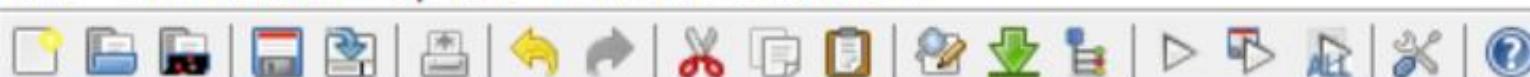
"The matrix is"

```
2.    4.    9.  
4.    0.    1.  
6.    7.    3.
```

"Transpose of the matrix is"

```
2.    4.    6.  
4.    0.    7.  
9.    1.    3.
```

File Edit Format Options Window Execute ?

Exp-4.sci X

```

1 clc
2 clear all
3 printf("Samarth.Khanna || ECE-B || 108.\n")
4 printf("Fitting.of.Binomial.Distribution.(for.given.n.&.p).\n\n")
5 n=input("Enter.number.of.coins.tossed.(n): ")
6 printf("Enter.frequency.of.observed.number.of.heads.:.\n\n")
7 sum_f=0
8 for(i=1:n+1)
...   heads(i)=i-1
10  ... printf("Frequency.for.number.of.heads.=.%d",heads(i),":")
11  ... o_f(i)=input(" ")
12  ... sum_f=sum_f+o_f(i)
13 end
14 p=input("Enter.value.of.p.(probability.of.success) : ")
15 q=1-p
16 for(i=1:n+1)
17 ... e_p(i)=(factorial(n)/(factorial(n-i+1)*factorial(i-1)))*p^(i-1)*q^(n-i+1)
18 ... e_f(i)=sum_f*e_p(i)
19 end
20 disp("The.expected.probabilities.are.:")
21 for(i=1:n+1)
22 ... printf("P(number.of.heads.=.%d) = .%f.\n",i-1,e_p(i))
23 end
24 disp("The.expected.frerequencies.are.:")
25 for(i=1:n+1)
26 ... printf("Frequency.(number.of.heads.=.%d) = .%f.\n",i-1,e_f(i))
27 end
28

```

File Edit Control Applications ?



Scilab 2024.0.0 Console

Samarth Khanna || ECE-B || 108

Fitting of Binomial Distribution (for given n & p)

Enter number of coins tossed (n): 3

Enter frequency of observed number of heads :

Frequency for number of heads = 0

36

Frequency for number of heads = 1

40

Frequency for number of heads = 2

22

Frequency for number of heads = 3

2

Enter value of p (probability of success) : 0.3

"The expected probabilities are : "

P(number of heads = 0) = 0.343000

P(number of heads = 1) = 0.441000

P(number of heads = 2) = 0.189000

P(number of heads = 3) = 0.027000

"The expected frequencies are : "

Frequency (number of heads = 0) = 34.300000

Frequency (number of heads = 1) = 44.100000

Frequency (number of heads = 2) = 18.900000

Frequency (number of heads = 3) = 2.700000

File Edit Format Options Window Execute ?



exp-5.sci X

```

1 clc
2 printf("Samarth.Khanna || ECE-B || 108.\n")
3 printf("Fitting.of.Binomial.Distribution.after.computing.mean.\n\n")
4 n=input("Enter.number.of.coins.tossed.:")
5 sum_fx=0
6 sum_f=0
7 printf("Enter.frequency.of.observed.number.of.heads.:.\n\n")
8 for(i=1:n+1)
9   heads(i)=i-1
10  printf("Frequency.for.number.of.heads.=.%d",heads(i),":")
11  o_f(i)=input(".")
12  sum_fx=sum_fx+o_f(i)^heads(i)
13  sum_f=sum_f+o_f(i)
14 end
15 f_mean=sum_fx/sum_f
16 printf("The.mean.of.the.given.distribution.=.%f.\n",f_mean)
17 p=f_mean/n
18 q=1-p
19 var=f_mean^q
20 printf("The.variance.of.the.given.distribution.=.%f.\n",var)
21 printf("Valur.of.n.=.%d.\n",n)
22 printf("Value.of.p.(probability.of.success).=%f.\n",p)
23 for(i=1:n+1)
24   e_p(i)=(factorial(n)/(factorial(n-i+1)*factorial(i-1)))^p^(i-1)^q^(n-i+1)
25   e_f(i)=sum_f*e_p(i)
26 end
27 disp("The.expected.probabilities.are.:")
28 for(i=1:n+1)
29   printf("P(number.of.heads.=.%d).=%f.\n",i-1,e_p(i))
30 end
31 disp("The.expected.frequencies.are.:")
32 for(i=1:n+1)
33   printf("Frequency.(number.of.heads.=.%d).=%f.\n",i-1,e_f(i))
34 end
35

```

File Edit Control Applications ?



Scilab 2024.0.0 Console

Samarth Khanna || ECE-B || 108

Fitting of Binomial Distribution after computing mean

Enter number of coins tossed : 3

Enter frequency of observed number of heads :

Frequency for number of heads = 0

36

Frequency for number of heads = 1

40

Frequency for number of heads = 2

22

Frequency for number of heads = 3

2

The mean of the given distribution = 0.900000

The variance of the given distribution = 0.630000

Valur of n = 3

Value of p (probability of success) = 0.300000

"The expected probabilities are : "

P(number of heads = 0) = 0.343000

P(number of heads = 1) = 0.441000

P(number of heads = 2) = 0.189000

P(number of heads = 3) = 0.027000

"The expected frequencies are : "

Frequency (number of heads = 0) = 34.300000

Frequency (number of heads = 1) = 44.100000

Frequency (number of heads = 2) = 18.900000

Frequency (number of heads = 3) = 2.700000

File Edit Format Options Window Execute ?



exp-6.sci

```

1 clc
2 printf("Samarth.Khanna || ECE-B || 108.\n")
3 printf("Fitting of Poisson Distribution for given lambda.\n\n")
4 n=input("Enter maximum number of mistakes per page.: ")
5 printf("Enter frequency for observed number of errors.: \n\n")
6 sum_f=0
7 for(i=1:n+1)
8     mistakes(i)=i-1
9     printf("Frequency for number of errors.=.%d",mistakes(i))
10    o_f(i)=input(".")
11    sum_f=sum_f+o_f(i)
12 end
13 lambda=input("Enter value of lambda.: ")
14 for(i=1:n+1)
15     e_p(i)=%e^(-lambda)*(lambda^(i-1)/factorial(i-1))
16     e_f(i)=sum_f*e_p(i)
17 end
18 disp("The expected probabilities are.: ")
19 for(i=1:n+1)
20     printf("P(number of errors.=.%d) =.%f.\n",i-1,e_p(i))
21 end
22 disp("The expected frequencies are.: ")
23 for(i=1:n+1)
24     printf("Frequency (number of errors.=.%d) =.%f.\n",i-1,e_f(i))
25 end
26

```

File Edit Control Applications ?



Scilab 2024.0.0 Console

Samarth Khanna || ECE-B || 108

Fitting of Poisson Distribution for given lambda

Enter maximum number of mistakes per page : 4

Enter frequency for observed number of errors :

Frequency for number of errors = 0

211

Frequency for number of errors = 1

90

Frequency for number of errors = 2

19

Frequency for number of errors = 3

5

Frequency for number of errors = 4

0

Enter value of lambda : 0.44

"The expected probabilities are : "

P(number of errors = 0) = 0.644036

P(number of errors = 1) = 0.283376

P(number of errors = 2) = 0.062343

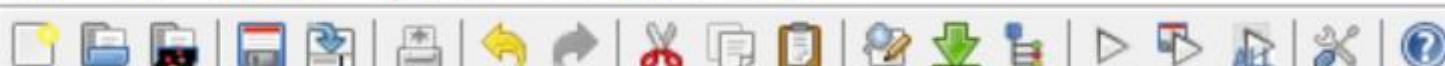
P(number of errors = 3) = 0.009144

P(number of errors = 4) = 0.001006

"The expected frequencies are : "

Frequency (number of errors = 0) = 209.311837
Frequency (number of errors = 1) = 92.097208
Frequency (number of errors = 2) = 20.261386
Frequency (number of errors = 3) = 2.971670
Frequency (number of errors = 4) = 0.326884

File Edit Format Options Window Execute ?



exp-7.sci X

```

1 clc
2 printf("Samarth.Khanna || ECE-B || 108 \n")
3 printf("Fitting of Poisson Distribution after computing mean \n\n")
4 n=input("Enter maximum number of mistakes per page : ")
5 printf("Enter frequency for observed number of errors : \n\n")
6 sum_fx=0
7 sum_f=0
8 for(i=1:n+1)
9     mistakes(i)=i-1
10    printf("Frequency for number of errors = %d", mistakes(i))
11    o_f(i)=input(".")
12    sum_f=sum_f+o_f(i)
13    sum_fx=sum_fx+o_f(i)*mistakes(i)
14 end
15 f_mean=sum_fx/sum_f
16 lambda=f_mean
17 printf("Value of mean = Value of lambda = %f \n", lambda)
18 for(i=1:n+1)
19     e_p(i)=e^(-lambda)*(lambda^(i-1)/factorial(i-1))
20     e_f(i)=sum_f*e_p(i)
21 end
22 disp("The expected probabilities are : ")
23 for(i=1:n+1)
24     printf("P. (number of errors = %d) = %f \n", i-1, e_p(i))
25 end
26 disp("The expected frequencies are : ")
27 for(i=1:n+1)
28     printf("frequency (number of errors = %d) = %f \n", i-1, e_f(i))
29 end
30

```

File Edit Control Applications ?



Scilab 2024.0.0 Console

Samarth Khanna || ECE-B || 108

Fitting of Poisson Distribution after computing mean

Enter maximum number of mistakes per page : 4

Enter frequency for observed number of errors :

Frequency for number of errors = 0

211

Frequency for number of errors = 1

90

Frequency for number of errors = 2

19

Frequency for number of errors = 3

5

Frequency for number of errors = 4

0

Value of mean = Value of lambda = 0.440000

"The expected probabilities are :"

P (number of errors = 0) = 0.644036

P (number of errors = 1) = 0.283376

P (number of errors = 2) = 0.062343

P (number of errors = 3) = 0.009144

P (number of errors = 4) = 0.001006

"The expected frequencies are : "

frequency (number of errors = 0) = 209.311837
frequency (number of errors = 1) = 92.097208
frequency (number of errors = 2) = 20.261386
frequency (number of errors = 3) = 2.971670
frequency (number of errors = 4) = 0.326884

exp-8.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-8\exp-8.sci) - SciNotes

File Edit Format Options Window Execute ?

exp-8.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-8\exp-8.sci) - SciNotes

exp-8.sci X

```
1 clc
2 printf("Samarth.Khanna || ECE-B || 20120802822.\n")
3 printf("108.|| Group-2.\n")
4 printf("Fitting.of.Linear.Regession.Line.through.given.data.points.\n\n")
5 n=input("Enter.the.total.Number.of.data.points.set.: ")
6 for(i=1:n)
7 ....printf("Enter.data.point.set.number.%d.: ",i)
8 ....X(i)=input(" ")
9 ....Y(i)=input(" ")
10 end
11 sum_X=sum(X)
12 sum_Y=sum(Y)
13 for(i=1:n)
14 ....XY(i)=X(i)*Y(i)
15 ....X2(i)=X(i)^2
16 end
17 sum_XY=sum(XY)
18 sum_X2=sum(X2)
19 m= ( (n*sum_XY) - (sum_X*sum_Y) ) / ( (n*sum_X2) - (sum_X^2) )
20 c= (sum_Y- (m*sum_X)) / n
21 printf("Value.of.m.=.%f.\n",m)
22 printf("Value.of.c.=.%f.\n",c)
23 printf("Equation.of.Regession.Line.=>.y.=.%fx.+.%f.\n",m,c)
24
```

Scilab 2024.0.0 Console

File Edit Control Applications ?

Scilab 2024.0.0 Console

```
Samarth Khanna || ECE-B || 20120802822
108 || Group-2
Fitting of Linear Regression Line through given data points

Enter the total Number of data points set : 7

Enter data point set number 1 :
1

1.5

Enter data point set number 2 :
2

3.8

Enter data point set number 3 :
3

6.7

Enter data point set number 4 :
4

9.0

Enter data point set number 5 :
5

11.2

Enter data point set number 6 :
6

13.6
```

```
Enter data point set number 7 :
```

```
7
```

```
16
```

```
Value of m = 2.414286
```

```
Value of c = -0.828571
```

```
Equation of Regression Line => y = 2.414286x + (-0.828571)
```

exp-9.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-9\exp-9.sci) - SciNotes

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exp-9.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-9\exp-9.sci) - SciNotes

exp-9.sci X

```
1 clc
2 printf("Samarth-Khanna || ECE-B || 20120802822 \n")
3 printf("108 || Group-2 \n")
4 printf("To plot Normal Distribution and Exponential Distribution \n\n")
5 mu=input("Enter mean of normal distribution : ");
6 sigma=input("Enter Standard Deviation of Normal Distribution : ");
7 lambda=input("Enter value of Lambda : ");
8 x=linspace(-10,10,100);
9 y_normal=(1/(sigma*sqrt(2*pi)))*exp(-0.5*((x-mu)/sigma).^2);
10 y_exponential=lambda*exp(-lambda*x);
11 clf;
12 subplot(2,1,1);
13 plot(x,y_normal,'-b');
14 xlabel('x');
15 ylabel('Probability Density');
16 title('Normal Distribution');
17 x=linspace(0,10,100);
18 subplot(2,1,2);
19 plot(x,y_exponential,'-r');
20 xlabel('x');
21 ylabel('Probability Density');
22 title('Exponential Distribution');
23 xgrid(1,1,3);
24
```



Scilab 2024.0.0 Console

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Scilab 2024.0.0 Console

Samarth Khanna || ECE-B || 20120802822

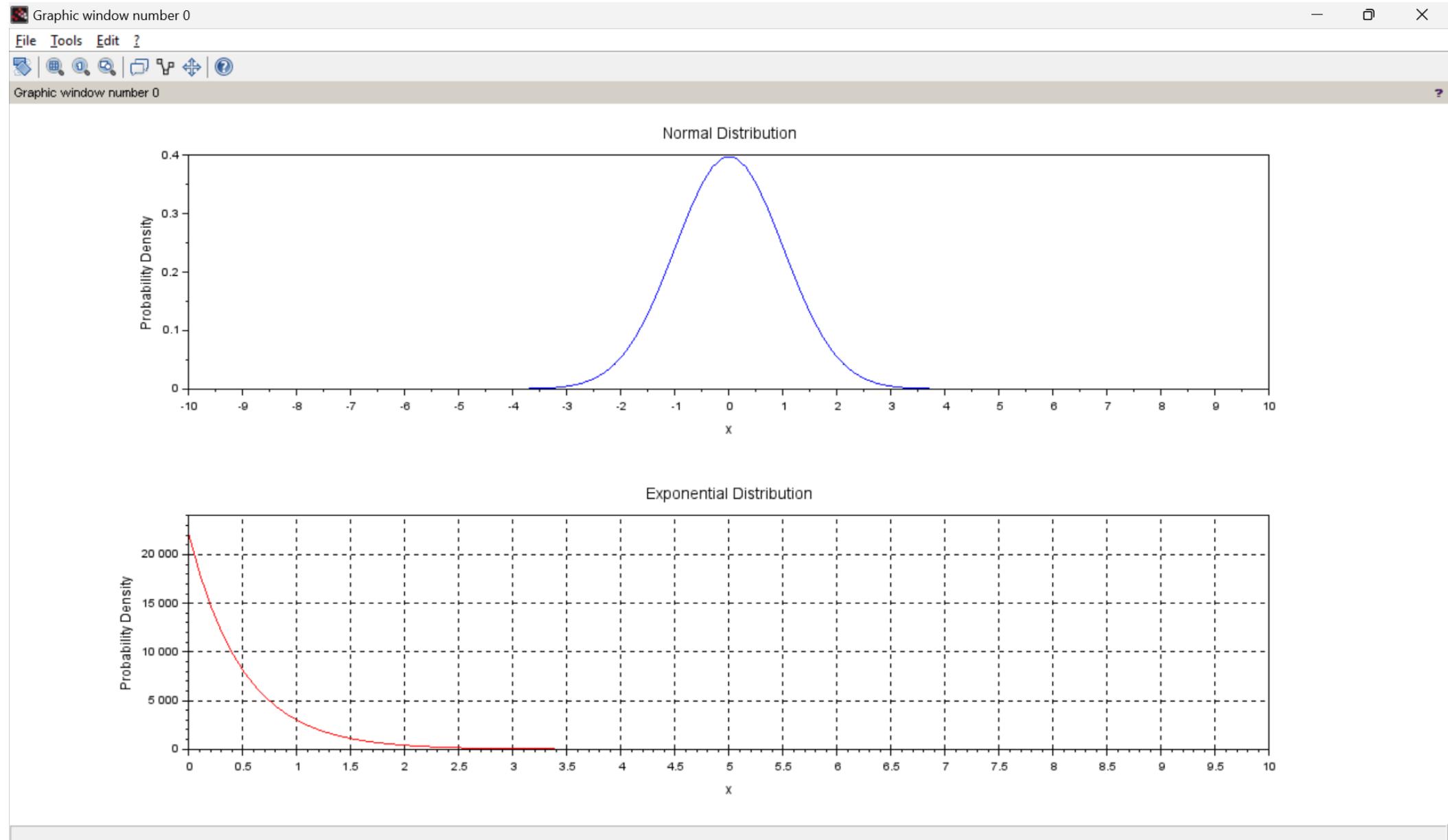
108 || Group-2

To plot Normal Distribution and Exponential Distribution

Enter mean of normal distribution : 0

Enter Standard Deviation of Normal Distribution : 1

Enter value of Lambda : 1



exp-9.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-9\exp-9.sci) - SciNotes

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exp-9.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-9\exp-9.sci) - SciNotes

exp-9.sci X

```
1 clc
2 printf("Samarth.Khanna || ECE-B || 20120802822 \n")
3 printf("108 || Group-2 \n")
4 printf("Simplex Method \n\n")
5 p=input("Enter the number of variables in the objective function :: ");
6 q=input("Enter the number of constraint equations :: ");
7 a=zeros(1,p);
8 b=zeros(q,p);
9 c=zeros(1,q);
10 d=zeros(1,q);
11 disp("Enter coefficients of the obejctivce function :: ");
12 for i=1:p
13     a(i)=input("");
14 end
15 m=input("Enter 1 to minimise or 2 to maximise :: ");
16 disp("Enter the constraint equations :: ");
17 for i=1:q
18     disp(["Enter equation :: ", string(i)]);
19     for j=1:p
20         disp(["Enter coefficients :: ", string(j)]);
21         b(i,j)=input("");
22         if j==p
23             disp("Enter 1 for <= or 2 for >= :: ");
24             c(i)=input("");
25             disp("Enter constant :: ");
26             d(i)=input("");
27         end
28     end
29 end
30 disp("Equation you entered are :: ");
31 if m==1
32     disp("MIN");
33 else
```

exp-9.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-9\exp-9.sci) - SciNotes

File Edit Format Options Window Execute ?

exp-9.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-9\exp-9.sci) - SciNotes

exp-9.sci X

```
34     .... disp("Max")
35 end
36 for .i=1:p
37     .... disp([string(a(i)), "x", string(j), "+"]);
38 ....
39 end
40 disp("Constraint-equations-are.:.");
41 for .i=1:q
42     .... for .j=1:p
43         .... disp([string(b(i,j)), "x", string(j), "+"]);
44         .... if .j==p
45             .... if .c(i)==1
46                 .... disp("<=", string(d(i)));
47             .... else
48                 .... disp(">=", string(d(i)));
49             .... end
50         .... end
51     .... end
52     .... disp("");
53 end
54 disp("=====SIMPLEX-TABLE-IS.:=====");
55 disp(".....CJ...|");
56 for .i=1:p-1
57     .... disp(["...", string(a(i))])
58 end
59 for .i=1:q-1
60     .... disp(["...0s", string(i)])
61 end
62 disp("-----");
63 disp("BV...Cb...Xb...|");
64 for .i=1:p
65     .... disp(["..x", string(i)]);
66 end
```

```
67 for i=1:q
68     .... disp(['-' s '-' , string(i)]) ;
69 end
70 disp('.....Min.Xb/x') ;
71 disp('-----') ;
72 disp('.....CJ-BJ- | ') ;
73 for i=1:p
74     .... disp(['-' '-' '-' , string(a(i))]) ;
75 end
76 for j=1:q
77     .... disp('....0') ;
78 end
```

Scilab 2024.0.0 Console

File Edit Control Applications ?

Scilab 2024.0.0 Console

Samarth Khanna || ECE-B || 20120802822
108 || Group-2
Simplex Method

```
Enter the number of variables in the objective function : 2
Enter the number of constraint equations : 2

"Enter coefficients of the obejctivce function : "
--> 40
--> 30

Enter 1 to minimise or 2 to maximise : 2

"Enter the constraint equations : "
"Enter equation : " "1"
"Enter coefficients : " "1"
--> 1

"Enter coefficients : " "2"
--> 1

"Enter 1 for <= or 2 for >= : "
--> 1

"Enter constant : "
--> 12
```

Scilab 2024.0.0 Console

File Edit Control Applications ?

Scilab 2024.0.0 Console

```
"Enter equation : " "2"
"Enter coefficients : " "1"
--> 2

"Enter coefficients : " "2"
--> 1

"Enter 1 for <= or 2 for >= : "
--> 1

"Enter constant : "
--> 16

"Equation you entered are : "
"Max"
"40" "x" "2" "+"
"30" "x" "2" "+"
"Constraint equations are : "
"1" "x" "1" "+"
"1" "x" "2" "+"
"<="
"12"
```

Scilab 2024.0.0 Console

File Edit Control Applications ?

Scilab 2024.0.0 Console

```
""  
"2" "x" "1" "+"  
"1" "x" "2" "+"  
"<="  
"16"  
"  
"=====SIMPLEX TABLE IS : ====="  
" CJ | "  
" " " "40"  
" 0s" "1"  
"-----"  
"BV Cb Xb | "  
" x" "1"  
" x" "2"  
" s" "1"  
" s" "2"  
" Min Xb/x"
```

" Min Xb/x"

"-----"

" CJ-BJ | "

" -" "40"

" -" "30"

" 0"

" 0"

exp-10.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-10 (assignment problem)

File Edit Format Options Window Execute ?

exp-10.sci (C:\Users\Samarth Khanna\Desktop\College 4th Sem\LAB\PSLP LAB\Exp-10 (assignment problem)\exp-10.sci)

exp-10.sci X

```
1 clc;
2 printf("Samarth-Khanna - || -ECE-B - || -20120802822 - \n");
3 printf("108 - || -Group-2 - \n");
4 printf("Assignment - Problem - \n\n");
5 t=zeros(10,10);
6 T=zeros(10,10);
7 n=0;
8 printf("How - many - Machines - and - Jobs - do - you - have? - : - ");
9 n=input(".");
10 printf("Enter - cost - of - : - ");
11 for i=1:n
12     for j=1:n
13         printf("Machine - %d , - Job - %d - : - ",i,j);
14         t(i,j)=input(".");
15         T(i,j)=t(i,j);
16     end
17 end
18 printf("\n***Data - Entered - is*** - : - ");
19 printf("\t");
20 for i=1:n
21     printf("Job - %d - \t",i);
22 end
23 for i=1:n
24     printf("\n\tMachine - %d - \t\t",i);
25     for j=1:n
26         printf("%d\t",t(i,j));
27     end
28 end
29 minimum=[1000,1000,1000,1000,1000,1000,1000,1000,1000];
```

```
30 for i=1:n
31     for j=1:n
32         if t(i,j)<=minimum(i)
33             minimum(i)=t(i,j);
34         end
35     end
36 end
37 printf(".");
38 for i=1:n
39     for j=1:n
40         t(i,j)=t(i,j)-minimum(i);
41     end
42 end
43 printf("\n\n***Data after row minimization decrementation is***\n\t\t\t");
44 printf("\t\t");
45 for i=1:n
46     printf("Job-%d.\t",i);
47 end
48 for i=1:n
49     printf("\n\tMachine-%d.\t\t",i);
50     for j=1:n
51         printf("%d\t",t(i,j));
52     end
53 end
54 zerr=[1000,1000,1000,1000,1000,1000];
55 zerc=[1000,1000,1000,1000,1000,1000];
```

```
56 for i=1:n
57     for j=1:n
58         if t(i,j)==0
59             zerr(i)=0;
60             zerc(j)=0;
61         end
62     end
63 end
64 f=0;
65 y=0;
66 for i=1:n
67     if zerr(i) ~=0
68         f=1;
69     end
70 end
71 for i=1:n
72     if zerc(i) ~=0
73         y=1;
74     end
75 end
76 if f==1 || y==1 then
77 mn=[1000,1000,1000,1000,1000,1000,1000,1000,1000];
78 for j=1:n
79     for i=1:n
80         if t(i,j)<=mn(j)
81             mn(j)=t(i,j);
82         end
83     end
84 end
85 for j=1:n
86     for i=1:n
87         t(i,j)=t(i,j)-mn(j);
88     end
89 end
```

```
90 printf("\n\n***Data after column minimum decrement is . . . ***\n");
91 printf("\t\t\t\t");
92 for i=1:n
93 ....printf("Job. %d. \t",i);
94 end
95 for i=1:n
96 ....printf("\n\tMachine. %d. \t",i);
97 ....for j=1:n
98 ........printf("%d. \t",t(i,j));
99 ....end
100 end
101 end
102 printf("\n\n\n***Final Job Assignment is . . . ***");
103 min_cost=0;
104 for i=1:n
105 ....for j=1:n
106 ........if t(i,j)==0 then
107 .........printf("\nAssign Job. %d. to Machine. %d",j,i);
108 .........min_cost=min_cost+T(i,j);
109 ........for z=1:n
110 .........if z~=i then
111 .............if t(z,j)==0 then
112 ..............t(z,j)=1000;
113 .........end
114 .........end
115 ........end
116 ........for l=1:n
117 .........if l~=j then
118 .............if t(i,l)==0 then
119 ..............t(i,l)=1000;
120 .........end
121 .........end
122 ........end
```

```
123 .....end  
124 ....end  
125 end  
126 printf("\n\nMinimum.Cost.=.Rs.%d",min_cost);  
127 printf("\n\n");
```

Scilab 2024.0.0 Console

File Edit Control Applications ?

Scilab 2024.0.0 Console

```
Samarth Khanna || ECE-B || 20120802822
108 || Group-2
Assignment Problem

How many Machines and Jobs do you have? :
4

Enter cost of : Machine 1, Job 1 :
15

Machine 1, Job 2 :
17

Machine 1, Job 3 :
14

Machine 1, Job 4 :
16

Machine 2, Job 1 :
11

Machine 2, Job 2 :
12

Machine 2, Job 3 :
15

Machine 2, Job 4 :
13
```

Machine 3, Job 1 :

13

Machine 3, Job 2 :

12

Machine 3, Job 3 :

10

Machine 3, Job 4 :

11

Machine 4, Job 1 :

15

Machine 4, Job 2 :

13

Machine 4, Job 3 :

14

Machine 4, Job 4 :

17

Data Entered is :

	Job 1	Job 2	Job 3	Job 4
Machine 1	15	17	14	16
Machine 2	11	12	15	13
Machine 3	13	12	10	11
Machine 4	15	13	14	17

Data after row minimization decrement is

:	Job 1	Job 2	Job 3	Job 4
Machine 1	1	3	0	2
Machine 2	0	1	4	2
Machine 3	3	2	0	1
Machine 4	2	0	1	4

***Data after column minimum decrement is : ***

	Job 1	Job 2	Job 3	Job 4
Machine 1	1	3	0	1
Machine 2	0	1	4	1
Machine 3	3	2	0	0
Machine 4	2	0	1	3

***Final Job Assignment is : ***

Assign Job 3 to Machine 1

Assign Job 1 to Machine 2

Assign Job 4 to Machine 3

Assign Job 2 to Machine 4

Minimum Cost = Rs.49