

LABORATORY WORK BOOK

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Cla	ss C	SE-B Semester	<	<u> </u>	en tre	41	Roll Number	er T	
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Exe	Procise Number: Week Number: O2 Date: 2-6								7
S. No.	Exercise Number	EXERCISE NAME	Aim/ Preparation	Algorithm / Procedure		Source Code			. I a
				5.00	e in the Lab	Calculations and Graphs	culations Results and Error		Total
to	1.19 1.	Companies I in	19 4 6	11 + 11)4 + 1 / Let		4	4	4	20
1	2.1	Dot and matrixe		2	2	- 6 G	ü	u	20
2	3.5	compare Eigen values of matrix	MA POR	,-1 e-i	g_corr.) tail		200	
3	J-3	solve a linear matrix equation			4.1	1018) E1		v I	1
4	2-4	compute Inverse of a matrix		/	7 45	utos i	FOUT ()	freis	19
5	2.5	compute Rank of matrix			(()		obann)	1 × 1 0	1
6	2.6	compute Determinant of	C	- r - 1	311638	·9 ×1	(Potenty)	149	f
7		a matrix		(1	(1, .1)	Main	001.77	+ 117	i
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Signature of the Student

Signature of the Faculty

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21 Dot and matrix product of two arrays
  import numpy as np
   \Gamma I = I
  m, n = map (int, input ("Enter rows and columns") 5940
  for i in range (m):
      1-append (list (map(int, input()-sp/it())))
  1 = np. aosax(1)
  SI = I3
  m, n = map (int, input ("Enter rows & columns."). spital
  for i in range (m):
     list1 = list(map (int, inputc). split()))
      11-append (list1)
  12=np.azzay(11)
  Print ('Dot Product 1s: 1)
  Print (np. dot (1, I))
  Print (matrix product is: 1)
  Print (np. multiply (1, 10)
  ZNPUT/OUTPUT.
  Enter rows and columns:
  7
      2 3
  4
       5 6
         9
  7
       8
```

rows and columns: 3 3 5 7 9 8 Dot Product is: [[30 33 34] [126 141 148]] Matrix Product 15: sulpy askill helps 21] 12 217 CAS HISTORY [32 45 547 [51 24 27)] Coronalos Ento In Hapfilland. I acts will. 22.2 compute Eigen values of a matrix impost numpy as no 1=[7 m, n = map (int, input ('Enter rows & columns: 1) tor i in range (m): 1-append (list (map (int, in Put ()-split())) 1 = np. array (1) TEAN IF ALL a, b = np. linalg. eig(1) Print ('Figen values are: 1) Print (a) INPUTIOUTPUT: MERCE YE ICT Enter rows and columns: 3 3 1 2 3 4 5 6 7 8 9 Eigen values are: [1.61168440e+0] -1.1168e+00 -1.3036e-15]

solve a linear matrix equation such as 32c° + x' = 9, x° + 2x' = 8 import numpy as np while July Tom - was 1 = nP.array (1ist (map (int, input (Enter coefficients of equation: 1). Split ())) · (Storai dai) good + 17) Errola -1 11 = np.array(list(map(int, input ('Enter values of constant: 1). split ()))) (1st xfato) 1 to 928 sum Sol = np.linala. solve(1, 11) prof floril and total Print ('Solution is: ') Print ('x1 = 1, sol. [0]) but and the Print ('oc2 = 1, sol[1]) INPUT (OUTPUT: Enter coefficients of equation: [3, 1] [1,2] Enter values of constant: [9, 8] 7-33333 -0-166667 Solution is x1 = 2.0 . 0 x2 7 3.0

```
24 compute multiplicative inverse of motory
  import numpy as mp
                    9.4 1 th 119-150- 33875
  7 m L ]
 m, n = map Cint input Clenter rows & columns ). Figur
 for i in range (m):
    1. append (list (map Cint, inputc)-split())))
               Appel . Late aprecious it to
 1 = np. array(1)
               Virginity of
 Print ('Inverse of Matrix is: )
 Point (np-linalg. invcID) 1 Darrice - Clariff- 700
                      ( tel mollulos ) tales
 INPUT/OUTPUT'
 Enter rows and columns: 3 3
                   (817/02 ( = 1001) fries
  1
     2
        3
  5
        2
  1
 Inverse of matrix is:
  [[ 0.66667 0-3333340
                           -1.333337
   [ -1.33333 -0.166667
                           2.166677
   1.
                             - 4: ]
                 0.
```

```
compute the rank of a matrix
import numpy as up
\Gamma J = R
m, n = map (int, input ("Enter rows & colums: ")-spite()
for i in range (m): : (m) store of i soft
  1-append (list (map (int, input ()-split ()))
1 = np. array (1)
                           (1) un o o mater a 1
Print ('Rank of Matrix is: 1)
Point (np. linala. matrix-rank(1)) 10101-911) +11109
INPOT/OUTPUT:
Enter
      rows of columns: 313
1
       3
7
    3
5
   6
Rank
      of Matoix
2
```

2-6 compute the determinant of an array import numpy as npar ac lighter to $\Gamma I = I$ m, n = map (int, input ("Enter rows & columns: "). splito for i in range (m): "im) strang (ri i 1-append (1954 (map (int, input()-spirt())) (1) PRO 50.9W = 1 1 = np. assay (1) Print (Determinant of materix 1521) Point (np-linal&det(1)), xistom, Planil.911) this INPUT (OUTPUT: Enter rows and columns: 3 3 000 5 7 8 9 Determinant of matrix is from to your 0-0