**Machine Learning**

**Ex: 02 Pandas, Numpy, Sub Plot**

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|  | **PANDAS** |
| 1. | To read the content in excel file to the data frame……………………. |
| 2. | To read the content in CSV file to the data frame……………………… |
| 3. | The code to print first five rows in the dataframe…………………….. |
| 4. | The code to print last five rows in the dataframe………………………. |
| 5. | The code to print first three rows in the dataframe……………………… |
| 6. | The code to print last three rows in the dataframe……………………… |
| 7. | The method to print the summary of data and what attributes will be displayed……………………………………………. |
| 8. | The attributes that will be printed using describe ()………………………………………. |
| 9. | To print summary of categorical values……………………………… |
| 10. | To print categorical column values alone using describe method……………………………. |
| 11. | To print the summary of single attribute using describe ()…………………………………. |
| 12. | The method to print distinct observations for each attribute……………………………………. |
| 13. | The method to print unique values of a column in ascending order……………………………… |
| 14. | To print the summary of a column by grouping the data……………………………………. |
| 15. | The code to print the number of groups created along with row number………………………….. |
| 16. | The method to print size of the group…………………………………… |
| 17. | The code to print particular group values………………………………….. |
| 18. | The code to print count, max and min values of a group………………………………….. |

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|  | **NUMPY** |
| 1. | To create an array with three rows and three columns.……………………. |
| 2. | The code to print dimensions of the array ……………………… |
| 3. | Create a 1D and 2D array with default initialization of zeros …………………….. |
| 4. | To create an identity matrix with 5 rows and 5 columns ………………………. |
| 5. | The code to retrieve second row first column value in a 3x3 matrix ……………………… |
| 6. | The code to print all column values of second row in a 3x3 matrix ……………………… |
| 7. | The code to retrieve all the values from second column in a 3x3 matrix ………………. |
| 8. | to retrieve last column value in a 3x3 matrix ………………………………………. |
| 9. | To retrieve all column values from second and third row in a 3x3 matrix ……………………………… |
| 10. | To create an array with numbers specified in the range ……………………………. |
| 11. | To find transpose of a matrix …………………………………. |
| 12. | To find determinant of a matrix ……………………………………. |
| 13. | To print diagonal elements of a matrix ……………………………… |
| 14. | **Basic Matrix operations:**  x1=np.array([[1,2],[3,4]])  x2=np.array([[8,7],[6,9]])  ……………………………………. |
| 15. | To create an array with random integer values of size (3,5) ………………………….. |
| 16. | To create 1D array with 5 values of equal step size …………………………………… |
|  | **SUB PLOTS** |
| 1. | **Code:**  import matplotlib.pyplot as plt  **#Data for subplots**  temperature=[20, 25, 30, 35,40]  icesales [13, 21, 25, 35, 38]  coffeesales=[45, 37, 28, 22,18]  **#Create Figure for subplots**  fig, ax=plt.subplots (nrows=1,ncols=2, figsize=(9,3)  **#Set title for subplots**  ax[0].set\_title('a. Icecream Sales')  ax[1].set\_title('b. Coffee Sales')  **#Generate the subplots**  ax[0].plot(temperature, icesales, '-o',c='orange')  ax[1].plot(temperature, coffeesales, '-\*',c='red')  **#Set the Xlabel and Ylabel**  ax[0].set\_xlabel('Temperature')  ax[0].set\_ylabel('Ice Sales (in litres)')  ax[1].set\_xlabel('Temperature')  ax[1].set\_ylabel('Coffee Sales (in litres)')  fig.subtitle(‘SALES’) |