**Experiment 9**

**Title : Python Libraries (Numpy, Pandas, Matplotlib)**

**A) Solve Following Problem Statement using Numpy Python Library :**

1. Write a NumPy program to generate five random numbers from the normal distribution
2. Write a NumPy program to create a 3x3x3 array with random values.
3. Write a NumPy program to create a 5x5 array with random values and find the minimum and maximum values
4. Write a NumPy program to shuffle numbers between 0 and 10 (inclusive). [Go to the editor](https://www.w3resource.com/python-exercises/numpy/python-numpy-random.php#EDITOR)   
   Sample Output:  
   [5 7 9 0 2 3 1 6 8 4]   
   Same result using permutation():  
   [6 7 4 5 8 2 3 9 0 1]
5. Write a NumPy program to find the nearest value from a given value in an array.

**B) Solve Following Problem Statement using Pandas Python Library :**

Using following link download the dataset and then perform following operations : <https://pynative.com/python-pandas-exercise/>

### From given data set print first and last five rows

1. Clean data and update the CSV file. Replace all column values which contain ‘?’ and n.a with NaN.
2. Find the most expensive car company name
3. Print All Toyota Cars details
4. Find each company’s Highest price car

**C) Solve Following Problem Statement using Matplotlib Python Library :**

Using following link download the dataset and then perform following operations :

[**https://pynative.com/wp-content/uploads/2019/01/company\_sales\_data.csv**](https://pynative.com/wp-content/uploads/2019/01/company_sales_data.csv)

1. Read Total profit of all months and show it using a line plot.
2. Read all product sales data and show it using a multiline plot
3. Read toothpaste sales data of each month and show it using a scatter plot
4. Read face cream and facewash product sales data and show it using the bar chart
5. Read the total profit of each month and show it using the histogram to see most common profit ranges
6. Calculate total sale data for last year for each product and show it using a Pie chart
7. Read all product sales data and show it using the stack plot