EXERCISE:3

A)Conduct an experiment to show data visualization using line plot .

Description: Take any sample data either through csv file or data fetched directly through code.

Aim:
To visualize data using a **line plot** to observe trends and patterns over time or continuous variables.

Procedure:

1. Import necessary libraries such as pandas, matplotlib.pyplot, and numpy.
2. Create or load a sample dataset (either from a CSV file or directly within the code).
3. Select the variables to be plotted on the x-axis (e.g., time) and y-axis (e.g., sales or temperature).
4. Use plt.plot() to generate the line plot and label the axes with appropriate titles.
5. Display the plot using plt.show() to visualize the trend clearly.

In [2]:

```
Code:

import matplotlib.pyplot as cricket
Overs=list(range(5,51,5))
Indian_Score=[30,55,90,129,165,200,239,270,310,350]
Srilankan_Score=[25,70,90,120,140,170,195,220,255,279]
cricket.plot(Overs,Indian_Score)
cricket.plot(Overs,Srilankan_Score)
cricket.show()
cricket.title("INDIA Vs SRILANKA")
cricket.xlabel("Overs")
cricket.ylabel("Score")
cricket.legend()
cricket.plot(Overs,Indian_Score,color="green",label="INDIA")
cricket.plot(Overs,Srilankan_Score,color="red",label="SRILANKA")
```

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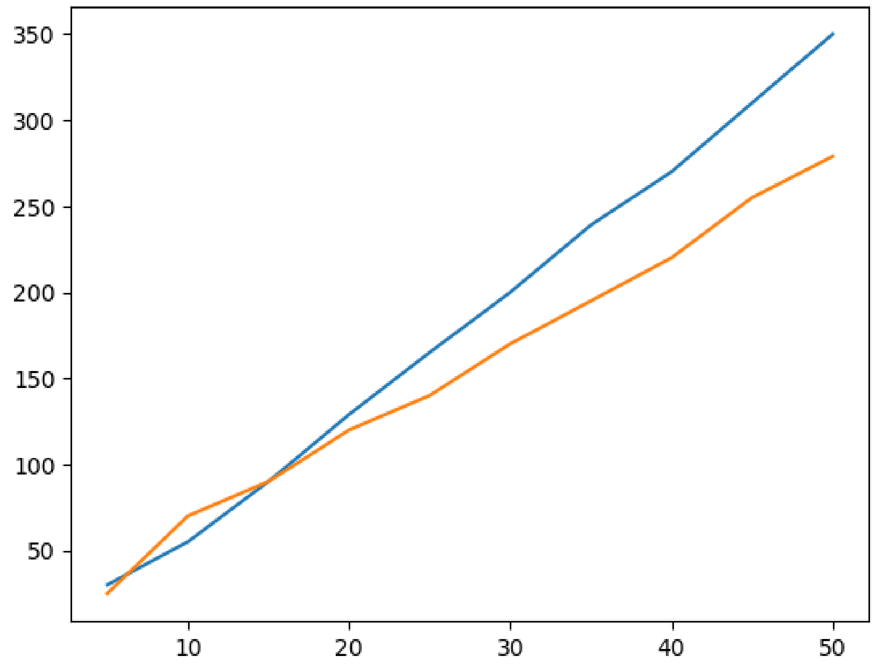
```
cricket.legend(loc="centre righr”)
```



Result:

The line plot effectively displayed the trend of values over time.
It clearly showed the rise and fall patterns in the dataset.
Thus, the line plot proved useful for analyzing continuous data trends.

b) Conduct an experiment to show data visualization using bar chart .
Description: Take any sample data either through csv file or data fetched directly through code.

Aim:

To visualize categorical data using a bar chart for better comparison and analysis of different categories.

Procedure:

1. Import necessary Python libraries such as pandas and matplotlib.pyplot.
2. Create or load a sample dataset (e.g., sales data for different products).
3. Store the data in a pandas DataFrame for easy manipulation.
4. Use the plt.bar() function from Matplotlib to plot categories on the x-axis and their corresponding values on the y-axis.
5. Add chart elements such as title, axis labels, and display the bar chart using plt.show().

In [1]:

```
import matplotlib.pyplot as hscmark
import numpy as np
Names = ['SHREE', 'DEV', 'KEERTHI', 'PRIYA', 'SHAN', 'KUMARAN']
xaxis = np.arange(len(Names))
Percentage_hsc = [96, 91, 94, 75, 45, 81]
```

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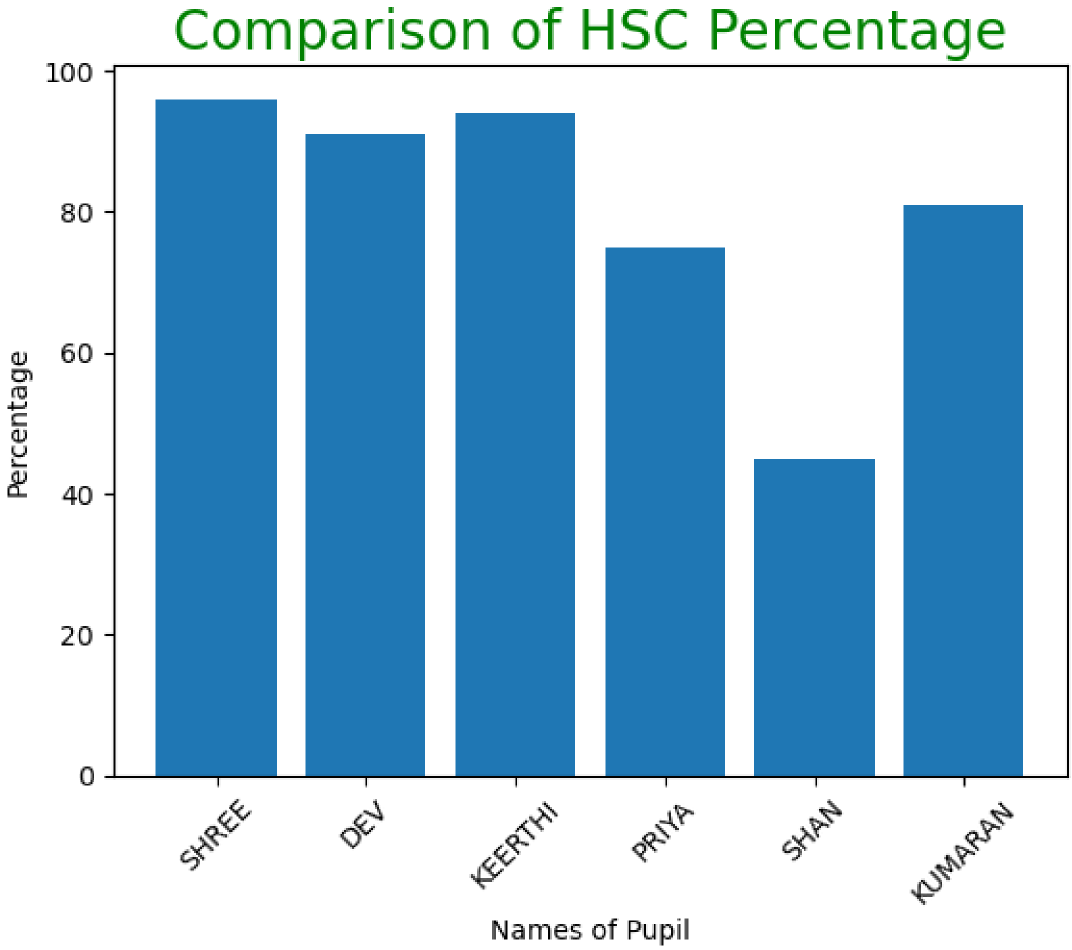
```
hscmark.bar(Names, Percentage_hsc)
hscmark.xticks(xaxis, Names, rotation=45)
hscmark.xlabel("Names of Pupil")
hscmark.ylabel("Percentage")
hscmark.title("Comparison of HSC Percentage", fontsize=20, color="green")
hscmark.show()
```



In [ ]:

Result:
The bar chart successfully displayed the sales comparison among different products.
It provided a clear visual understanding of which product had the highest and lowest sales.
Thus, bar chart visualization proved effective for categorical data analysis.

C)Conduct an experiment to show data visualization using piechart.
Description: Take any sample data either through csv file or data fetched directly through code.

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Aim:

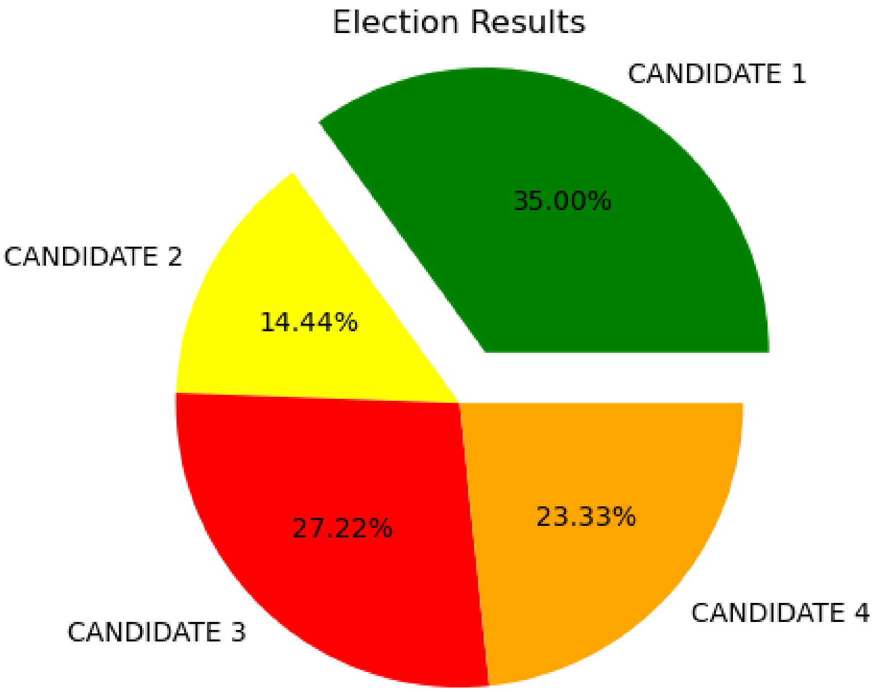
To represent the proportion of different categories in a dataset using a pie chart for clear visual comparison.

Procedure:

1. Import required Python libraries such as pandas and matplotlib.pyplot.
2. Create or load a sample dataset (e.g., market share of different companies).
3. Store the data in a pandas DataFrame for easy handling.
4. Use the plt.pie() function from Matplotlib to plot category proportions with labels and percentage values.
5. Add a title and display the chart using plt.show().

In [1]:

```
import matplotlib.pyplot as election
# Election data
labels = ['CANDIDATE 1', 'CANDIDATE 2', 'CANDIDATE 3', 'CANDIDATE 4']
Votes = [315, 130, 245, 210]
colors = ['green', 'yellow', 'red', 'orange']
explode = (0.2, 0, 0, 0)
# Plotting the pie chart
election.pie(Votes, labels=labels, colors=colors, explode=explode,
autopct='%0.2f%%')
election.title('Election Results')
election.show()
```



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Result:

The pie chart successfully displayed the percentage contribution of each company.
It provided a clear and intuitive visualization of category proportions.
Thus, the pie chart proved useful for showing data distribution in a circular for