Word Cloud:

word Cloud from Text File:

```
filename = 'Computer.txt';
text_data = fileread(filename);
>> punctuation_characters = ["." "?" "!" "," ";" ":"];
text_data = replace(text_data, punctuation_characters, " ");
>> words = split(join(text_data));
>> C = categorical(words);
figure
wordcloud(C);
```

Boxchart:

```
mathMarks = [85 72 90 60 80 95 50 88 70 77];

% Create box plot
boxchart(mathMarks);
ylabel('Marks');
title('Box Plot of Math Marks (10 Students)');
```

Geo plot:

```
lat = [28.61 19.07 13.08]; % Delhi, Mumbai, Chennai
lon = [77.23 72.87 80.27];
geoplot(lat, lon, 'r-o');
geobasemap streets;
title('Geographic Plot Example');
```

Pie chart:

```
profit = [25 40 35 50 30];
% Labels for years
years = {'2020','2021','2022','2023','2024'};
% Create pie chart
pie(profit, years);
% Add title
title('Company Profit (2020–2024)');
```

Bar Plot:

```
bar(profit);                    % vertical bars
set(gca,'XTickLabel',years);    % set x-axis labels
xlabel('Year');
ylabel('Profit (₹ Lakhs)');
title('Company Profit (2020–2024)');
```

Bar Plot: Horizontal

```
barh(profit);                   % horizontal bars
set(gca,'YTickLabel',years);    % set y-axis labels
xlabel('Profit (₹ Lakhs)');
ylabel('Year');
title('Company Profit (2020–2024)');
```

gca in MATLAB

- **gca** stands for **Get Current Axes**.
- It returns the handle (reference) to the **current axes object** of the current figure.
- Axes = the area inside the figure where plots, labels, and ticks appear.

Line plot:

```
% Profit data for 5 years

profit = [25 40 35 50 30];



% Years (numeric for x-axis)

years = 2020:2024;

plot(years, profit, 'b-o','LineWidth',2,'MarkerSize',8);



xlabel('Year');

ylabel('Profit (₹ Lakhs)');

title('Company Profit (2020–2024)');

grid on;
```

Arguments in plot()

- **years** → x-axis values (2020–2024).
- **profit** → y-axis values (profits).
- **'b-o'** → Line specification (LineSpec):
  - 'b' = blue color
  - '-' = solid line
  - 'o' = circle markers
- **'LineWidth',2** → makes line thicker.
- **'MarkerSize',8** → makes circle markers larger.
- **grid on** → adds grid lines for readability.

Scatter Plot:

```
scatter(years, profit, 80, 'r', 'filled');
```

```
xlabel('Year');

ylabel('Profit (₹ Lakhs)');

title('Company Profit (2020–2024)');

grid on;
```

Arguments in scatter()

- **years** → x-axis values (2020–2024).
- **profit** → y-axis values (profits).
- **80** → marker size (larger = bigger dots).
- **'r'** → color red.
- **'filled'** → fills the markers with color.

Bubble chart:

```
% Data

years = 2020:2024;

profit = [25 40 35 50 30];

revenue = [200 350 300 450 250];  % bubble sizes


% Bubble chart using scatter

scatter(years, profit, revenue, 'b', 'filled', 'MarkerFaceAlpha',0.5);


xlabel('Year');

ylabel('Profit (₹ Lakhs)');

title('Company Profit vs Revenue (2020–2024)');

grid on;


% Add labels
```

text(years, profit, string(years), 'VerticalAlignment','bottom','HorizontalAlignment','center');

Arguments

- **scatter(x, y, s, c, 'filled')**
  - x = years (2020–2024)
  - y = profit values
  - s = marker size → here taken as revenue (bigger revenue → bigger bubble)
  - c = color (here 'b' = blue)
  - 'filled' = filled circles
- **'MarkerFaceAlpha',0.5** → transparency (0 = fully transparent, 1 = opaque).
- **text()** → adds year labels near bubbles.

Histogram

```
x = randn(10000,1);

histogram(x,50);          % 50 bins

xlabel('Value');

ylabel('Frequency');

title('Histogram of 10,000 Random Numbers from N(0,1)');

grid on;
```