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# Matplotlib

- Importing and simple plots
- Labelling
- Useful functions
- Histogram, Pie
- Bar, Scatter

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## Import and Simple plot

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- **import matplotlib.pyplot as plt**
- plot (<xlabel>, <ylabel>, <color, symbol options>)
- Ex:  
    plot( [1,2,3], [1,4,9], 'ro')
- show()  
    displays all plots.  
    Multiple plot calls plot on the same graph.
- figure()  
    open a new figure window

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## Plotting multiple plots

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- `subplot( r, c, curr_pos)`
- Used to plot multiple graphs in same figure
- Creates a grid of size ***rc***
- Must be called before any kind of plotting function
- ***curr\_pos*** determines the position of current graph in the grid

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## Some useful functions

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- `xlabel()`  
label on x-axis
- `ylabel()`  
label on y-axis
- `xticks(), yticks()` : rotation  
specify markers on x and y axis
- `legend()`  
requires labels to set while plotting
- `title()`  
title for the graph

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## Extra functions

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- `text( x, y, value)` : Inserts a single text element; requires loop otherwise
- `stem(x,y)`
- `fill_between(x, y)` : Area filled by color
- `savefig(<filename>)`
- `axvline( x )` : draw vertical line
- `axhline( y )` : draw horizontal line

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## Histogram, Pie

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- `hist:`
  - `bins` : integer
  - `rwidth` : float [0 - 1.0]
- `pie(data):`
  - `shadow` : Boolean
  - `labels, labeldistance`
  - `explode` : [list of floats]

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## Barplot, Scatter

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- `bar(x, values):`
  - label : Used by legend option
  - bottom: used to create stacked bar plot
- `Scatter:`
  - color : string
  - s : integer size
  - alpha : float [0 – 1.0]
  - marker: o, \_, ^, \$...\$

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## Image, boxplot, twinx

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- `imshow`
- `boxplot(data):`
  - data : can be array or a matrix for multiple plots
- `twinx:`
  - replicates a different y-axis keeping same x-axis
  - no args required

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