

Python Programs to Visualize Results

- Level: Medium

Given two arrays `vec1` and `vec2`. The task is to write a Python program to visualize the result, by plotting line graph using `vec1` as x axis and `vec2` as y axis.

Examples:

```
Input: vec1 = [1, 2, 3, 4, 5] vec2 = [10, 12, 9, 11, 13]
```

```
Output: 2D graph - line plot
```

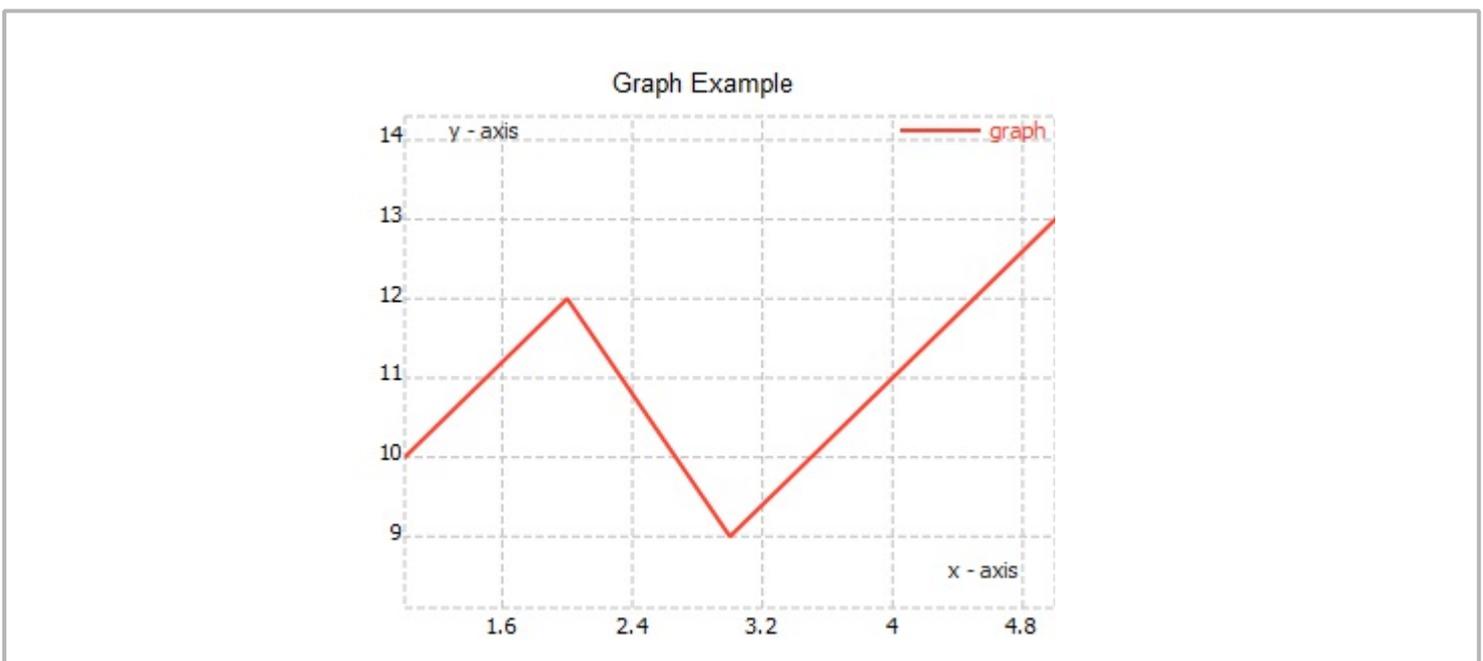
The two vectors are defined in MatDeck script:

```
1 vec1 := [1, 2, 3, 4, 5]
2 vec2 := [10, 12, 9, 11, 13]
```

MatDeck Script Code

Here, we illustrate the same process in MatDeck Script. The use of 2D graph is supported by the most MatDeck licenses, there is no need for additional installation of any package. Further, the code is rather simple and graph can be embedded within Matdeck document. The main advantage of MatDeck graph compared to Python graph, is in the fact that the graph properties are easy set using directly graph GUI, while Python graph is configured by using script code.

```
3 graph := join_mat_rows(vec1, vec2)
```



Python Code

In the program below, the Python library `matplotlib` is used. Therefore, it is necessary to install `matplotlib`, which can be done using the following command `python -m pip install -U matplotlib`. `Matplotlib` is available

for Windows. Below is the Python program to plot graph:

```
4 #py
5 import matplotlib.pyplot as plt
6 plt.plot(vec1,vec2,color='red',lw=1)
7 plt.xlabel('x - axis')
8 plt.ylabel('y - axis')
9 plt.title('Graph Example')
10 plt.grid()
11 plt.show()
12 ###
```

Comparison between MatDeck Graph and Python Graph

As stated above, the main advantage of MatDeck graph compared to Python graph, is in the fact that the graph properties are easy set using directly graph GUI, while Python graph is configured by using script code. For example, lines from 6 to 10 in Python code, can be set in MatDeck graph using GUI displayed below. We have also to point out, that MatDeck graph is included by the most MatDeck licenses, there is no need for additional installation of any package, and for Python graph there is need to install matplotlib library.

