

Вежбе из Електромагнетске компатибилности

<http://mtt.etf.rs/Elektromagnetska.Kompatibilnost/01-Python.pdf>

<http://mtt.etf.rs/Elektromagnetska.Kompatibilnost/01-EMCt.pdf>

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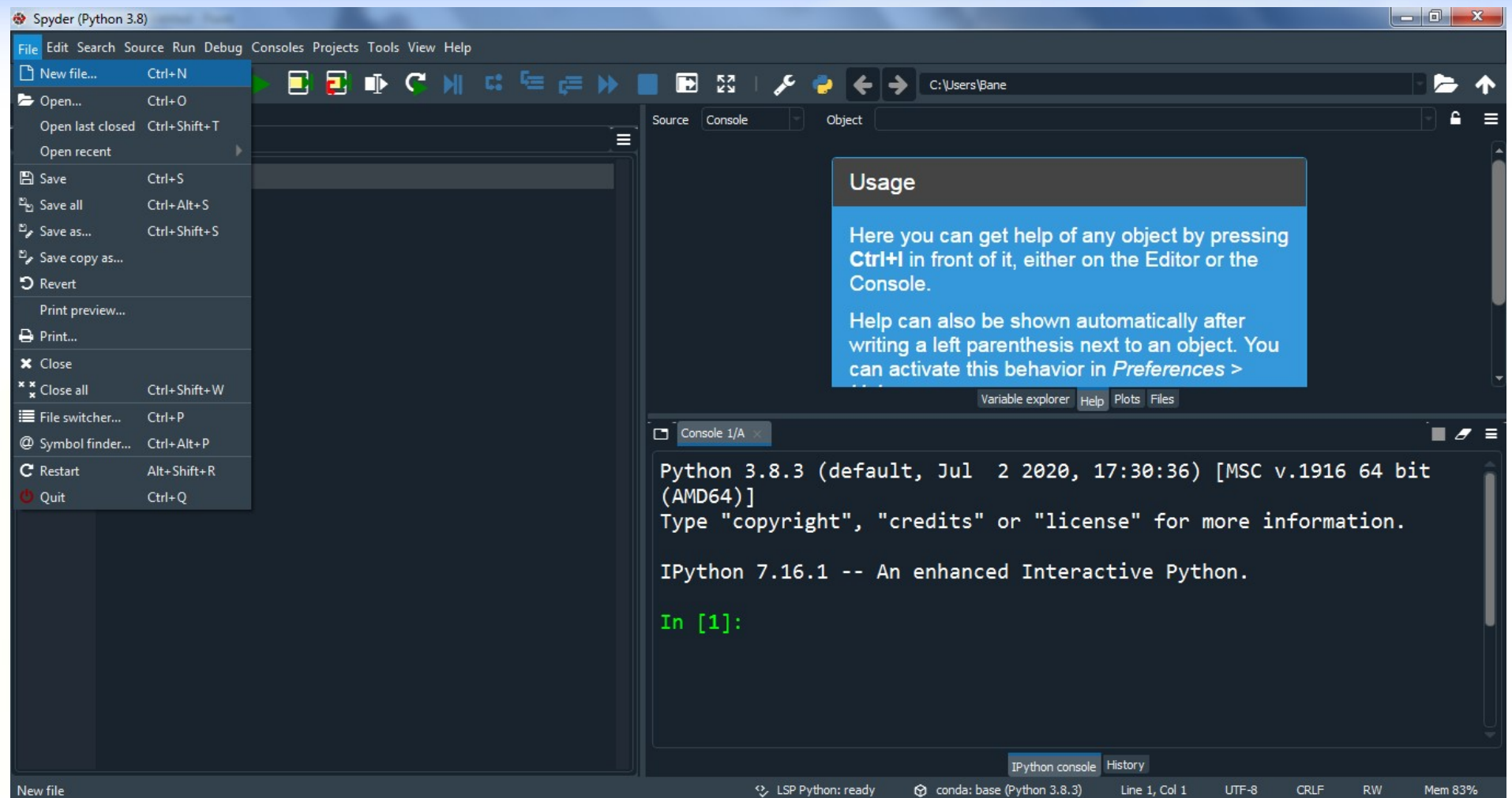
darko@etf.rs

Јелена Динкић

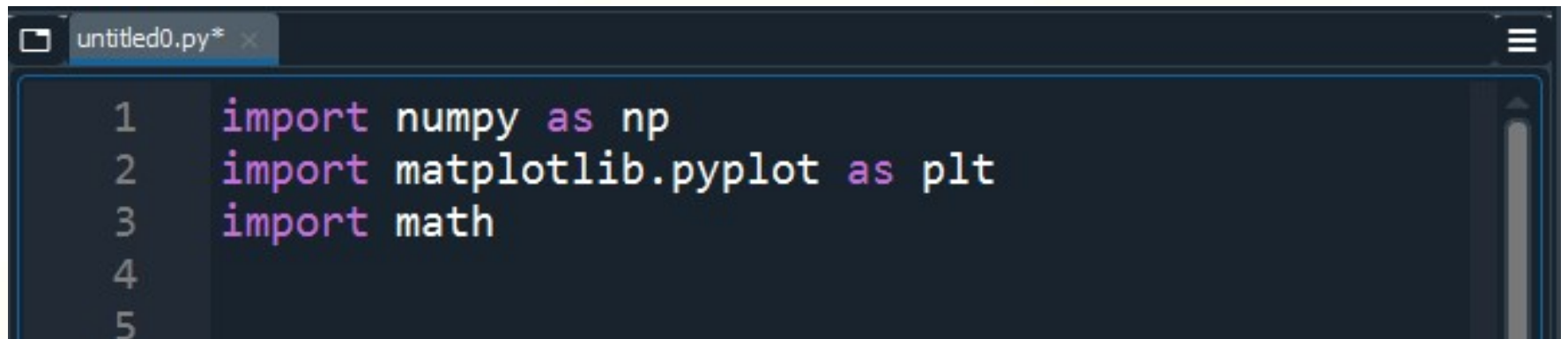
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Python 3.8

(Spyder окружење са Anaconda)



Библиотеке

A screenshot of a code editor window with a dark theme. The title bar shows 'untitled0.py*' and a close button. The code is written in Python and includes line numbers 1 through 5 on the left. The code imports the numpy, matplotlib.pyplot, and math libraries.

```
1 import numpy as np
2 import matplotlib.pyplot as plt
3 import math
4
5
```

- Користан сајт:
<https://matplotlib.org/stable/index.html>

Дефинисање функције

Spyder (Python 3.8)

File Edit Search Source Run Debug Consoles Projects Tools View Help

D:\EMC\temp.py

```
1 import numpy as np
2
3 def operacije (x,y):
4     z=x+y
5     r=x-y
6     return np.array ([z, r])
7
8 x=3e2
9 y=5e3
10
11 rez=operacije(x,y)
12 print("Zbir je", rez[0], ", razlika je", rez[1])
13
```

	Type	Size	Value
rez	Array of float64 (2,)		[5300. -4700.]
x	float	1	300.0
y	float	1	5000.0

Variable explorer Help Plots Files

Console 1/A

```
In [2]: runfile('D:/EMC/temp.py', wdir='D:/EMC')
Zbir je 5300.0 , razlika je -4700.0

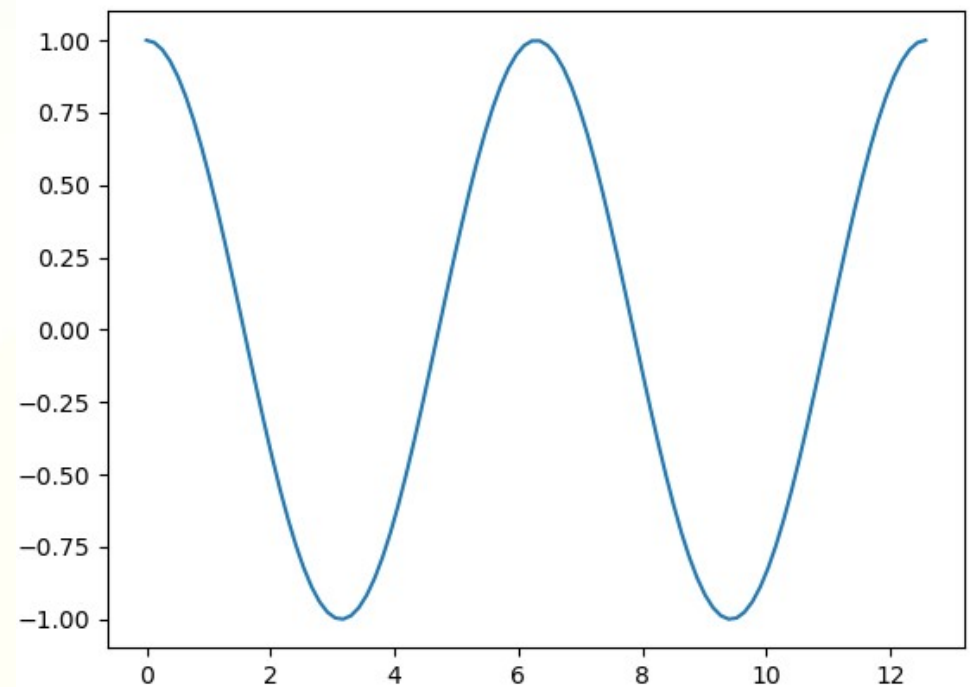
In [3]:
```

IPython console History

LSP Python: ready conda: base (Python 3.8.3) Line 13, Col 1 ASCII CRLF RW Mem 74%

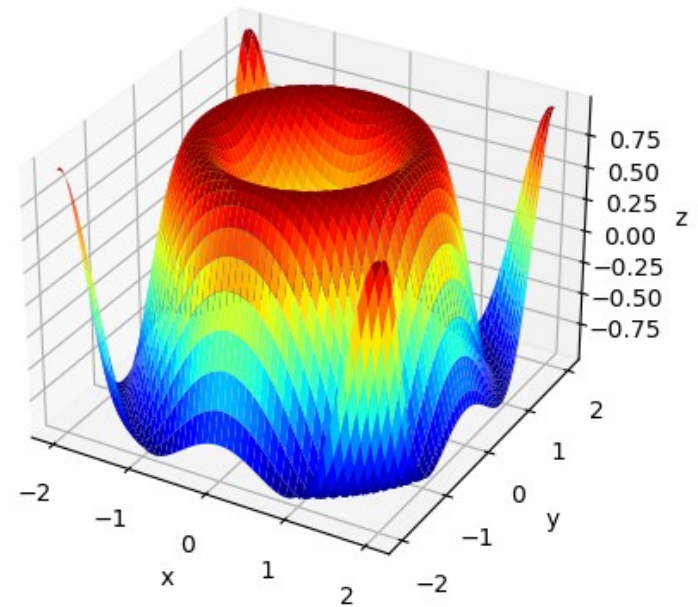
PLOT

```
cos_plot.py x
1  import numpy as np
2  import matplotlib.pyplot as plt
3  import math
4
5  x=np.linspace(0,4*math.pi,100)
6
7  y=np.cos(x)
8
9  fig1=plt.figure()
10 plt.plot(x,y)
```



PLOT_SURFACE

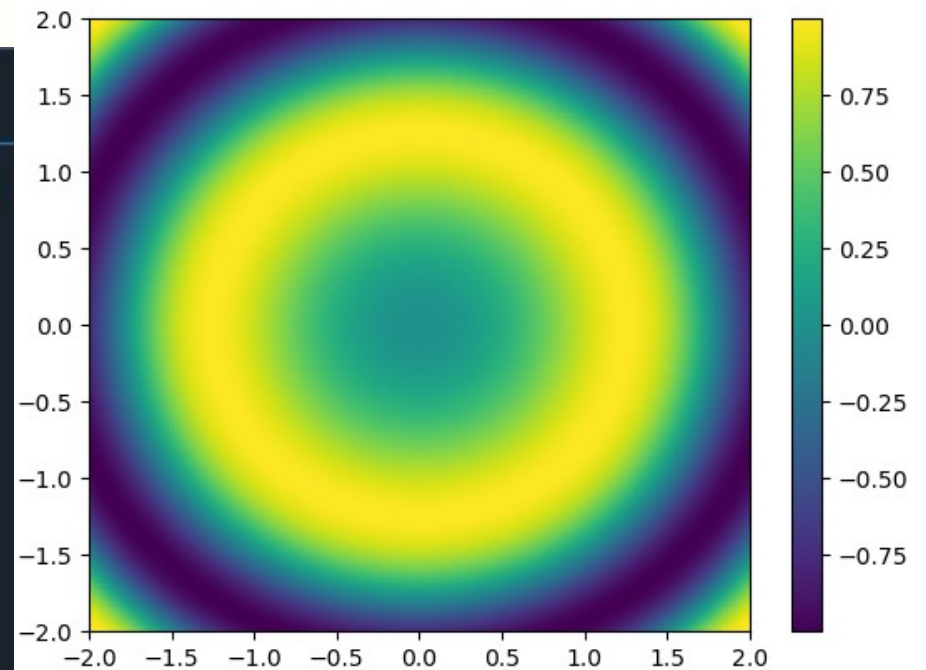
```
surf_plot.py ×  
1 import matplotlib.pyplot as plt  
2 import numpy as np  
3  
4 x=np.linspace(-2, 2, 100)  
5 y=np.linspace(-2, 2, 100)  
6  
7 x,y=np.meshgrid(x,y)  
8  
9 z=np.sin(x**2+y**2)  
10  
11 fig1=plt.figure()  
12 fig_surf=fig1.add_subplot(projection='3d')  
13 h=fig_surf.plot_surface(x,y,z, cmap='jet')  
14 fig_surf.set_xlabel('x')  
15 fig_surf.set_ylabel('y')  
16 fig_surf.set_zlabel('z')
```



PCOLORMESH

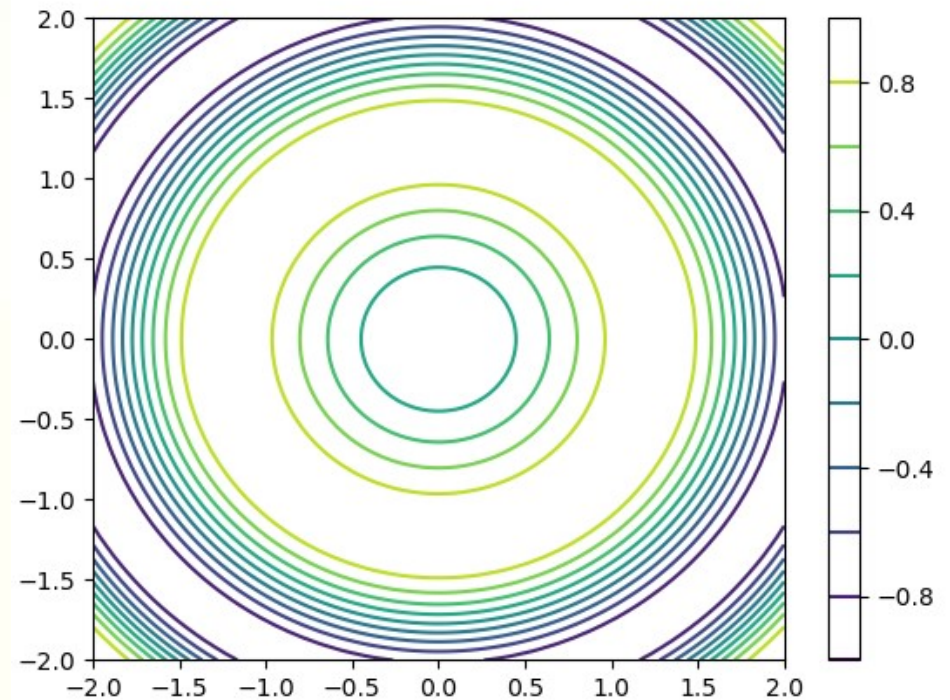
pcolormesh_plot.py ×

```
1  import matplotlib.pyplot as plt
2  import numpy as np
3
4  x=np.linspace(-2, 2, 100)
5  y=np.linspace(-2, 2, 100)
6
7  x,y=np.meshgrid(x,y)
8
9  z=np.sin(x**2+y**2)
10
11 fig1=plt.figure()
12 plt.pcolormesh(x,y,z, shading='gouraud')
13 plt.colorbar()
```



CONTOUR

```
contour_plot.py x
1  import matplotlib.pyplot as plt
2  import numpy as np
3
4  x=np.linspace(-2, 2, 100)
5  y=np.linspace(-2, 2, 100)
6
7  x,y=np.meshgrid(x,y)
8
9  z=np.sin(x**2+y**2)
10
11 fig1=plt.figure()
12 plt.contour(x,y,z,10)
13 plt.colorbar()
```

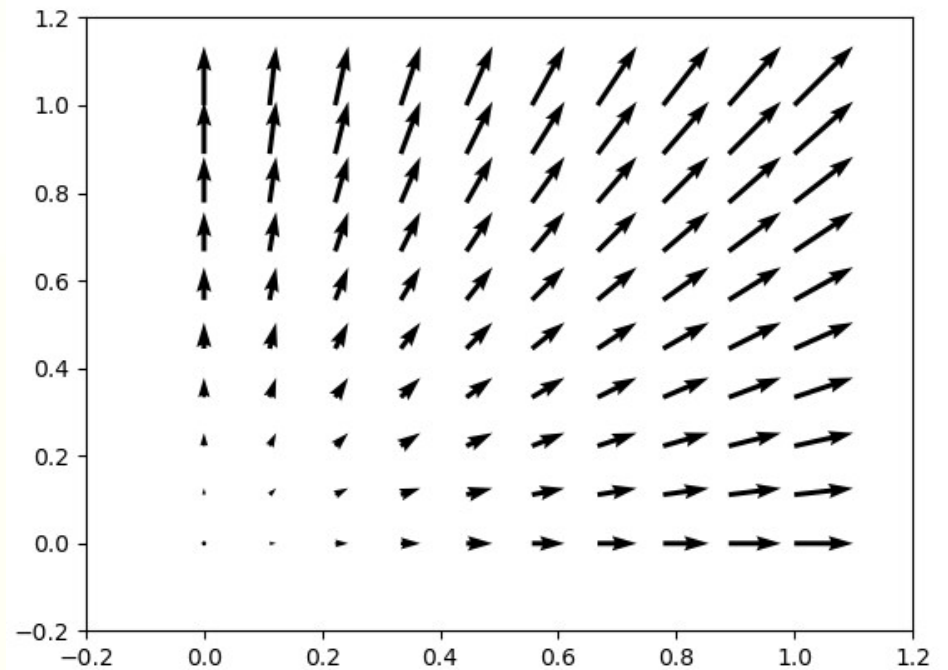


QUIVER



quiver_plot.py x

```
1 import matplotlib.pyplot as plt
2 import numpy as np
3
4 x=np.linspace(0, 1, 10)
5 y=np.linspace(0, 1, 10)
6
7 x,y=np.meshgrid(x,y)
8
9 Ex=x
10 Ey=y
11
12 fig1=plt.figure()
13 plt.quiver(x,y,Ex,Ey)
14 plt.xlim(-0.2,1.2)
15 plt.ylim(-0.2,1.2)
16 plt.xlabel('x')
17 plt.ylabel('y')
```



Подешавања

```
quiver_plot.py x
1 import matplotlib.pyplot as plt
2 import numpy as np
3
4 x=np.linspace(0, 1, 10)
5 y=np.linspace(0, 1, 10)
6
7 x,y=np.meshgrid(x,y)
8
9 Ex=x
10 Ey=y
11
12 fig1=plt.figure()
13 plt.quiver(x,y,Ex,Ey)
14 plt.xlim(-0.2,1.2)
15 plt.ylim(-0.2,1.2)
16 plt.xlabel('x')
17 plt.ylabel('y')
18
19 plt.title('Naslov')
20 plt.gca().set_aspect('equal', adjustable='box')
21
22 E=(Ex**2+Ey**2)**0.5
23
24 plt.quiver(x,y,Ex,Ey,E)
25 plt.colorbar()
26 plt.grid()
```

