

```
#!/usr/bin/env python
# coding: utf-8
```

```
# In[1]:
```

```
print ("Hello world");
```

```
# In[2]:
```

```
import numpy as np
x = np.array([[1, 2, 3], [4, 5, 6]])
print("x:\n{}".format(x))
```

```
# In[5]:
```

```
import numpy as np
np.zeros((2,2))
```

```
# In[9]:
```

```
np.zeros((2,2),dtype=np.int)
```

```
# In[12]:
```

```
np.arange(5)
```

```
# In[14]:
```

```
b=np.eye(2,dtype=int)
b
```

```
# In[16]:
```

```
b=np.eye(4,5)
b
```

```
# In[17]:
```

```
from scipy import sparse
eye = np.eye(4)
print("NumPy array:\n{}".format(eye))
```

```
# In[18]:
```

```
sparse_matrix = sparse.csr_matrix(eye)
print("\nSciPy sparse CSR matrix:\n{}".format(sparse_matrix))
```

```
# In[19]:
```

```
data = np.ones(4)
row_indices = np.arange(4)
col_indices = np.arange(4)
eye_coo = sparse.coo_matrix((data, (row_indices, col_indices)))
print("COO representation:\n{}".format(eye_coo))
```

```
# In[20]:
```

```
get_ipython().run_line_magic('matplotlib', 'inline')
import matplotlib.pyplot as plt
x = np.linspace(-10, 10, 100)
y = np.sin(x)
plt.plot(x, y, marker="x")
```

```
# In[21]:
```

```
get_ipython().run_line_magic('matplotlib', 'inline')
import matplotlib.pyplot as plt
x=[2,3,1,6,7]
y=[4,6,8,3,5]
plt.plot(x,y)
plt.show()
```

```
# In[22]:
```

```
import pandas as pd
from IPython.display import display
data = {'Name': ["John", "Anna", "Peter", "Linda"],
        'Location': ["New York", "Paris", "Berlin", "London"],
        'Age' : [24, 13, 53, 33]}
data_pandas = pd.DataFrame(data)
display(data_pandas)
```

```
# In[23]:
```

```
display(data_pandas[data_pandas.Age > 30])
```

```
# In[25]:
```

```
display(data_pandas[data_pandas.Name == 'Peter'])
```