SPRAWOZDANIE

PODSTAWY SZTUCZNEJ INTELIGENCJI W JĘZYKU PYTHON

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Nr Laboratorium: 1

Data: 12.10.2022r.

Zadanie 1

LAB1-Z1.py U LAB1-Z2 U

LAB1-Z1.py > ...

```python
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
data=pd.read_excel('practice_lab_1.xlsx')
#ZAD-2.1
cols = data.columns
values = data.values
arr1= values[::2,:]
arr2= values[1::2,:]
arr = arr1-arr2
#ZAD-2.2
srednia = values.mean()
odch = values.std()
array3 = (values - srednia ) / odch
#ZAD-2.3
srednia2 = values.mean(axis=0)
odch2 = values.mean(axis=0)
array4 = (values - srednia2) / (odch2+ np.spacing(odch2))
```

```python
#ZAD-2.4
array5 = (srednia2) / (odch2 + np.spacing(odch2))
#ZAD-2.5
array6 = np.argmax(array5)
#ZAD-2.6
array7 = (values > values.mean(axis=0)).sum(axis=0)
#ZAD-2.7
max_array = values.max()
max_cols = values.max(axis=0)
cols = np.array(cols)
cols[max_array==max_cols]
#ZAD-2.8
maska = values == 0
tab_zero = np.sum(maska, axis=0)
max_tabzero = max(tab_zero)
cols = np.array(cols)
print(cols[tab_zero == max_tabzero])
```

```
36  #ZAD-2.9
37  suma_parz = np.sum(arr1, axis=0)
38  suma_nieparz = np.sum(arr2, axis =0)
39  tablica = suma_parz > suma_nieparz
40  cols = np.array(cols)
41  array9 = cols[tablica]
42
```

Zadanie 2

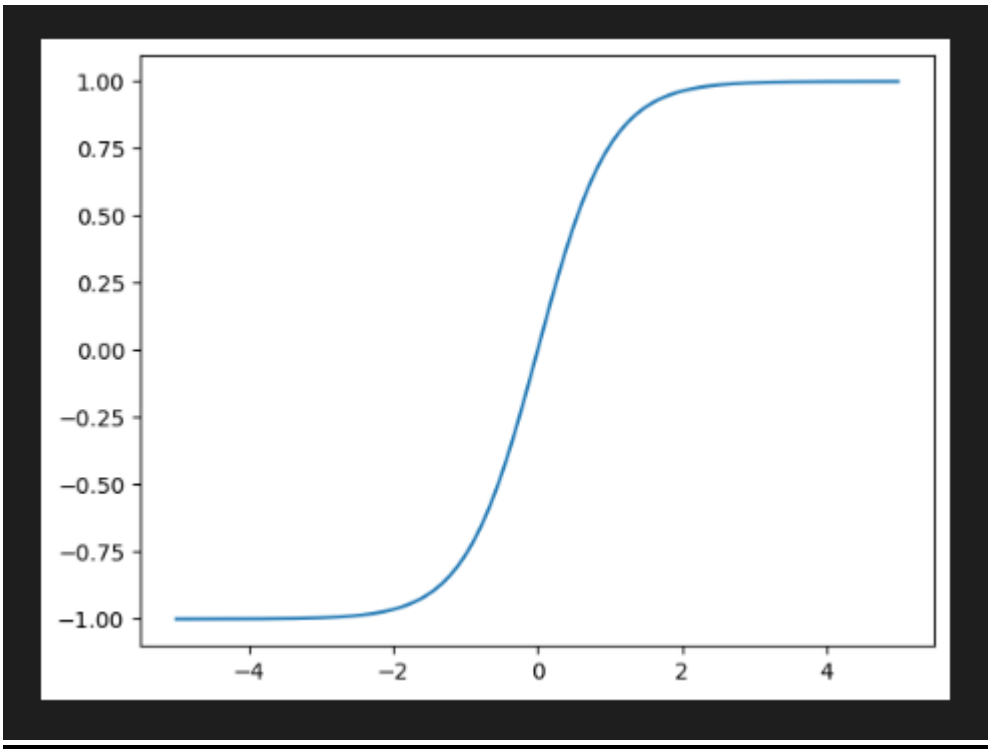
LAB1-Z2

```
1   #%%
2   import numpy as np
3   import matplotlib.pyplot as plt
4   x = np.arange(-5,5,0.01) #Zakres i krok
5
6
7   #%% ZAD 3.1
8   y = np.tanh(x)
9   plt.plot(x,y)
10
11  #%% ZAD-3.2
12  y = (np.exp(x)-np.exp(-x))/(np.exp(x) + np.exp(-x))
13  plt.plot(x,y)
14
15  #%% ZAD-3.3
16  y=(1)/(1+np.exp(-x))
17  plt.plot(x,y)
```

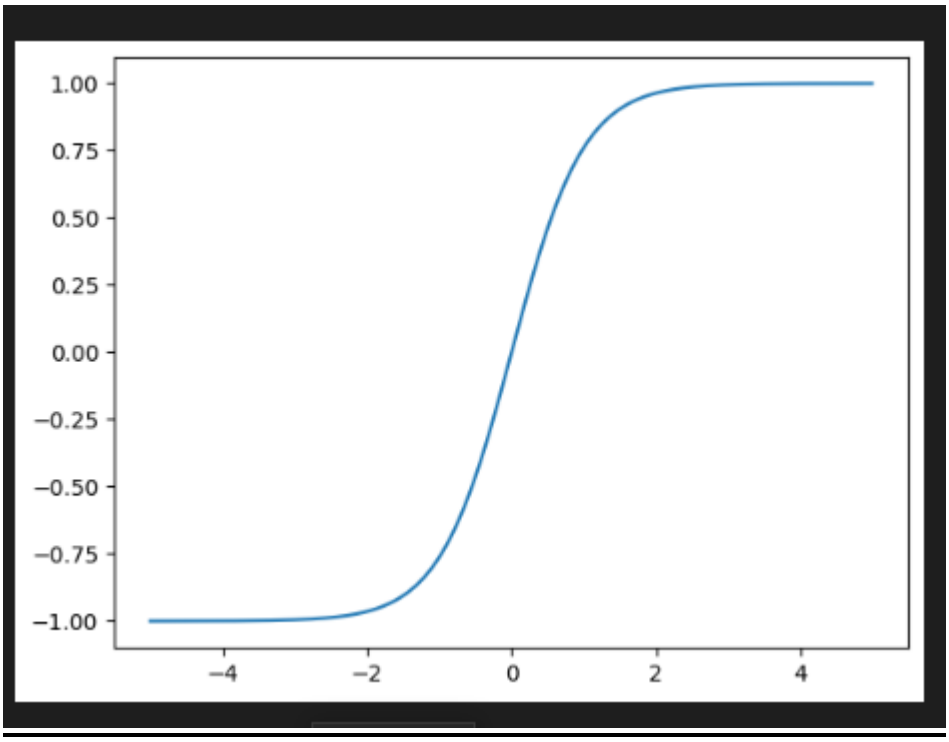
```
14
15  #%% ZAD-3.3
16  y=(1)/(1+np.exp(-x))
17  plt.plot(x,y)
18
19  #%% ZAD-3.4
20  y=np.where(x<=0, 0, x)
21  plt.plot(x,y)
22
23  #%% ZAD-3.5
24  y = np.where(x<=0, np.exp(x)-1,x)
25  plt.plot(x,y)
26  # %%
```

Wykresy do zadania 2:

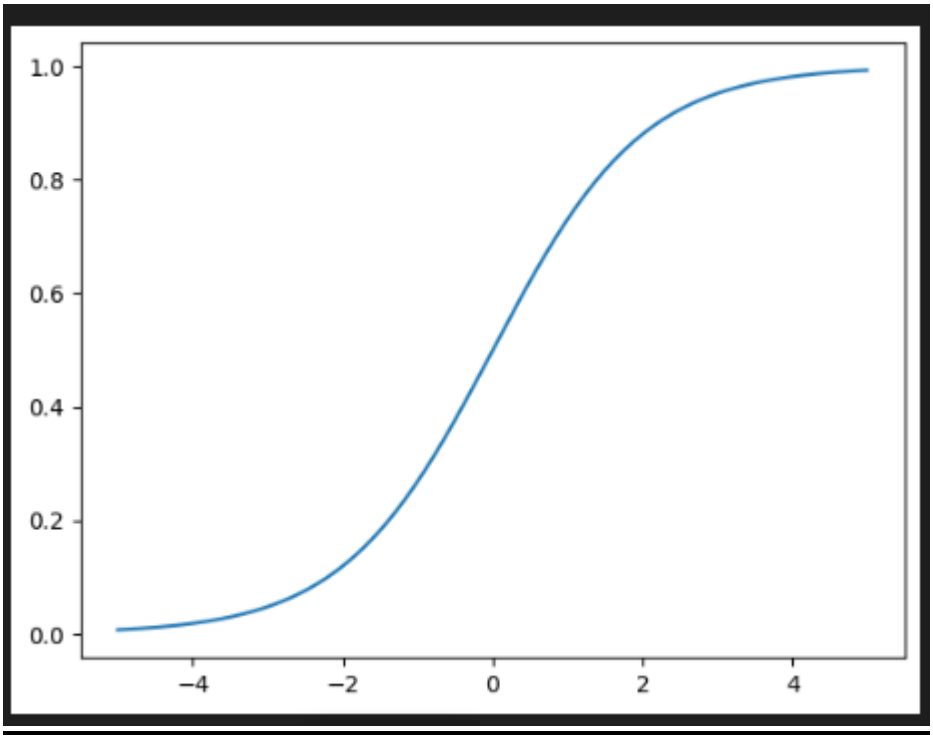
1:



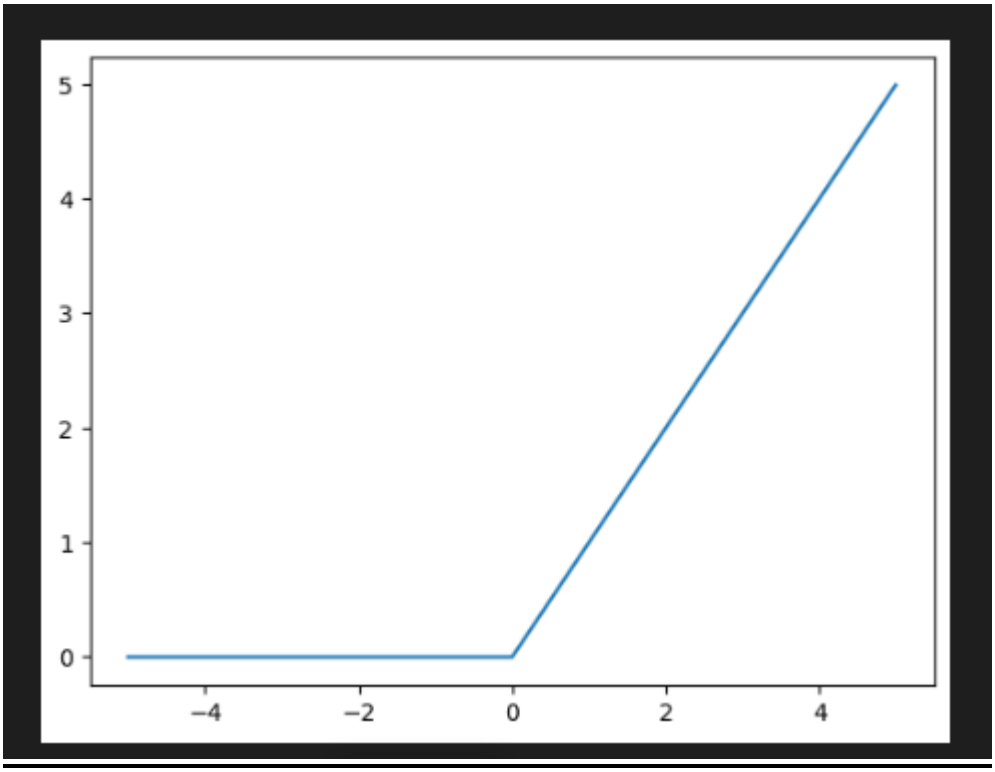
2:



3.



4.



5.