Prac4

import numpy as np

import matplotlib.pyplot as plt

from sklearn.linear\_model import Perceptron

import numpy as np

import matplotlib.pyplot as plt

from sklearn.linear\_model import Perceptron

y = (x1 < x2).astype(int)

perceptron =Perceptron(max\_iter = 1000, tol = 1e-3)

perceptron.fit(x,y)

x\_vals = np.linspace(0, 11, 100)

y\_vals = np.linspace(0, 11, 100)

xx, yy = np.meshgrid(x\_vals, y\_vals)

z = perceptron.predict(np.c\_[xx.ravel(), yy.ravel()])

z = z.reshape(xx.shape)

plt.contourf(xx, yy, z, alpha = 0.3 , cmap = "coolwarm")

plt.scatter(x1[y ==1], x2[y==1], color='blue', label= "Rider A gets order(1)")

plt.scatter(x1[y ==1], x2[y==1], color='blue', label= "Rider b gets order(0)")

plt.xlabel("Rider A's distance")

plt.ylabel("Rider B's distance")

plt.legend()

plt.title("Perceptron decision region for order assignment")

plt.show()