Ministerul Educaţiei, al Culturii și Cercetării al Republicii Moldova

Universitatea Tehnică a Moldovei

Departamentul Informatică și Ingineria Sistemelor

**RAPORT**

Lucrarea de laborator nr.4-5

Inteligenta Artificiala

A efectuat:

st. gr. C-171 D. Melniciuc

A verificat:

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Chişinău 2020

Problema alesa:

Relatia dintre investitii in Research and development si venitul la 50 start-up-uri.

Codul:

import matplotlib.pyplot as plt

import numpy as np

import pandas as pd

from sklearn import datasets, linear\_model

from sklearn.model\_selection import KFold

import os

os.system('cls')

def get\_data(file\_name):

data = pd.read\_csv(file\_name)

print(data.describe())

print("\n")

x = []

y = []

for rd, value in zip(data['R&D Spend'],data['Profit']):

x.append([float(rd)])

y.append(float(value))

return x,y

# Function for Fitting our data to Linear model

def linear\_model\_main(x, y, predict\_value):

# Create linear regression object

regr = linear\_model.LinearRegression()

regr.fit(x, y)

# predict\_outcome = regr.predict(predict\_value.reshape(1, 1))

predict\_outcome = regr.predict(predict\_value)

predictions = {}

predictions['intercept'] = regr.intercept\_

predictions['coefficient'] = regr.coef\_

predictions['predicted\_value'] = predict\_outcome

return predictions

# Function to show the resutls of linear fit model

def show\_linear\_line(x, y):

# Create linear regression object

regr = linear\_model.LinearRegression()

regr.fit(x, y)

plt.xlabel("Research and development")

plt.ylabel("Profit")

plt.scatter(x, y)

plt.plot(x,regr.predict(x),color='red',linewidth=4)

# plt.xticks(())

# plt.yticks(())

plt.show()

x, y = get\_data('50\_Startups.csv')

predictvalue = [[0]]

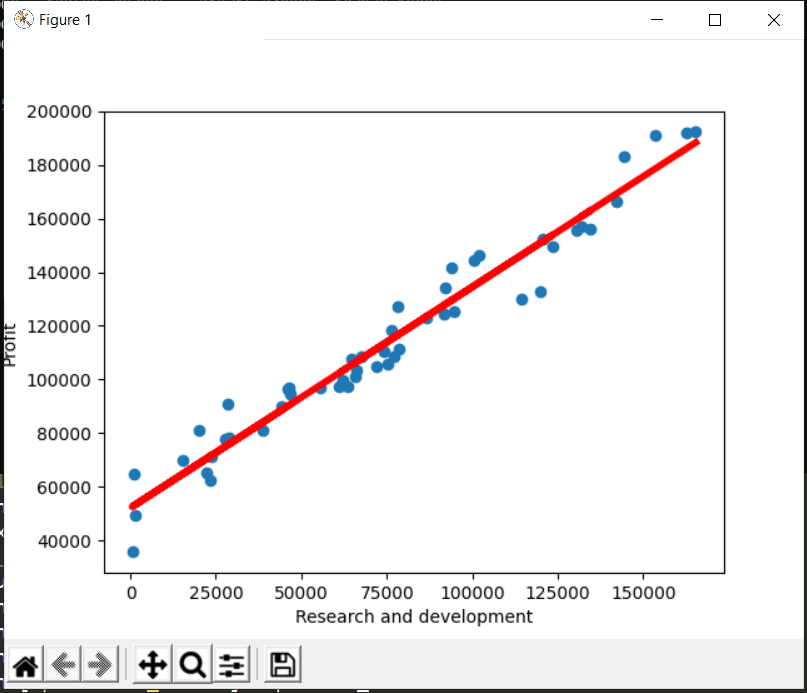
result = linear\_model\_main(x, y, predictvalue)

print ("Intercept value: " , result['intercept'])

print ("coefficient: " , result['coefficient'])

print ("Predicted value: " , result['predicted\_value'])

show\_linear\_line(x, y)

Screenshot-uri: 

Concluzie:

In urma efectuarii laboratorului am initializat un model de invatare automate asupra unui set de date.

Am aplicat regresia liniara asupra setului de date cu informatii despre 50 de start-up-uri si am aflat relatia dintre suma investita si profitul start-up-urilor.