2)b.Write a python program on Indexing, Slicing, Splitting & Iterating on Dataset.

DATASET.csv file

65.78331 ,112.9925 ,345.89 ,234.23

71.51521 ,136.4873 ,346.89, 235.23

69.39874 ,153.0269 ,347.89 ,236.23

68.2166 ,142.3354 ,348.89, 237.23

67.78781 ,144.2971 ,349.89 ,238.23

68.69784 ,123.3024, 350.89, 239.23

69.80204 ,141.4947 ,351.89 ,240.23

70.01472, 136.4623 ,352.89, 241.23

67.90265 ,112.3723 ,353.89, 242.23

66.78236, 120.6672, 354.89 ,243.23

import numpy as np

dataset =np.genfromtxt('C:/Users/JOSHITH/Desktop/DATASET1.csv',delimiter=',')

print(dataset)

print("The rows & columns on dataset:", dataset.shape)

print("---------Perform Indexing operation on Dataset------ ")

print(dataset[0]) # index single element in outermost dimension

print(dataset[-1]) # index in reversed order in outermost dimension

print(dataset[1, 1]) # index single element in two-dimensional data

print(dataset[-1, -1]) # index in reversed order in two-dimensional data

print(dataset[8,3])

print(dataset[[0,7,3,9],[1,-1,2,3]])

print(dataset[0,3]+dataset[2,-1])

print(dataset[dataset>70])#booloean operation

print("---------Perform Slicing operation on Dataset------ ")

print(dataset[1:3]) # rows 1 and 2

print(dataset[:2, :2]) # 2x2 subset of the data

print(dataset[-1, ::-1]) # last row with elements reversed

print(dataset[-5:-1, :6:2])# last 4 rows,every other element up to index 6

print("---------Perform Splitting operation on Dataset------ ")

print("-----------Horizontal splitting-----------")

print(np.hsplit(dataset,2)) # split horizontally in 3 equal lists

print("-----------vertical splitting-----------")

print(np.vsplit(dataset, 2)) # split vertically in 2 equal lists

print("---------Perform Iterating operation on Dataset------ ")

print("----------using nditer()--------")

for x in np.nditer(dataset):

print(x)

print("----------using ndenumerate()--------")

for idx,x in np.ndenumerate(dataset):

print(idx,x)

Output:

[[ 65.78331 112.9925 345.89 234.23 ]

[ 71.51521 136.4873 346.89 235.23 ]

[ 69.39874 153.0269 347.89 236.23 ]

[ 68.2166 142.3354 348.89 237.23 ]

[ 67.78781 144.2971 349.89 238.23 ]

[ 68.69784 123.3024 350.89 239.23 ]

[ 69.80204 141.4947 351.89 240.23 ]

[ 70.01472 136.4623 352.89 241.23 ]

[ 67.90265 112.3723 353.89 242.23 ]

[ 66.78236 120.6672 354.89 243.23 ]]

The rows & columns on dataset: (10, 4)

---------Perform Indexing operation on Dataset------

[ 65.78331 112.9925 345.89 234.23 ]

[ 66.78236 120.6672 354.89 243.23 ]

136.4873

243.23

242.23

[112.9925 241.23 348.89 243.23 ]

470.46

[112.9925 345.89 234.23 71.51521 136.4873 346.89 235.23

153.0269 347.89 236.23 142.3354 348.89 237.23 144.2971

349.89 238.23 123.3024 350.89 239.23 141.4947 351.89

240.23 70.01472 136.4623 352.89 241.23 112.3723 353.89

242.23 120.6672 354.89 243.23 ]

---------Perform Slicing operation on Dataset------

[[ 71.51521 136.4873 346.89 235.23 ]

[ 69.39874 153.0269 347.89 236.23 ]]

[[ 65.78331 112.9925 ]

[ 71.51521 136.4873 ]]

[243.23 354.89 120.6672 66.78236]

[[ 68.69784 350.89 ]

[ 69.80204 351.89 ]

[ 70.01472 352.89 ]

[ 67.90265 353.89 ]]

---------Perform Splitting operation on Dataset------

-----------Horizontal splitting-----------

[array([[ 65.78331, 112.9925 ],

[ 71.51521, 136.4873 ],

[ 69.39874, 153.0269 ],

[ 68.2166 , 142.3354 ],

[ 67.78781, 144.2971 ],

[ 68.69784, 123.3024 ],

[ 69.80204, 141.4947 ],

[ 70.01472, 136.4623 ],

[ 67.90265, 112.3723 ],

[ 66.78236, 120.6672 ]]), array([[345.89, 234.23],

[346.89, 235.23],

[347.89, 236.23],

[348.89, 237.23],

[349.89, 238.23],

[350.89, 239.23],

[351.89, 240.23],

[352.89, 241.23],

[353.89, 242.23],

[354.89, 243.23]])]

-----------vertical splitting-----------

[array([[ 65.78331, 112.9925 , 345.89 , 234.23 ],

[ 71.51521, 136.4873 , 346.89 , 235.23 ],

[ 69.39874, 153.0269 , 347.89 , 236.23 ],

[ 68.2166 , 142.3354 , 348.89 , 237.23 ],

[ 67.78781, 144.2971 , 349.89 , 238.23 ]]), array([[ 68.69784, 123.3024 , 350.89 , 239.23 ],

[ 69.80204, 141.4947 , 351.89 , 240.23 ],

[ 70.01472, 136.4623 , 352.89 , 241.23 ],

[ 67.90265, 112.3723 , 353.89 , 242.23 ],

[ 66.78236, 120.6672 , 354.89 , 243.23 ]])]

---------Perform Iterating operation on Dataset------

----------using nditer()--------

65.78331

112.9925

345.89

234.23

71.51521

136.4873

346.89

235.23

69.39874

153.0269

347.89

236.23

68.2166

142.3354

348.89

237.23

67.78781

144.2971

349.89

238.23

68.69784

123.3024

350.89

239.23

69.80204

141.4947

351.89

240.23

70.01472

136.4623

352.89

241.23

67.90265

112.3723

353.89

242.23

66.78236

120.6672

354.89

243.23

----------using ndenumerate()--------

(0, 0) 65.78331

(0, 1) 112.9925

(0, 2) 345.89

(0, 3) 234.23

(1, 0) 71.51521

(1, 1) 136.4873

(1, 2) 346.89

(1, 3) 235.23

(2, 0) 69.39874

(2, 1) 153.0269

(2, 2) 347.89

(2, 3) 236.23

(3, 0) 68.2166

(3, 1) 142.3354

(3, 2) 348.89

(3, 3) 237.23

(4, 0) 67.78781

(4, 1) 144.2971

(4, 2) 349.89

(4, 3) 238.23

(5, 0) 68.69784

(5, 1) 123.3024

(5, 2) 350.89

(5, 3) 239.23

(6, 0) 69.80204

(6, 1) 141.4947

(6, 2) 351.89

(6, 3) 240.23

(7, 0) 70.01472

(7, 1) 136.4623

(7, 2) 352.89

(7, 3) 241.23

(8, 0) 67.90265

(8, 1) 112.3723

(8, 2) 353.89

(8, 3) 242.23

(9, 0) 66.78236

(9, 1) 120.6672

(9, 2) 354.89

(9, 3) 243.23