outfut: Eller world Con State Jo Harman " ) Total of the 2 5000 -15000trains what tretion to 10000the Estimon - wet = x & 80 = ale to hitman we ( work ut the suborn for the 117) ellet the rumler of dustern to two trans Atres curtison or you

EXP. NO : 7 Clustering 16/9/25 To write a python program for clustering using python and import necessary dataset. Code: import pondos as pd import mathlottle pyhlot as pl from sblown clusters import knows from sbleam proprocessing import strandar Scalar import Sealson as ins of = pd. good - cer (' Mall - customers. csv') Kmeans = Kmeans (n - clusters = 5, grandon - state = 4= of I' clusters ' ] = k means. fit - predicised ( of [ " Annual Income (K\$)) distortions = [] for i in vange (1, 11): Km = kmeans (n-clusters = i) km. fit ( of [ annual income ( K & ) ! Spending Score (1-100)]] edistortion offerd (km unertia\_) plt. plot ( singe 1, 11), distortion, markon = 10') pet title ( Elsow method ) plt . Xlobel (inertia) filt. glabel ( NO. of. Clusters)

used to higher program 1-100 presence trappic has religible Chuster by work elistical transfine inford & willfullities of trooping marity the fine porteals in right in more ( us s. oranotus - less front = front ( k 4) ) Kinsens - Kynsona (H - chasters = 5, sentono - state of C' dutin Is Know . get - present ( If C')

import irumpy as up from sbleam melices import silhaute . score from splan. clusters import spotral clustering It load data wine = last - wine () x = pd data france ( wine data , column z usio . Caturo - romes x-Scaled = Standard Scale (). Pit - transform (x) # Generate bose dustering base - clustering = [] for kin [3,4,5]: KM = Kmeans ( n. Cluster = k, random-state = 42 base - clustering opposed ( km fit - firedicted (x·realed)) # Apply ensemble ensemble - labels = espa - ensemble (baseelustoring) # Evalute: pourt (" Silhoutte Score: "silhouette - score()) # John Clusters. plt . figure ( fig - size = (10, 6)) plt. scatter (x-fea [1,0], X. frea [2,1], C = ensombele - labels, comp = revisitis, plit. Title ("CSPA ensombling cluster on Wine") got show () Result: Therefore, the required program for chestering has been executed successfully.