**HW4 Data (K= 1, 2, 4, 8, 16)**

K = 1

* Centroid = [ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.321447578, 9.93560404]
* WCSS = 73636.107504
* Cluster #1
  + Mean = [0, 0, 0, 0, 0, 0, 0, 0, 0, 0.32144757849920169, 9.9356040447046308]
  + Stdev = [1.0000000000000031, 1.000000000000002, 0.99999999999999856, 1.0000000000000002, 1.0000000000000011, 0.99999999999999956, 1.0000000000000033, 1.0000000000000224, 0.99999999999997258, 0.46703215389970876, 3.2212380717605598]
* RMSE = 2.16441629043

K = 2

* Centroids
  + #1 = [-0.71696688, -0.72698104, -0.67580905, -0.74062862, -0.67616611, -0.72601942, -0.75426021, -0.22480658, -0.31146677, 0.57410468, 7.68264463]
  + #2 = [ 0.66973489, 0.67908934, 0.63128844, 0.69183785, 0.63162197, 0.67819107, 0.70457142, 0.20999688, 0.29094812, 0.08543489, 12.04014411]
* WCSS = 42434.6263608
* Cluster #1
  + Mean = [-0.71696688062211289, -0.7269810420626206, -0.67580905253796242, 0.7406286172239912, -0.67616610779903541, -0.72601941661830272, -0.75426020648856584, -0.22480658193540812, -0.3114667710545384, 0.57410468319559227, 7.6826446280991734]
  + STDEV = [0.85313371374299685, 0.84083844906065774, 0.69703954926709311, 0.56171270111326621, 0.59707651929000516, 0.56143932326273727, 0.53719829526458351, 0.90804375359261624, 0.80674863004884056, 0.49447800348294668, 1.5890817740853036]
* Cluster #2
  + Mean = [0.66973488848643115, 0.67908934191644721, 0.63128843559258974, 0.69183784882220489, 0.6316219689424849, 0.67819106596099787, 0.70457142294222697, 0.20999688430919383, 0.29094811603910825, 0.085434894493051985, 12.040144107050953]
  + STDEV = [0.57053562560960958, 0.56466077709413331, 0.80938887323436848, 0.80520342894758334, 0.8803861638184749, 0.82906627834462598, 0.79793512858930049, 1.0356594654935174, 1.0727924315647843, 0.27952776838091248, 2.9222969095931748]
* RMSE = 2.318294322

K = 4

* Centroid
  + #1 = [ 0.5069816 , 0.56489021, 0.65177682, 0.57505409, 0.2618512 , 0.48775245, 0.84368215, 0.17453959, 0.29740037, 0.09952607, 16.5971564 ]
  + #2 = [-0.07318796, -0.07968438, -0.13430602, -0.29112721, -0.25619319, -0.27977782, -0.29005345, 0.03650284, -0.03229531, 0.31883024, 9.32310984]
  + #3 = [ 0.94158366, 0.93416607, 0.83045811, 1.04158118, 1.0634222 , 1.04397664, 0.94129666, 0.2646502, 0.35190663, 0.03085299, 10.79854809]
  + #4 = [-1.38096384, -1.38956391, -1.2042279 , -1.18069102, -1.10962693, -1.15870829, -1.1859229 , -0.50057358, -0.5625313 , 0.82331731, 6.44591346]
* WCSS = 24707.3742191
* Cluster #1
  + Mean = [0.50698160306609308, 0.56489020524775013, 0.65177681968023704, 0.5750540915320963, 0.26185119873843288, 0.48775245217677671, 0.84368214905346117, 0.17453959338845307, 0.29740037347704357, 0.099526066350710901, 16.597156398104264]
  + STDEV = [0.60150776258367777, 0.61622933175248096, 0.67297503535455261, 0.83489576587823, 0.73031414908047543, 0.80510364877281271, 1.0221054156603808, 1.032725788856137, 1.0734574010038973, 0.2993670463953319, 2.5774802106326908]
* Cluster #2
  + Mean = [-0.07318795973473799, -0.079684376999973383, -0.13430602274393769, -0.29112721451275314, -0.25619319395572887, -0.27977781910432875, -0.29005344583866055, 0.036502842901955289, -0.03229531093025928, 0.31883024251069902, 9.323109843081312]
  + STDEV = [0.50650295177267868, 0.49700259271325514, 0.47139164102532194, 0.44846165491350215, 0.51104283511464321, 0.46972536895163375, 0.42286418088461669, 1.0094310877109338, 0.98631264665758944, 0.46602308845299484, 1.3955889448233314]
* Cluster #3
  + Mean = [0.94158366050504216, 0.93416606649836509, 0.83045811256129254, 1.0415811804421551, 1.0634221970450737, 1.0439766435200954, 0.94129665940550722, 0.26465020363487063, 0.35190663115625165, 0.030852994555353903, 10.798548094373865]
  + STDEV = [0.41009092469715247, 0.40773347310716185, 0.87627424159793488, 0.671007068993978, 0.78773946953390539, 0.72527937826611277, 0.62411537302388986, 1.0377951459337282, 1.0775177693242233, 0.17291930858733276, 1.3367884412337467]
* Cluster #4
  + Mean = [-1.3809638351230098, -1.3895639126704156, -1.2042279015151485, -1.1806910249121627, -1.1096269339968254, -1.1587082855690822, -1.1859229020428219, -0.50057358000492558, -0.56253129713615146, 0.82331730769230771, 6.4459134615384617]
  + STDEV = [0.67639488022155569, 0.65458507478677019, 0.534908738627072, 0.29405228276466477, 0.33136009387234677, 0.28419405540289761, 0.29479899605264054, 0.68649236780391465, 0.47766770062443176, 0.38139994565625945, 1.2430412581383499]
* RMSE = 2.103287213

K = 8

* Centroid
  + #1 = [ 1.34240587, 1.33247194, 1.31921426, 1.79456775, 1.82988455, 1.7625406 , 1.61211907, 0.30836145, 0.34131083, 0.01470588, 11.66176471]
  + #2 = [-0.3465086 , -0.34834766, -0.33706667, -0.56674345, -0.56203671, -0.55539817, -0.50831647, -0.17376057, -0.212871 , 0.50381679, 9.91030534]
  + #3 = [-0.6119885 , -0.63341246, -0.62005657, -0.76377278, -0.68640679, -0.76129881, -0.77977898, -0.27144664, -0.4443708 , 0.65817091, 7.55622189]
  + #4 = [ 0.2051069 , 0.24874393, 0.30565139, 0.09756598, -0.09069966, 0.0945577 , 0.26065972, 0.13026988, 0.28717465, 0.12559242, 13.64454976]
  + #5 = [ 0.61863568, 0.60529664, 0.44817591, 0.50758598, 0.54414349, 0.54697517, 0.43859499, -0.76004331, 1.48358422, 0, 9.55947955]
  + #6 = [ 0.723215, 0.77672827, 0.901119, 0.91191041, 0.50151721, 0.73077299, 1.28527417, 0.16940049, 0.33499644, 0.08457711, 18.63681592]
  + #7 = [-1.80641134, -1.80780781, -1.52048138, -1.37153486, -1.30374546, -1.33740451, -1.37430471, -0.57133805, -0.62141823, 0.88470067, 5.71175166]
  + #8 = [ 0.62324071, 0.6187955, 0.44906744, 0.51588798, 0.59006525, 0.52302311, 0.41277842, 1.21108281, -0.6740433, 0.0504065, 9.62113821]
* WCSS = 16061.5339709
* Cluster #1
  + Mean = [1.3424058749162124, 1.33247194418041, 1.3192142605603281, 1.7945677502486754, 1.8298845512930568, 1.7625405959101599, 1.6121190738410092, 0.30836144818088324, 0.34131083037845927, 0.014705882352941176, 11.661764705882353]
  + STDEV = [0.33834787364796631, 0.33838636769752972, 1.3479445976086311, 0.60943549319993373, 0.79573036895414695, 0.7037390872397622, 0.60501893399885376, 1.0374298974023306, 1.076945682450088, 0.12037283488047723, 1.278904564779229]
* Cluster # 2
  + Mean = [-0.34650860183536397, -0.34834765520064254, -0.33706667191568224, -0.56674345355562294, -0.56203671486229179, -0.55539816614588944, -0.50831646619400095, -0.17376056631326581, -0.21287100213703447, 0.50381679389312972, 9.9103053435114496]
  + STDEV = [0.51764416843916694, 0.50041747567743389, 0.44240686157308923, 0.37384195695663319, 0.41522894890809492, 0.37796665773192861, 0.38586630453964443, 0.93448034964493842, 0.88451011759834841, 0.499985431872147, 0.94987378746276152]
* Cluster # 3
  + Mean = [-0.61198850399900107, -0.63341246090829262, -0.62005656574594548, -0.76377278402582549, -0.6864067933624235, -0.76129881098835439, -0.77977898070936746, -0.2714466405343447, -0.44437080177521399, 0.65817091454272869, 7.5562218890554727]
  + STDEV = [0.47940752233676215, 0.46981646984373282, 0.4347459292070604, 0.33451778523639902, 0.37643317885161293, 0.33739677438184634, 0.31545686795444078, 0.88061435481930905, 0.66543086786578698, 0.47432263470418196, 0.71673263209349958]
* Cluster # 4
  + Mean = [0.2051068957867789, 0.24874392763655781, 0.30565139207841469, 0.097565980962607643, -0.0906996583514669, 0.094557704651647992, 0.2606597245666889, 0.13026987710036264, 0.28717465063698783, 0.12559241706161137, 13.644549763033176]
  + STDEV = [0.48557850907773809, 0.48793925083152989, 0.57592144675323709, 0.52720835948740108, 0.50504051643631065, 0.54302695484914187, 0.58036337530095838, 1.0273348906501902, 1.0723853564846944, 0.33138944134995257, 1.2493433957521136]
* Cluster # 5
  + Mean = [0.61863567594575197, 0.60529663661722177, 0.44817590564701032, 0.50758598249223863, 0.54414348624782216, 0.54697517346532176, 0.43859498806221159, -0.7600433060267886, 1.4835842229235068, 0.0, 9.5594795539033459]
  + STDEV = [0.38108070571663744, 0.37829657246392862, 0.44896825473288954, 0.46494479381947257, 0.51675820200275102, 0.53553990743579205, 0.4766382751836768, 1.1102230246251565e-16, 0.0, 0.0, 1.0962903434948015]
* Cluster # 6
  + Mean = [0.72321499669962208, 0.77672826649735982, 0.90111900407511503, 0.91191041478374157, 0.50151720726797455, 0.73077298611992358, 1.2852741718327549, 0.1694004886783928, 0.33499643904321857, 0.0845771144278607, 18.636815920398011]
  + STDEV = [0.57183429836220168, 0.59512960817783578, 0.61989453164910668, 0.86818159825698182, 0.76828993107785959, 0.84895498367534183, 1.1084757459011128, 1.0321988406324756, 1.076555021119435, 0.27825137222108587, 2.3249539258143326]
* Cluster # 7
  + Mean = [-1.8064113386743947, -1.8078078069498886, -1.5204813830247421, -1.3715348633853524, -1.3037454588061403, -1.3374045143693836, -1.3743047077540571, -0.57133805073816102, -0.62141823488308467, 0.88470066518847001, 5.7117516629711753]
  + STDEV = [0.5667158410224713, 0.53549972481276253, 0.45094726799208623, 0.17604349974333003, 0.22317671370455644, 0.17301836967854584, 0.21245404200533097, 0.5967384131555985, 0.33283011234606585, 0.31938283955708807, 1.0866328677738875]
* Cluster # 8
  + Mean = [0.62324071184105034, 0.6187955010331162, 0.44906744077354455, 0.51588798210087716, 0.5900652452107874, 0.52302311294857329, 0.41277842378364993, 1.2110828077523084, -0.67404329632824933, 0.050406504065040651, 9.6211382113821138]
  + STDEV = [0.34312680092238473, 0.34655514467950044, 0.4213431513292103, 0.42403080778539026, 0.4990001348929004, 0.49434699134261001, 0.42685003074825018, 0.45413903724799048, 2.2204460492503131e-16, 0.21878228541859071, 1.068944622940718]
* RMSE = 2.24223245987

K = 16

* Centroids
  + #1 = [ 0.41460895, 0.44571075, 0.50242684, 0.38789495, 0.1585249 , 0.36257415, 0.57661174, 1.01641919, -0.6740433 , 0.14418605, 14.57674419]
  + #2 = [ -0.3876885 , -0.3618681 , -0.24570022, -0.54816482, -0.62922253, -0.52226459, -0.43655624, -0.16222506, 0.44792301, 0.192, 11.8 ]
  + #3 = [ 0.71152324, 0.75887438, 0.88976445, 0.91650724, 0.48711405, 0.70724462, 1.30659704, 0.18053445, 0.32048814, 0.0859375 , 19.7890625 ]
  + #4 = [-0.29271597, -0.33191979, -0.39935204, -0.58917932, -0.52039524, -0.600934 , -0.58122919, -0.76004331, -0.6740433 , 1 , 8.24836601]
  + #5 = [-1.00669795, -1.02673931, -0.93025531, -1.03027431, -0.94874273, -1.02053119, -1.06327278, -0.56368784, -0.57199335, 0.85810811, 5.89189189]
  + #6 = [-2.67358169, -2.61591131, -2.1506056 , -1.59486578, -1.53134494, -1.54902418, -1.61374021, -0.59398268, -0.6740433 , 0.92, 3.98666667]
  + #7 = [ 1.64913665e-01, 1.64091833e-01, 6.42475016e-02, -1.64097948e-02, 3.78519512e-02, 7.86141201e-03, -6.01378346e-02, -7.60043306e-01, 1.48358422, 0.00000000, 8.75637394]
  + #8 = [ 0.38635521, 0.37239928, 0.19622876, 0.20280844, 0.30099201, 0.20801248, 0.08363992, 1.3157145 , -0.6740433 , 0, 8.75]
  + #9 = [-0.78208234, -0.77100646, -0.67556357, -0.83952259, -0.80137385, -0.81109068, -0.82477139, 1.3157145 , -0.6740433 , 0, 8.57268722]
  + #10 = [ 1.54839087, 1.52175829, 1.4957016 , 2.27758882, 2.40005734, 2.22714833, 1.96839755, 0.75469888, -0.12005785, 0.01351351, 11.62837838]
  + #11 = [ 8.32151937e-01, 8.35581588e-01, 6.92463637e-01, 0.28576901e-01, 8.73325319e-01, 8.28998745e-01, 7.36715766e-01, 1.30421446, -6.74043296e-01, 5.54016620e-03, 1.05207756e+01]
  + #12 = [ 3.30492209e-01, 3.05336481e-01, 1.28559424e-01, 7.95469133e-03, 5.45129226e-02, -3.47181835e-02, 5.62456557e-02, -7.60043306e-01, -6.74043296e-01, 1.00000000, 9.88068182]
  + #13 = [ 0.9542143 , 0.94075241, 0.84302087, 0.99420456, 1.0011443 , 1.03434411, 0.90228008, -0.76004331, 1.48358422, 0, 10.51948052]
  + #14 = [-1.92413023, -1.93457422, -1.60562154, -1.43248801, -1.35820799, -1.3916672 , -1.43044737, -0.49505295, -0.62813633, 0.85106383, 5.70744681]
  + #15 = [ 0.59317092, 0.6655414 , 0.71660647, 0.6304139 , 0.33240402, 0.59287655, 0.85092328, -0.76004331, 1.44573111, 0.01754386, 14.75438596]
  + #16 = [-1.13820879, -1.15261884, -1.02782757, -1.12043433, -1.05810267, -1.10103614, -1.10762875, -0.76004331, -0.46041681, 0.9009901, 7.42574257]
* WCSS = 11123.606474
* Cluster # 1
  + Mean = [0.41460894884149113, 0.44571074603581057, 0.50242684474117982, 0.38789494808163699, 0.1585248954500377, 0.36257414804517291, 0.57661174113953806, 1.0164191902717348, -0.67404329632824944, 0.14418604651162792, 14.576744186046511]
  + STDEV = [0.49017395282115328, 0.48819933814941652, 0.57664161759001087, 0.59006876612365655, 0.56654707787103764, 0.62907084172114569, 0.64474728171743134, 0.72916863403904197, 1.1102230246251565e-16, 0.35127828071626427, 1.312699545726256]
* Cluster # 2
  + Mean = [-0.38768849586313159, -0.36186810383061796, -0.24570022233801983, -0.54816482161979341, -0.62922253344146539, -0.52226459161055205, -0.43655623613917155, -0.16222505727241596, 0.44792301368266374, 0.192, 11.800000000000001]
  + STDEV = [0.44679270902362062, 0.44445119959943596, 0.48016270319991, 0.35866116365941492, 0.3379778817610235, 0.38703566229466252, 0.3988078922704657, 0.93996767985797891, 1.0779503631213216, 0.39387307600291749, 0.99196774141097954]
* Cluster # 3
  + Mean = [0.7115232389694397, 0.75887438411207409, 0.88976445413357519, 0.91650723678993606, 0.48711404506447109, 0.70724461751894729, 1.3065970371395776, 0.18053445080246527, 0.32048813832685691, 0.0859375, 19.7890625]
  + STDEV = [0.5960970842797968, 0.61667943520515767, 0.61515801001876846, 0.91090481507782284, 0.8081695596639844, 0.9139074621401444, 1.1548288705051131, 1.033307846816238, 1.0755164422990675, 0.28027173616643902, 2.163808649371231]
* Cluster # 4
  + Mean = [-0.29271597041823688, -0.33191978683611773, -0.39935204353454007, -0.5891793161127129, -0.52039523542580424, -0.6009339963225393, -0.5812291907785605, -0.7600433060267886, -0.67404329632824933, 1.0, 8.2483660130718945]
  + STDEV = [0.31606930379676812, 0.31261561144740851, 0.34030152198165609, 0.23701313967605947, 0.28601876429040346, 0.26711361440014925, 0.24145731328566081, 1.1102230246251565e-16, 2.2204460492503131e-16, 0.0, 0.75217371925834264]
* Cluster # 5
  + Mean = [-1.0066979539298075, -1.0267393083107659, -0.93025531475218581, -1.0302743107160455, -0.94874272752037647, -1.020531189275464, -1.0632727793671282, -0.56368783768591912, -0.57199334609336927, 0.85810810810810811, 5.8918918918918921]
  + STDEV = [0.36293869946323526, 0.34448968518221479, 0.3353402436743001, 0.22818532252424281, 0.26729798592969334, 0.23495999656866259, 0.19706198758767696, 0.60747915737005986, 0.45800828444702668, 0.34893922523446913, 0.31051689981286634]
* Cluster # 6
  + Mean = [-2.6735816918446837, -2.6159113059308154, -2.1506055968051045, -1.5948657751767008, -1.5313449374462964, -1.5490241847155455, -1.6137402089745894, -0.5939826813727962, -0.67404329632824944, 0.92000000000000004, 3.9866666666666668]
  + STDEV = [0.38225584560156262, 0.34676684350270953, 0.37785133517605468, 0.059829426982681615, 0.05855703129776467, 0.065503876770789976, 0.064563296616951635, 0.563138976803642, 1.1102230246251565e-16, 0.27129319932501073, 0.75707037688418077]
* Cluster # 7
  + Mean = [0.16491366497167484, 0.16409183301417266, 0.064247501601336424, -0.016409794780048306, 0.037851951217730787, 0.0078614120123415513, -0.060137834618942822, -0.76004330602678871, 1.483584222923507, 0.0, 8.7563739376770542]
  + STDEV = [0.4512921775905992, 0.43935702169694968, 0.48100264724692182, 0.45514761006243359, 0.52345050165237039, 0.47971449881982525, 0.44315056487213889, 0.0, 2.2204460492503131e-16, 0.0, 0.89861107595908019]
* Cluster # 8
  + Mean = [0.38635521335042006, 0.37239927857855232, 0.19622876269934561, 0.20280843710434499, 0.30099200571571361, 0.20801248316568591, 0.083639921488473892, 1.3157145021481167, -0.67404329632824944, 0.0, 8.75]
  + STDEV = [0.3292585766063566, 0.33170174863099017, 0.36943155552264523, 0.33142008925575578, 0.43889943987498126, 0.37554691288516567, 0.33496727796127757, 0.0, 1.1102230246251565e-16, 0.0, 0.87621168308819475]
* Cluster # 9
  + Mean = [-0.78208233509643466, -0.77100645768357501, -0.67556356969351727, -0.83952258670156732, -0.80137385077330059, -0.81109068429726972, -0.8247713864508105, 1.3157145021481171, -0.67404329632824944, 0.0, 8.572687224669604]
  + STDEV = [0.50444409015951652, 0.50447722176132914, 0.43754509421341198, 0.32144718293077296, 0.36719464409227598, 0.33230788444781278, 0.30585916209569763, 4.4408920985006262e-16, 1.1102230246251565e-16, 0.0, 1.1097300159673944]
* Cluster # 10
  + Mean = [1.5483908746346848, 1.5217582852863862, 1.495701598599223, 2.2775888194426241, 2.4000573385746566, 2.2271483255588462, 1.9683975539825715, 0.75469887831706128, -0.12005785219604188, 0.013513513513513514, 11.628378378378379]
  + STDEV = [0.29150673145831396, 0.30059089715340848, 0.72838195373982517, 0.57638221137061485, 0.80176029840297125, 0.6358993093254538, 0.63768518926407369, 0.92184273685530593, 0.94254674537351102, 0.11545951007185855, 1.3420456622382508]
* Cluster # 11
  + Mean = [0.8321519371002809, 0.83558158813605354, 0.69246363671211852, 0.82857690088394187, 0.87332531914206457, 0.82899874542045793, 0.73671576604160305, 1.3042144588895299, -0.67404329632824933, 0.0055401662049861496, 10.520775623268698]
  + STDEV = [0.30169020515770251, 0.30286809187055364, 0.38920714409598717, 0.42716913009109575, 0.51487615317213076, 0.51249935823496884, 0.43062864231969639, 0.15407483114841053, 2.2204460492503131e-16, 0.074225822753320028, 0.8713573689001104]
* Cluster # 12
  + Mean = [0.33049220908126103, 0.30533648089728954, 0.12855942395626405, 0.0079546913272099916, 0.054512922619248824, -0.034718183515684072, 0.056245655734181742, -0.7600433060267886, -0.67404329632824933, 1.0, 9.8806818181818183]
  + STDEV = [0.30782169984036706, 0.30160392040059064, 0.34822714533369492, 0.32020652110376413, 0.39899316922891653, 0.35830216622497368, 0.30656856884947903, 1.1102230246251565e-16, 2.2204460492503131e-16, 0.0, 0.91854108070469498]
* Cluster # 13
  + Mean = [0.95421430324856327, 0.94075241264777043, 0.8430208749589192, 0.99420456244720989, 1.0011443049537216, 1.0343441143110794, 0.9022800788873907, -0.7600433060267886, 1.483584222923507, 0.0, 10.519480519480519]
  + STDEV = [0.33246099804531398, 0.34442406587565988, 1.231313066791041, 0.47133174308659376, 0.55897938400596336, 0.55480857953007667, 0.50187741043982204, 1.1102230246251565e-16, 2.2204460492503131e-16, 0.0, 0.9778108282557908]
* Cluster # 14
  + Mean = [-1.9241302281366228, -1.9345742158470067, -1.6056215445545938, -1.43248801231297, -1.35820798695353, -1.3916671979438, -1.4304473745243251, -0.49505294753637519, -0.62813632783353113, 0.85106382978723405, 5.707446808510638]
  + STDEV = [0.29500440087086816, 0.27626271606438585, 0.2797951229754434, 0.089466582249638521, 0.2127937613774569, 0.10159390015215487, 0.18703003209063482, 0.69270189521515324, 0.31135620885611437, 0.35602554320598956, 0.64786709986351299]
* Cluster # 15
  + Mean = [0.593170916903205, 0.66554139877374185, 0.7166064734504326, 0.63041390025761213, 0.33240401501998584, 0.59287655482542445, 0.8509232760784019, -0.7600433060267886, 1.4457311085506692, 0.017543859649122806, 14.754385964912281]
  + STDEV = [0.54172483224398027, 0.55292784489492242, 0.64865909821430723, 0.70095236830864027, 0.63123556774570377, 0.69856290473574933, 0.85047174788520974, 1.1102230246251565e-16, 0.28326677001105505, 0.13128622409733129, 1.3457409761940426]
* Cluster # 16
  + Mean = [-1.138208794019224, -1.1526188393957206, -1.0278275672049784, -1.1204343271015913, -1.0581026684578578, -1.1010361403667979, -1.107628745854734, -0.76004330602678849, -0.46041680927362016, 0.90099009900990101, 7.4257425742574261]
  + STDEV = [0.37299073169735247, 0.36578778773167742, 0.35451474080899126, 0.18664288877728741, 0.21397913672445962, 0.18858407183827375, 0.19253781660475183, 2.2204460492503131e-16, 0.64443006706612127, 0.298675309485116, 0.65015663997552486]
* RMSE = 2.235387432984