1. (a-e)

min = 37

max = 100

Q1 = 68

Median = 77

Q3 = 87

mean = 76.6810

There are 2 Modes 83 and 72

Empirical Variance.= 173.5308

1. Jaccard coefficient = 79/(79+22+58)=0. 4969
2. Here are the minkowski distance with different h:
3. H=1 dist1= 5700
4. H=2 dist2 = 9497
5. H=infinity distInfinity = 1
6. Cosine similarity: cos = 0.8449

|  |  |
| --- | --- |
| Before Normalization | After Normalization |
| mean = 76.6810 | meanN = -7.1054e-018 |
| expVar = 173.5308 | expVarN = 1.0000 |

(b)

Corresponding score = 1.0111



X

so Cx = (XXT) =

To find the eigenvectors of Cx, we construct: det(Cx - λX)=0

We get λ=4/3 or 0

Caseλ=4/3: e1= change to unit vector is e1=

Caseλ=0: e2= hange to unit vector is e2=

So the first principal component is e1=

1. P1= e1T=

Y1 = P1\*X = (-, 0, )

Var = =

1. XOrig = e1\* Y1=\* (-, 0, )=

So L2 error is 0.