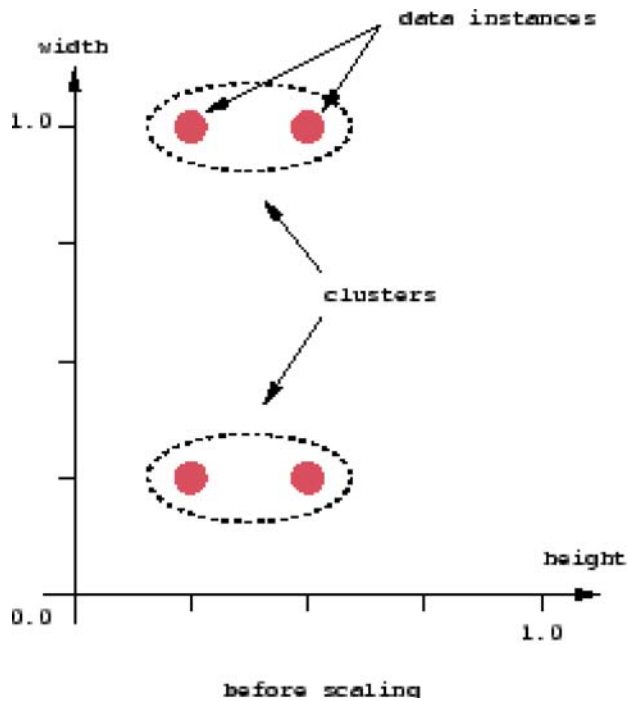
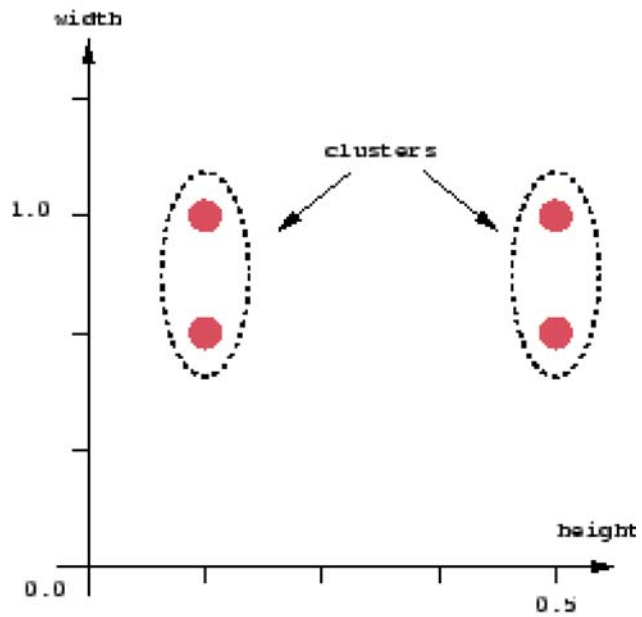
	BOS	NY	CHI	DEN	SF	SEA
BOS	0	206	963	1949	3095	2979
NY		0	802	1771	2934	2815
CHI			0	966	2142	2013
DEN				0	1235	1307
SF					0	808
SEA						0

- BOS NY CHI DEN SF SEA
- {BOS, NY} CHI DEN SF SEA
- {BOS, NY, CHI} DEN SF SEA
- {BOS, NY, CHI} DEN {SF, SEA}
- {BOS, NY, CHI, DEN} {SF, SEA, *DEN*}
- {BOS, NY, CHI, DEN, SF, SEA}



before scaling



after scaling

Minkowski Metric

$$dist(X1, X2, p) = \left(\sum_{k=1}^{len} abs(X1_k - X2_k)^p\right)^{1/p}$$

p = 1: Manhattan Distance

P = 2: Euclidean Distance

```
#Number of kinds of teeth
#C1='Right Top Incisors'
#C2='Right Bottom Incisors'
#C3='Right Top Canines'
#C4='Right Bottom Canines'
#C5='Right Top Premolars'
#C6='Right Bottom Premolars'
#C7='Right Top Molars'
   Brown Bat            23113333
   Mole                 32103333
   Silver Hair Bat      23112333
   Pigmy Bat            23112233
   House Bat            23111233
   Red Bat              13112233
   Pika                 21002233
   Rabbit               21003233
   Beaver               11002133
   Groundhog            11002133
   Marten               33114412
…
   Moose                04003333
```

6.00SC Introduction to Computer Science and Programming
Spring 2011