

## Banana database:

Attribute 1	Attribute 2	Class
2.22	-2.04	-1
-0.103	-1.71	-1
0.196	-1.71	-1
-0.508	-1.7	-1
-0.362	-1.7	-1
-0.697	-1.69	-1
-0.335	-1.69	-1
-0.129	-1.69	-1
-0.826	-1.67	-1
-0.558	-1.67	-1
-0.126	-1.67	-1
0.105	-1.67	-1
-0.0958	-1.66	-1
-0.0339	-1.66	-1
-1.01	-1.65	-1
0.0379	-1.64	-1
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0.605	1.86	1
-0.283	1.88	1
0.942	1.89	1
-0.0203	1.92	1
0.667	1.92	1
0.75	1.92	1
0.0809	1.93	1
0.101	1.93	1
-0.635	1.94	1
0.452	1.95	1
0.216	1.96	1
-0.153	1.97	1
-0.0999	1.97	1
0.168	1.97	1
-0.353	1.98	1
0.364	1.98	1
0.764	1.98	1
-6.89E-03	2	1
-0.0601	2.04	1
0.133	2.04	1
0.713	2.04	1
-0.119	2.06	1
0.0605	2.06	1
0.171	2.11	1
-0.0814	2.18	1
-0.308	2.19	1

## Attribute 1:

Membership functions:

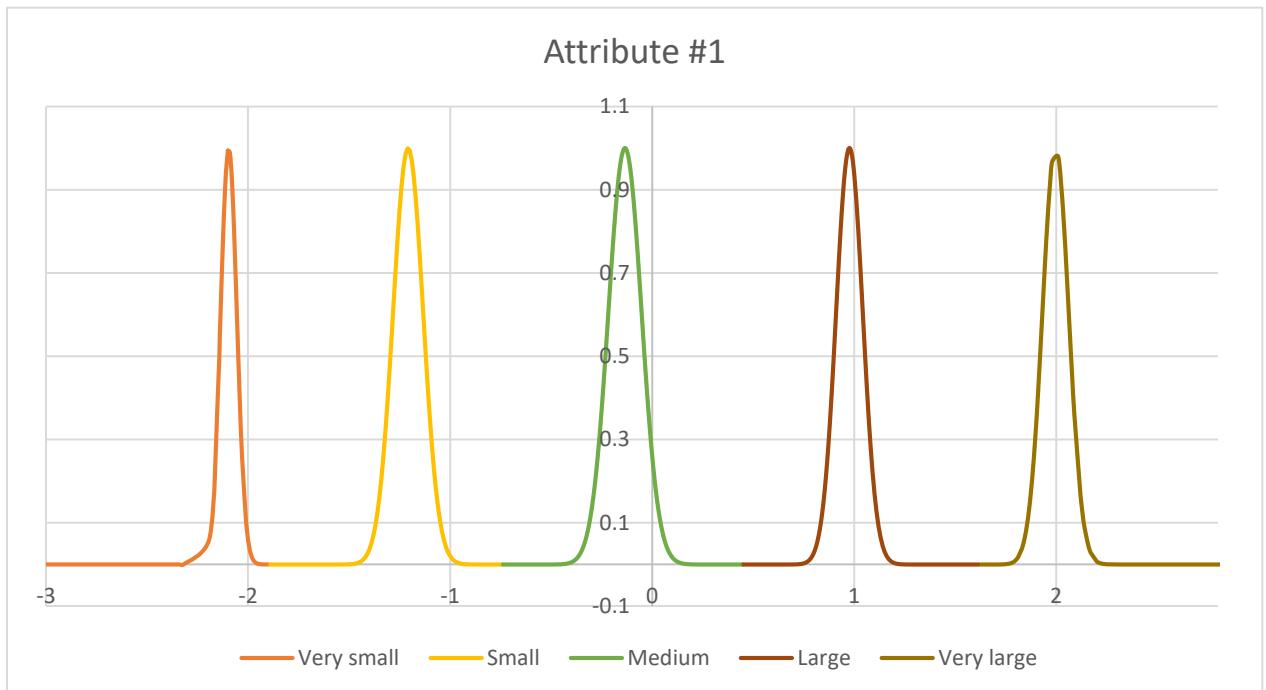
$$\text{Very small } f = e^{-\left(\frac{x+2.09603}{0.05683}\right)^2}$$

$$\text{Small } f = e^{-\left(\frac{x+1.20761}{0.105265}\right)^2}$$

$$\text{Medium } f = e^{-\left(\frac{x+0.13451}{0.116203}\right)^2}$$

$$\text{Large } f = e^{-\left(\frac{x-0.976095}{0.093193}\right)^2}$$

$$\text{Very large } f = e^{-\left(\frac{x-1.996647}{0.092057}\right)^2}$$



## Attribute 2:

Membership functions:

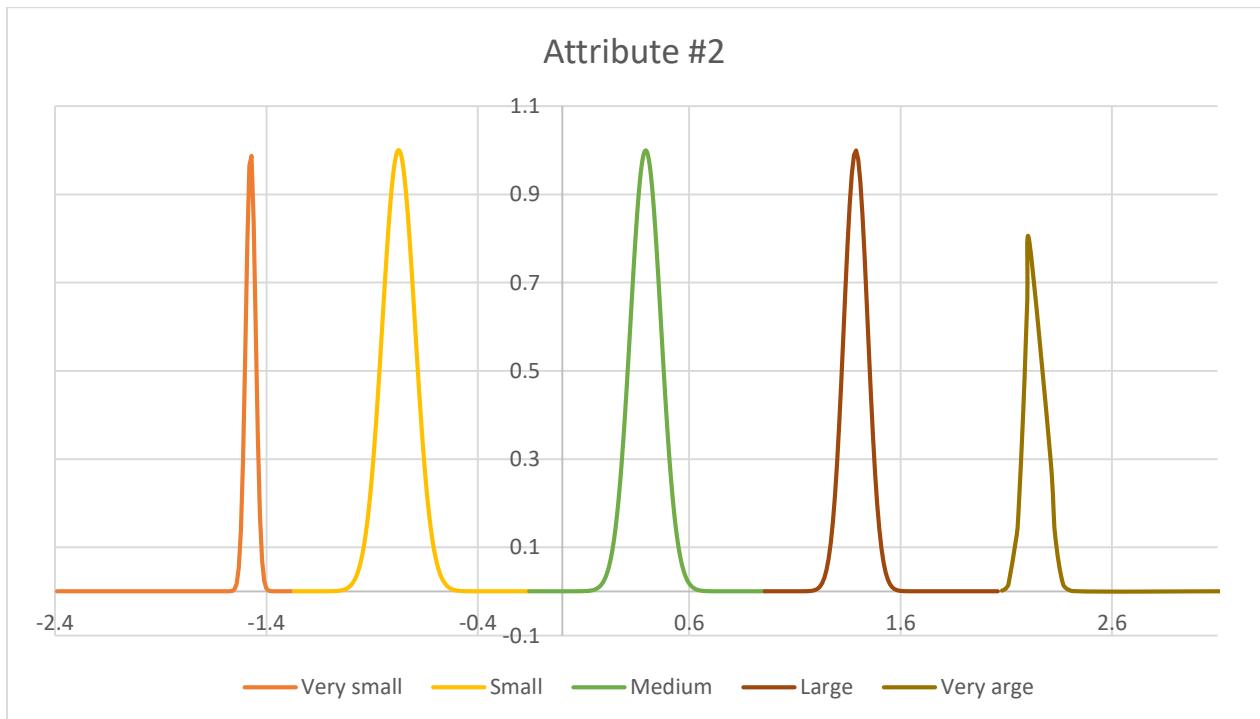
$$\text{Very small } f = e^{-\left(\frac{x+1.47377}{0.032943}\right)^2}$$

$$\text{Small } f = e^{-\left(\frac{x+0.77476}{0.108979}\right)^2}$$

$$\text{Medium } f = e^{-\left(\frac{x-0.393977}{0.102341}\right)^2}$$

$$\text{Large } f = e^{-\left(\frac{x-1.388358}{0.079547}\right)^2}$$

$$\text{Very large } f = e^{-\left(\frac{x-2.240526}{0.063172}\right)^2}$$



## Rules:

- 1) If  $x_1$  is large AND  $x_2$  is small THEN Class (-1)
- 2) If  $x_1$  is small AND  $x_2$  is large THEN Class (1)
- 3) If  $x_1$  is very large AND  $x_2$  is very small THEN Other

## Validation:

Attribute 1	Attribute 2	Class 1	Class -1	Result
0.533	0.541	1	-1	Good
-1.36	0.887	1	-1	Good
0.98	-0.832	1	-1	Good
-1.29	1.52	-1	-1	Not Good
1.08	-8.17E-04	1	-1	Good
-0.147	1.85	1	-1	Good
-0.135	0.0707	1	-1	Good
0.318	-0.87	1	-1	Good
0.632	1.74	1	-1	Good
-1.43	1.25	1	1	Not Good
-0.499	-1.31	1	-1	Good
0.296	1.51	1	-1	Good
0.416	0.1	1	-1	Good
-0.337	1.48	1	Other	Not Good
-1.3	-0.829	1	-1	Good
-0.0299	0.617	1	-1	Good
-1.78	-0.843	1	-1	Good
0.314	-1.25	1	-1	Good
-0.801	1.78	1	1	Not Good
0.0984	0.629	1	-1	Good
-1.68	-0.528	1	-1	Good
0.423	0.598	1	-1	Good
0.00295	-0.125	-1	-1	Not Good
-0.528	-1.23	1	-1	Good
0.17	-0.719	1	-1	Good
Success rate		92%	88%	80%