

**CCOD**  
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**Banana database:**

| Attribute 1 | Attribute 2 | Class |
|-------------|-------------|-------|
| 0,571       | -1,53       | -1    |
| 0,675       | -1,53       | -1    |
| -0,78       | -1,52       | -1    |
| -0,52       | -1,52       | -1    |
| -0,366      | -1,52       | -1    |
| -0,0537     | -1,52       | -1    |
| 0,666       | -1,52       | -1    |
| -0,467      | -1,51       | -1    |
| 0,238       | -1,51       | -1    |
| -0,936      | -1,5        | -1    |
| -0,347      | -1,5        | -1    |
| -0,346      | -1,5        | -1    |
| -0,107      | -1,5        | -1    |
| -0,0571     | -1,5        | -1    |
| -0,0247     | -1,5        | -1    |
| 0,294       | -1,5        | -1    |
| -0,476      | -1,49       | -1    |
| -0,35       | -1,49       | -1    |
| -0,238      | -1,49       | -1    |
| 0,136       | -1,49       | -1    |
| -0,724      | -1,48       | -1    |
| 0,1         | -1,48       | -1    |
| 0,263       | -1,48       | -1    |
| 0,33        | -1,48       | -1    |
| 0,399       | -1,48       | -1    |
| -1,25       | -1,47       | -1    |
| -1,01       | -1,47       | -1    |
| -0,269      | -1,47       | -1    |
| -0,242      | -1,47       | -1    |
| -0,769      | -1,46       | -1    |

...

|         |       |    |
|---------|-------|----|
| -0,865  | -1,1  | -1 |
| -0,712  | -1,1  | -1 |
| -0,666  | -1,1  | -1 |
| -0,652  | -1,1  | -1 |
| -0,285  | -1,1  | -1 |
| -0,134  | -1,1  | -1 |
| -0,0782 | -1,1  | -1 |
| 0,0965  | -1,1  | -1 |
| -1,03   | -1,09 | -1 |
| -0,755  | -1,09 | -1 |
| -0,734  | -1,09 | -1 |
| -0,524  | -1,09 | -1 |
| -0,506  | -1,09 | -1 |
| -0,496  | -1,09 | -1 |
| -0,278  | -1,09 | -1 |
| -0,171  | -1,09 | -1 |
| -0,104  | -1,09 | -1 |
| -0,0397 | -1,09 | -1 |
| -0,0305 | -1,09 | -1 |
| -0,0267 | -1,09 | -1 |
| -0,021  | -1,09 | -1 |
| 0,439   | -1,09 | -1 |
| -0,982  | -1,08 | -1 |
| -0,917  | -1,08 | -1 |
| -0,591  | -1,08 | -1 |
| -0,435  | -1,08 | -1 |
| -0,388  | -1,08 | -1 |
| -0,384  | -1,08 | -1 |
| -0,374  | -1,08 | -1 |
| -0,203  | -1,08 | -1 |
| -0,158  | -1,08 | -1 |
| -0,0723 | -1,08 | -1 |
| 0,126   | -1,08 | -1 |
| 0,651   | -1,08 | -1 |

## Attribute 1:

Very small

$$f = e^{-\left(\frac{x+2.096}{0.056}\right)^2}$$

Small

$$f = e^{-\left(\frac{x+1.207}{0.1052}\right)^2}$$

Medium

$$f = e^{-\left(\frac{x+0.134}{0.1162}\right)^2}$$

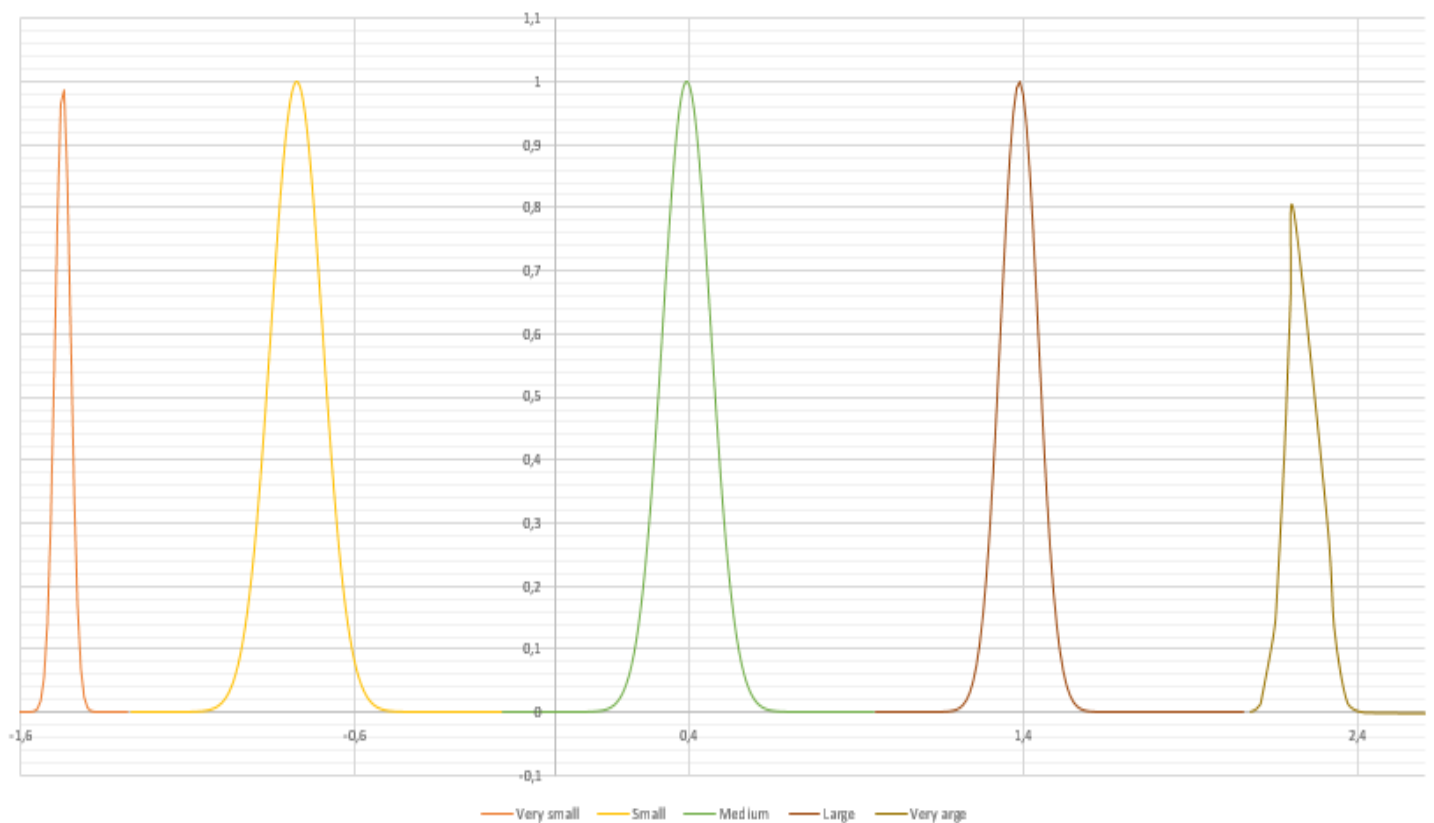
Large

$$f = e^{-\left(\frac{x-0.9760}{0.0931}\right)^2}$$

Very large

$$f = e^{-\left(\frac{x-1.9966}{0.0920}\right)^2}$$

Attribute 2



## Attribute 2:

Very small

$$f = e^{-\left(\frac{x+1.473}{0.0329}\right)^2}$$

Small

$$f = e^{-\left(\frac{x+0.774}{0.1089}\right)^2}$$

Medium

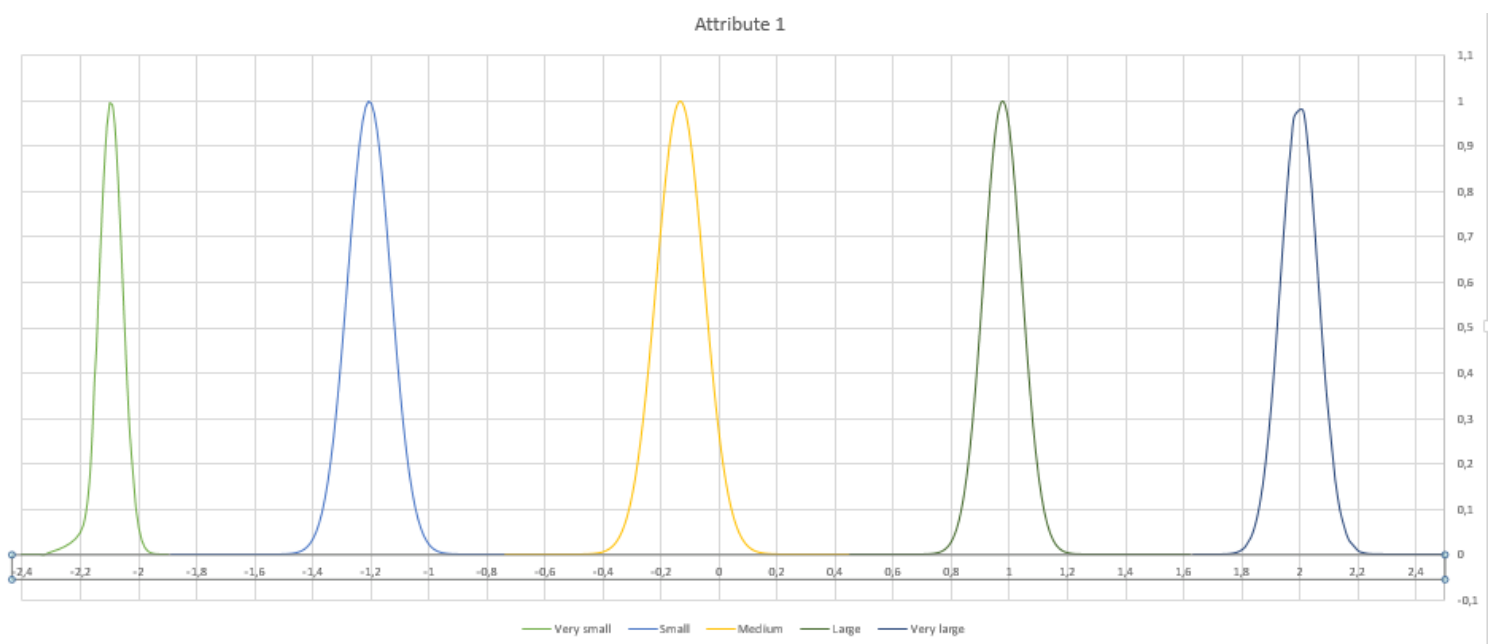
$$f = e^{-\left(\frac{x-0.3939}{0.1023}\right)^2}$$

Large

$$f = e^{-\left(\frac{x-1.3858}{0.0794}\right)^2}$$

Very large

$$f = e^{-\left(\frac{x-2.2406}{0.0631}\right)^2}$$



## Rules:

- If x1 is large AND x2 is very large THEN Class (1)
- If x1 is medium AND x2 is medium THEN Class (-1)
- If x1 is small AND x2 is very small THEN Other

## Analysis of the rules:

| Attribute 1 | Attribute 2 | Class 1 | Class -1 | Result  |
|-------------|-------------|---------|----------|---------|
| 0,341       | -1,32       | 1       | -1       | Good    |
| -0,856      | -1,31       | 1       | -1       | Good    |
| -0,547      | -1,31       | 1       | -1       | Good    |
| -0,545      | -1,31       | 1       | -1       | Good    |
| -0,499      | -1,31       | 1       | -1       | Good    |
| -0,342      | -1,31       | 1       | -1       | Good    |
| 0,0526      | -1,31       | 1       | -1       | Good    |
| 0,163       | -1,31       | 1       | -1       | Good    |
| 0,624       | -1,31       | 1       | -1       | Good    |
| -1,08       | -1,3        | 1       | -1       | Good    |
| -0,951      | -1,3        | 1       | -1       | Good    |
| -0,455      | -1,3        | 1       | -1       | Good    |
| -0,415      | -1,3        | 1       | -1       | Good    |
| -0,411      | -1,3        | 1       | -1       | Good    |
| -0,315      | -1,3        | 1       | -1       | Good    |
| -0,28       | -1,3        | 1       | -1       | Good    |
| -0,108      | -1,3        | 1       | -1       | Good    |
| -0,0693     | -1,3        | -1      | -1       | No good |
| -0,0255     | -1,3        | 1       | -1       | Good    |
| 0,121       | -1,3        | 1       | -1       | Good    |
| 0,413       | -1,3        | 1       | -1       | Good    |
| 0,484       | -1,3        | 1       | -1       | Good    |
| -1,01       | -1,29       | 1       | -1       | Good    |
| -0,687      | -1,29       | -1      | -1       | No good |
| -0,497      | -1,29       | 1       | -1       | Good    |
| 0,191       | -1,29       | 1       | -1       | Good    |
| 0,233       | -1,29       | 1       | -1       | Good    |
| -1,25       | -1,28       | 1       | -1       | Good    |
| -0,414      | -1,28       | 1       | -1       | Good    |
| -0,36       | -1,28       | 1       | -1       | Good    |
| -0,27       | -1,28       | -1      | 1        | No good |
| -0,223      | -1,28       | 1       | -1       | Good    |
| -0,0936     | -1,28       | 1       | -1       | Good    |
| -0,0189     | -1,28       | 1       | -1       | Good    |
| 0,0399      | -1,28       | 1       | -1       | Good    |
| 0,0643      | -1,28       | 1       | -1       | Good    |
| 0,087       | -1,28       | 1       | -1       | Good    |

|         |       |     |     |         |
|---------|-------|-----|-----|---------|
| 0,119   | -1,28 | 1   | -1  | Good    |
| 0,205   | -1,28 | 1   | -1  | Good    |
| 0,211   | -1,28 | 1   | -1  | Good    |
| 0,247   | -1,28 | 1   | -1  | Good    |
| 0,271   | -1,28 | 1   | -1  | Good    |
| 0,463   | -1,28 | 1   | -1  | Good    |
| -0,986  | -1,27 | 1   | -1  | Good    |
| -0,893  | -1,27 | 1   | -1  | Good    |
| -0,88   | -1,27 | 1   | -1  | Good    |
| -0,86   | -1,27 | 1   | -1  | Good    |
| -0,659  | -1,27 | 1   | 1   | No good |
| -0,581  | -1,27 | 1   | -1  | Good    |
| -0,531  | -1,27 | 1   | -1  | Good    |
| -0,392  | -1,27 | 1   | -1  | Good    |
| -0,31   | -1,27 | 1   | -1  | Good    |
| -0,261  | -1,27 | 1   | -1  | Good    |
| -0,214  | -1,27 | 1   | -1  | Good    |
| -0,139  | -1,27 | 1   | -1  | Good    |
| -0,124  | -1,27 | 1   | -1  | Good    |
| 0,0762  | -1,27 | 1   | -1  | Good    |
| -0,943  | -1,26 | 1   | -1  | Good    |
| -0,776  | -1,26 | 1   | -1  | Good    |
| -0,724  | -1,26 | 1   | -1  | Good    |
| -0,698  | -1,26 | -1  | -1  | No good |
| -0,383  | -1,26 | 1   | -1  | Good    |
| -0,298  | -1,26 | 1   | -1  | Good    |
| -0,268  | -1,26 | 1   | -1  | Good    |
| -0,139  | -1,26 | 1   | -1  | Good    |
| -0,0531 | -1,26 | 1   | -1  | Good    |
| -0,0202 | -1,26 | 1   | -1  | Good    |
| -0,016  | -1,26 | 1   | -1  | Good    |
| 0,0105  | -1,26 | 1   | -1  | Good    |
|         |       | 94% | 98% | 93%     |