# Data Mining

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## A One-Class Classification Decision Tree Based on Kernel Density Estimation

**Introduction: I**n this assignment we will be implementing an algorithm "A One-Class Classification Decision Tree Based on Kernel Density Estimation" .

**Results:**

# Letter Dataset

| | precision | recall | f1-score | support |
|---|---|---|---|---|
| A | 0.77 | 0.85 | 0.81 | 150 |
| B | 0.50 | 0.57 | 0.53 | 142 |
| C | 0.77 | 0.64 | 0.70 | 140 |
| D | 0.43 | 0.69 | 0.53 | 174 |
| E | 0.73 | 0.39 | 0.51 | 168 |
| F | 0.70 | 0.77 | 0.73 | 164 |
| G | 0.66 | 0.51 | 0.58 | 163 |
| H | 0.93 | 0.31 | 0.46 | 140 |
| I | 0.71 | 0.68 | 0.70 | 156 |
| J | 0.71 | 0.79 | 0.75 | 153 |
| K | 0.64 | 0.48 | 0.55 | 155 |
| L | 1.00 | 0.67 | 0.80 | 136 |
| M | 0.42 | 0.90 | 0.58 | 171 |
| N | 0.88 | 0.48 | 0.62 | 155 |
| O | 0.75 | 0.53 | 0.62 | 146 |
| P | 0.87 | 0.75 | 0.80 | 163 |
| Q | 0.36 | 0.68 | 0.47 | 163 |
| R | 0.75 | 0.59 | 0.66 | 140 |
| S | 0.56 | 0.42 | 0.48 | 157 |
| T | 0.89 | 0.66 | 0.76 | 160 |
| U | 0.95 | 0.70 | 0.81 | 172 |
| V | 0.84 | 0.73 | 0.78 | 158 |
| W | 0.58 | 0.92 | 0.71 | 133 |
| X | 0.45 | 0.26 | 0.33 | 155 |
| Y | 0.84 | 0.58 | 0.69 | 148 |
| Z | 0.35 | 0.77 | 0.48 | 138 |

**Pascal Dataset:**

| | precision | recall | f1-score | support |
|---|---|---|---|---|
| aeroplane | 0.31 | 0.20 | 0.24 | 51 |
| bicycle | 0.00 | 0.00 | 0.00 | 32 |
| bird | 0.26 | 0.17 | 0.21 | 46 |
| boat | 0.09 | 0.07 | 0.08 | 30 |
| bottle | 0.07 | 0.02 | 0.03 | 47 |
| bus | 0.17 | 0.29 | 0.22 | 35 |
| car | 0.28 | 0.24 | 0.26 | 79 |
| cat | 0.20 | 0.19 | 0.19 | 69 |
| chair | 0.02 | 0.01 | 0.02 | 74 |
| cow | 0.09 | 0.29 | 0.13 | 17 |
| diningtable | 0.07 | 0.09 | 0.08 | 45 |
| dog | 0.23 | 0.31 | 0.26 | 78 |
| horse | 0.08 | 0.31 | 0.13 | 35 |
| motorbike | 0.10 | 0.23 | 0.14 | 39 |
| person | 0.10 | 0.02 | 0.03 | 212 |
| pottedplant | 0.08 | 0.07 | 0.07 | 29 |
| sheep | 0.06 | 0.12 | 0.08 | 16 |
| sofa | 0.03 | 0.03 | 0.03 | 31 |
| tvmonitor | 0.03 | 0.03 | 0.03 | 35 |
| accuracy | | | 0.13 | 1000 |
| macro avg | 0.12 | 0.14 | 0.12 | 1000 |
| weighted avg | 0.13 | 0.13 | 0.12 | 1000 |