Jon Organ

CS677

Homework 11, Overall Review

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| Classifier | Accuracy | Year 2 Final Balance |
| kNN (Euclidean, best k) | 72% | $209.81 |
| kNN (Manhattan, best k) | 36% | $68.02 |
| kNN (Minkowski, best k) | 36% | $68.02 |
| Logistic Regression | 42% | $73.15 |
| Linear Separability Classifier | N/A | N/A |
| Linear Model (Degree 1) | 53.66% | $63.77 |
| Linear Model (Degree 2) | 62.79% | $164.56 |
| Linear Model (Degree 3) | 40% | $90.46 |
| Linear Regression | N/A | N/A |
| Naïve Bayesian | 76% | $299.18 |
| Linear Discriminant | 80% | $326.92 |
| Quadratic Discriminant | 82% | $352.45 |
| Decision Tree | 76% | $319.79 |
| Random Forest | 84% | $389.40 |
| SVM (Linear) | 42% | $73.15 |
| SVM (Quadratic) | 72% | N/A |
| SVM (Gaussian) | 78% | N/A |

One thing I noticed is that within variations of the same classifier (like the hyper-parameters for kNN and linear models), only one tends to effectively fit the given dataset. The other two perform worse than flipping a coin. The linear functions such as the first degree linear model and logistic regression both perform similarly.

Year 1

A graph with red and green dots

Description automatically generated

Year 2

**A graph with red and green dots

Description automatically generated**