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| Contributions | Student |
| Section | Vlad Rosca s202809 |
| Regression Part A | 100% |
| Regression Part B | 100% |
| Classification | 100% |
| Discussion | 100% |

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| --- | --- | --- | --- | --- | --- |
| Outer fold | ANN | | Linear regression | | Baseline |
| i | h i | Etesti | Lambda i | Etesti | Etesti |
| 1 | 1 | 28.29971313 | 10^1.5 | 4.37276471 | 24.79375374 |
| 2 | 1 | 25.33745193 | 10^1.5 | 5.43776526 | 20.970088 |
| 3 | 1 | 22.96499252 | 10^1.5 | 4.71770605 | 25.7258595 |
| 4 | 1 | 36.67111969 | 10^1.5 | 5.84315773 | 31.23911202 |
| 5 | 1 | 30.33005142 | 10^1.5 | 4.48172668 | 26.66884021 |

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| Models | p-value | Confidence interval | |
| ANN vs LR | 7.335603009004e-11 | 15.70499952463914 | 28.0858423112332 |
| ANN vs Base | 0.744329527928 | -2.05509523089649 | 1.47171001222644 |
| LR vs Base | 2.067156472426e-14 | -27.3903496421662 | -16.983877412376 |

In fold 1/5:

Linear regression. Test error = [4.37276471]; Optimal lambda = 31.622776601683793

ANN regression. Test error = [28.29971313]; Optimal h = 1

In fold 2/5:

Linear regression. Test error = [5.43776526]; Optimal lambda = 31.622776601683793

ANN regression. Test error = [25.33745193]; Optimal h = 1

In fold 3/5:

Linear regression. Test error = [4.71770605]; Optimal lambda = 31.622776601683793

ANN regression. Test error = [22.96499252]; Optimal h = 1

In fold 4/5:

Linear regression. Test error = [5.84315773]; Optimal lambda = 31.622776601683793

ANN regression. Test error = [36.67111969]; Optimal h = 1

In fold 5/5:

Linear regression. Test error = [4.48172668]; Optimal lambda = 31.622776601683793

ANN regression. Test error = [30.33005142]; Optimal h = 1

No features errors:

[24.79375374]

[20.970088]

[25.7258595]

[31.23911202]

[26.66884021]

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| Outer fold | Multinomial regression | | ANN | | Baseline |
| i | Lambda i | Etesti | h i | Etesti | Etesti |
| 1 | 0.001 | 0 | 100 | 0.03106 | 0.64596 |
| 2 | 0.001 | 0 | 20 | 0.03125 | 0.59375 |
| 3 | 0.001 | 0 | 100 | 0.03750 | 0.64375 |
| 4 | 0.001 | 0 | 100 | 0.04375 | 0.63750 |
| 5 | 0.001 | 0.00625 | 20 | 0.07500 | 0.60625 |

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| Models | p-value (McNemar) | Confidence interval | |
| MR vs ANN | 1.0768e-09 | 0.0280676528 | 0.0568175629 |
| MR vs Base | 6.1098e-151 | 0.5901403989 | 0.6571653001 |
| ANN vs Base | 1.8869e-126 | 0.5453750124 | 0.6170555055 |

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| Attribute (Principal Component) | Class | Coefficient |
| 1 | BRCA | -0.1137923305 |
| 1 | KIRC | 0.1414573157 |
| 2 | LUAD | -0.0654930029 |
| 2 | PRAD | 0.1097529362 |
| 3 | BRCA | -0.1826215261 |
| 3 | PRAD | 0.0856473308 |
| 4 | LUAD | -0.1325165702 |
| 6 | COAD | 0.0777634707 |
| 6 | LUAD | -0.0833559744 |
| 7 | BRCA | -0.0734525101 |

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| Attribute (Principal Component) | Coefficient |
| 1 | 5.59287009 |
| 2 | -1.47992481 |
| 4 | 1.85211944 |
| 5 | -3.21086028 |
| 7 | -1.08672680 |
| 8 | 1.38003826 |

1. PC\_1 = 5.592870097515471

2. PC\_2 = -1.4799248107121667

3. PC\_4 = 1.8521194434833788

4. PC\_5 = -3.2108602841368152

5. PC\_6 = -0.42838623457643704

6. PC\_7 = -1.0867268057420068

7. PC\_8 = 1.3800382654599261

8. PC\_26 = 0.34266288240181514

9. PC\_30 = 0.4171256313304517

10. PC\_83 = -0.30837012290579885