**ISEN 616 Project Report Reproducibility Form**

**Please certify the following statement.**

\_\_Zhaoyu Wang Chaoan LI\_\_I certify that the authors have faithfully conducted the reproducibility tasks on their own computational devices and that the following table accurately documented the filenames used, the computational times of execution, and the outcomes.

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| --- | --- |
| **Group member names** | **UIN** |
| Zhaoyu Wang | 228008634 |
| Chaoan Li |  |
|  |  |

**computer conditions:** CPU i7-11700K @ 3.60GHz; GPU NVIDIA GeForce RTX 3070

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| --- | --- | --- | --- | --- |
| **Which results to reproduce** | **Data File** | **Code File** | **Expected output** | **Run time at the above-specified computer conditions(seconds)** |
| |  | | --- | | Iris Dataset |  |  | | --- | |  | | Access online by   |  | | --- | | load\_iris() |  |  | | --- | |  | | |  | | --- | | BIBD4ML.ipynb |  |  | | --- | |  | | SVM Acc = 1 LDA Acc = 1 LR Acc = 1 | SVM: Train = 0.006293 s, Predict = 0.000768 s LDA: Train ≈ 0.021149 s, Predict ≈ 0.000412 s LR: Train ≈ 0.020065 s, Predict ≈ 0.000329 s |
| |  | | --- | | Wine Dataset |  |  | | --- | |  | | Access online by   |  | | --- | | load\_wine() |  |  | | --- | |  | | |  | | --- | | BIBD4ML.ipynb |  |  | | --- | |  | | DT Acc = 0.963 KNN Acc = 0.963 LR Acc = 0.981 | DT: Train ≈ 0.002314, Predict ≈ 0.000509  KNN: Train ≈ 0.001814, Predict ≈ 0.005310 LR: Train ≈ 0.005547, Predict ≈ 0.000362 |
| |  | | --- | | Wine Quality Dataset |  |  | | --- | |  | | Access online by  fetch\_ucirepo(id=186) | BIBD4ML.ipynb | SVM Acc = 0.558 KNN Acc = 0.546 LR Acc = 0.535 | SVM: Train ≈ 0.785880, Predict ≈ 0.382319 KNN: Train ≈ 0.008386, Predict ≈ 0.187470 LR: Train ≈ 0.107893, Predict ≈ 0.000574 |
| |  | | --- | | Adult Census Dataset |  |  | | --- | |  | | Access online by  fetch\_ucirepo(id=2) | BIBD4ML.ipynb | SVM Acc = 0.8474 LDA Acc = 0.8378 KNN Acc = 0.8194 | SVM: Train ≈ 107.179754, Predict ≈ 12.183115 LDA: Train ≈ 0.200607, Predict ≈ 0.040539 KNN: Train ≈ 0.037381, Predict ≈ 1.444059 |
| |  | | --- | | Bank Marketing Dataset |  |  | | --- | |  | | Access online by  fetch\_ucirepo(id=222) | BIBD4ML.ipynb | DT Acc = 0.8713 LDA Acc = 0.8915 SVM Acc = 0.8969 | DT: Train ≈ 0.253711, Predict ≈ 0.002513 LDA: Train ≈ 0.057462 Predict ≈ 0.000970 SVM: Train ≈ 9.421101 Predict ≈ 4.423630 |
| Breast Cancer Wisconsin | Access online by  fetch\_ucirepo(id=17) | |  | | --- | | BIBD4ML.ipynb |  |  | | --- | |  | | DT ACC≈ 0.9415, KNN ACC≈ 0.9591,  LDA ACC ≈ 0.9532 | DT: 0.008653/0.001244  KNN: 0.001380/0.008906  LDA: 0.004054/0.000321 |
| |  | | --- | | Car  Evaluation  Dataset |  |  | | --- | |  | | Access online by  fetch\_ucirepo(id=19) | BIBD4ML.ipynb | LR Acc = 0.915 LDA Acc = 0.894 KNN Acc = 0.794 | LR: Train ≈ 0.015265, Predict ≈ 0.000326 LDA: Train ≈ 0.003879, Predict ≈ 0.000363 KNN: Train ≈ 0.002822, Predict ≈ 0.025328 |
| Mushroom | Access online by  fetch\_ucirepo(id=73) | |  | | --- | | BIBD4ML.ipynb |  |  | | --- | |  | | SVM Acc ≈ 1  LR ≈ 1  DT ≈ 1 | SVM ≈ 0.237007/0.095866  LR ≈ 0.009865/0.000537  DT ≈ 0.011364/0.002117 |
| Heart Disease | Access online by  fetch\_ucirepo(id=45) | |  | | --- | | BIBD4ML.ipynb |  |  | | --- | |  | | LR Acc ≈ 0.8889  LDA Acc≈ 0.9000  DT Acc≈ 0.7556 | LR≈0.004970/0.000473  LDA≈0.003988/0.000518  DT ≈0.002402/0.000383 |
| Spambase | Access online by  fetch\_ucirepo(id=94) | |  | | --- | | BIBD4ML.ipynb |  |  | | --- | |  | | SVM Acc≈0.9348  DT Acc≈0.8993  kNN Acc≈0.8965 | SVM≈0.159185/0.079551  DT≈0.057884/0.002471  kNN≈0.007164/0.055575 |
| Box-Cox transformation | Result Table.xlsx | BIBD4ML.ipynb | Plot of Residuals vs Fitted Value | Few seconds |
| ANOVA and pairwise comparisons | Result Table.xlsx | BIBD4ML.ipynb | anova\_table, pairwise\_table | Few seconds |