References

- E. D. Madyatmadja and M. Aryuni, "Comparative Study of Data Mining Model for Credit Card Application Scoring in Bank," *J. Theor. Appl. Inf. Technol.*, vol. 59, no. 2, 2014.
- [2] M. Aryuni and E. D. Madyatmadja, "Feature Selection in Credit Scoring Model for Credit Card Applicants in XYZ Bank: A Comparative Study," *Int. J. Multimed. Ubiquitous Eng.*, vol. 10, no. 5, pp. 17–24, May 2015.
- [3] M. Nithya, S. Suba, and B. Vaishnavi, "Predict the usage of laptops among students in rural areas using weka tool," *Int. J. Adv. Technol. Eng. Sci.*, vol. Vol. No.3, no. 01 September 2015, p. 6.
- [4] N. Padhor Data Mining: A prediction, Technique for the workers in the PR Electronic Theses & Dissertations Department of Orissa (Block and Panchayat)," Int. J. Comput. Sci. Eng. Inf. Technol., vol. 2, no. 5, pp. 197–36, Oct. 2012.
- [5] D. Kumar Thiwary, "A Comparative Study Of Classification Algorithms For Credit Card Approval Using WEKA," GALAXY Int. Interdiscip. Res. J., vol. Vol.2, Mar. 2014.

[6] Plc.lk, 'People's Leasing Company PLC - Annual Report 2013 - 2014', 2015.
[Online]. Available: http://www.plc.lk/inpages/annual_report_2013_14/risk-management.html. [Accessed: 03- Jan- 2015].

[7]Annual Report 2013/14, 1st ed. colombo: Swarnamahal Financial Services PLC, 2015, pp. 23,24.

[8]Annual Report 2012/13, 1st ed. colombo: Swarnamahal Financial Services PLC, 2014, p. 25 [9]S. Faizan Ahmed and Q. Ali Malik, 574 International Journal of Economics and Financial Issues | Vol 5 • Issue 2 • 2015 Credit Risk Management and Loan Performance: Empirical Investigation of Micro Finance Banks of Pakistan, 1st ed. International Journal of Economics and Financial Issues, 2015.

[10]D. Foust and A. Pressman, 'Not-So-Magic Numbers', Business Week, 2008.

[11] Foundations of Banking Risk: An Overview of Banking, Banking Risks, and Risk-Based Banking Regulation., 1st ed. New Jersey: John Wiley& Sons, 2009.

[12]T. Gestel and B. Baesens, *Credit Risk Management: Basic Concepts: Financial Risk Components, rating analysis,models,economic and regulary capilal*, 1st ed. Oxford University Press, 2008.

[13]G. Yingjian and W. Chong, *Research on Credit Risk Assessment in Commercial Bank Based on Information Integration*, 1st ed. .



University of Moratuwa, Sri Lanka. Electronic Theses & Dissertations www.lib.mrt.ac.lk

Appendix A: Categorization

Data sets have been categorized on to following order

•Dependent Variable: Status - Ceased, Closed

•Other Variables:

Factor 1 - Profession - Businessmen, Doctor, Engineer, Executive, Farmer, Lawyer, Lecturer, Manager, Other, Self Employee, Small Businessmen, Teacher

Factor 2 - Brand Name - Bajaj, Chevrolet, Isuzu, Mahindra & Mahindra, Maruti Suzuki, Mazda, Mitsubishi Motors, Nissan, Suzuki, Tafe, Tata Motors, Toyota

Factor 3 - Model Name - 800, 45D, ACE, ALTO, AR4S-UG, ATLAS, AUTO 4S, AUTO AR4S, AUTO RE 2 STROKE, BAJAJ 4 S, BAJAJ AUTO, BOLERO MAXI TRUCK, CONDOR, COROLLA, DBA-NZE141, DYNA, ELF 350, HIACE, KF-GM70-HALF-BODY, KG-LH172, KG-VWE25, LA-HA238, LP7155, PAJERO University of Moratuwa, Sri Lanka, JEEP, RE 205 LITAN, TOWNACE, UA-HR528, VANATTE Electronic Theses & Dissertations

Factor 4 - Manufacture Year - 1993 to 2012

Factor 5 - Vehicle Class - Dual purpose Motor vehicle, Farm vehicle, Heavy Motor Lorry, Light Motor Lorry, Motor Car, Motor Coach, Motor Lorry UP 1700kg, Motor Tricycle, Motorcycles UP 100CC

Factor 6 - Fuel Type - Diesel, Petrol

Factor 7 - Actual Value - <5,00,000(P), 5,00,000-9,99,999(Q), 10,00,000-14,99,999(R), 15,00,000-19,99,999(S), 20,00,000-24,99,999(T), 25,00,000-29,99,999(U), 30,00,000-34,99,999(V), >35,00,000(W)

Factor 8 - Lease Percentage - 60% to 100%

Factor 9 - Req. Amount - <5,00,000(p), 5,00,000-9,99,999(q), 10,00,000-14,99,999(r), 15,00,000-19,99,999(s), 20,00,000-24,99,999(t), 25,00,000-29,99,999(u), 30,00,000-34,99,999(v), >35,00,000(w)

Factor 10 - Monthly Income - <50,000(I), 50,000-99,999(II), 1,00,000-1,49,999(III), 1,50,000-1,99,999(IV), >2,00,000(V)

Factor 11 - Interest - 9 to 15

Factor 12 - Number of rentals - 12 to 60

Factor 13 - Installment - <20,000(i), 20,000-39,999(ii), 40,000-59,999(iii), 60,000-79,999(iv), 80,000-99,999(v), >1,00,000(vi)



University of Moratuwa, Sri Lanka. Electronic Theses & Dissertations www.lib.mrt.ac.lk

Appendix B: Variable Selection Procedure (Technology: Chi – Squared)

Status * Gender

Chi-Square Tests

| - | | | Asymp. Sig. (2- | Exact Sig. (2- | Exact Sig. (1- |
|--|--------------------|---------|-----------------|----------------|----------------|
| | Value | df | sided) | sided) | sided) |
| | | | | | |
| Pearson Chi-Square | 2.691 ^a | 1 | .101 | | |
| Continuity Correction ^b | 2.572 | 1 | .109 | | |
| | 21072 | - | | | |
| Likelihood Ratio | 2.700 | 1 | .100 | | |
| Fisher's Exact Test | | | | .107 | .054 |
| N of Valid Cases | 6000 | | | | |
| | Universit | v of Mo | ratuwa. Sri l | lanka. | |
| a. 0 cells (.0%) expected count less than 5. The minimum expected count is 393.38. | | | | | |
| Computed colution 2x75000000 lib mit ac lk | | | | | |

b. Computed only for a 2x2 wable W. lib. mrt. ac. lk

Status * Age

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|--------------------|----|---------------------------|
| Pearson Chi-Square | 3.878 ^a | 6 | .693 |
| Likelihood Ratio | 3.877 | 6 | .693 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.91.

Status * Profession

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|----------------------|----|---------------------------|
| Pearson Chi-Square | 679.354 ^a | 11 | .000 |
| Likelihood Ratio | 955.310 | 11 | .000 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 29.82.

Status * District
Chi-SquareUniversity of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|--------------------|----|---------------------------|
| Pearson Chi-Square | 4.115 ^a | 7 | .766 |
| Likelihood Ratio | 4.109 | 7 | .767 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 44.06.

Status * BrandName

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|----------------------|----|---------------------------|
| Pearson Chi-Square | 157.472 ^a | 11 | .000 |
| Likelihood Ratio | 167.321 | 11 | .000 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.35.

Status * ModelNameniversity of Moratuwa, Sri Lanka. Chi-Square Electronic Theses & Dissertations www.lib.mrt.ac.lk

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|----------------------|----|---------------------------|
| Pearson Chi-Square | 392.574 ^a | 28 | .000 |
| Likelihood Ratio | 457.831 | 28 | .000 |
| N of Valid Cases | 6000 | | |

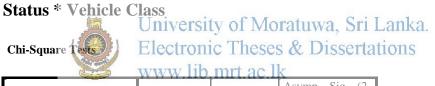
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.02.

Status * Manuf.Year

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|---------------------|----|---------------------------|
| Pearson Chi-Square | 41.545 ^a | 19 | .002 |
| Likelihood Ratio | 41.803 | 19 | .002 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 1 cells (2.5%) have expected count less than 5. The minimum expected count is 4.90.



| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|----------------------|----|---------------------------|
| Pearson Chi-Square | 252.964 ^a | 8 | .000 |
| Likelihood Ratio | 269.882 | 8 | .000 |
| N of Valid Cases | 6000 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.35.

Status * Fuel Type

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) | Exact Sig. (2- sided) | Exact Sig. (1- sided) |
|------------------------------------|---------------------|----|---------------------------|--------------------------|--------------------------|
| Pearson Chi-Square | 37.032 ^a | 1 | .000 | | |
| Continuity Correction ^b | 36.705 | 1 | .000 | | |
| Likelihood Ratio | 36.967 | 1 | .000 | | |
| Fisher's Exact Test | | | | .000 | .000 |
| N of Valid Cases | 6000 | | | | |
| | | | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 987.90.

b. Computed only for a 2x2 table



University of Moratuwa, Sri Lanka. Electronic Theses & Dissertations www.lib.mrt.ac.lk

Status * ActualValue

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|----------------------|----|---------------------------|
| Pearson Chi-Square | 311.275 ^a | 7 | .000 |
| Likelihood Ratio | 367.826 | 7 | .000 |
| N of Valid Cases | 6000 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 99.68.

Status * Lease Percentage

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|---------------------|----|---------------------------|
| Pearson Chi-Square | 27.255 ^a | 4 | .000 |
| Likelihood Ratio | 27.262 | 4 | .000 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 494.40.

Status * Reg Amount iversity of Moratuwa, Sri Lanka. Chi-Square test Electronic Theses & Dissertations www.lib.mrt.ac.lk

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|----------------------|----|---------------------------|
| Pearson Chi-Square | 197.350 ^a | 7 | .000 |
| Likelihood Ratio | 208.573 | 7 | .000 |
| N of Valid Cases | 6000 | | |
| N of Valid Cases | 6000 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 86.33.

Status * Monthly Income

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) | Exact Sig. (2- sided) | Exact Sig. (1- sided) |
|------------------------------------|--------------------|----|---------------------------|--------------------------|--------------------------|
| Pearson Chi-Square | 3.921 ^a | 1 | .048 | | |
| Continuity Correction ^b | 3.571 | 1 | .059 | | |
| Likelihood Ratio | 3.892 | 1 | .049 | | |
| Fisher's Exact Test | | | | .057 | .030 |
| N of Valid Cases | 6000 | | | | |
| | | | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 56.07.

b. Computed only for a 2x2 table



University of Moratuwa, Sri Lanka. Electronic Theses & Dissertations www.lib.mrt.ac.lk

Status * Interest

Chi-Square Tests

| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|----------------------|----|---------------------------|
| Pearson Chi-Square | 134.384 ^a | 2 | .000 |
| Likelihood Ratio | 138.243 | 2 | .000 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 561.59.

Status * No.of Rentals

Chi-Square Tests

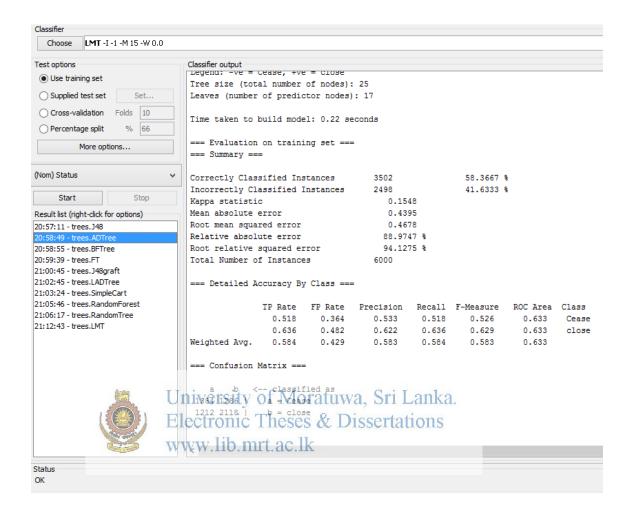
| | Value | df | Asymp. Sig. (2- sided) |
|--------------------|---------------------|----|---------------------------|
| Pearson Chi-Square | 88.824 ^a | 4 | .000 |
| Likelihood Ratio | 90.264 | 4 | .000 |
| N of Valid Cases | 6000 | | |
| | | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 425.42.

Status * Installment niversity of Moratuwa, Sri Lanka. Chi-Square Tester Electronic Theses & Dissertations www.lib.mrt.ac.lk

| | Value | df | Asymp. Sig. (2-sided) |
|--------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 85.487 ^a | 4 | .000 |
| Likelihood Ratio | 87.334 | 4 | .000 |
| N of Valid Cases | 6000 | | |

Appendix C: Best Model Selection



ADTree

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 58.3% | 0.22 Seconds |

| Classifier | |
|---|--|
| Choose LMT -I -1 -M 15 -W 0.0 | |
| Test options | Classifier output |
| Supplied test set Set | Number of Leaf Nodes: 4 |
| Cross-validation Folds 10 Percentage split % 66 | Time taken to build model: 31.04 seconds |
| More options | === Evaluation on training set === |
| (Nom) Status 🗸 🗸 | Correctly Classified Instances 3555 59.25 % |
| Start Stop | Incorrectly Classified Instances 2445 40.75 % |
| | Kappa statistic 0.2096 |
| Result list (right-click for options) | Mean absolute error 0.4362 |
| 20:57:11 - trees.J48 | Root mean squared error 0.467 |
| 20:58:49 - trees.ADTree | Relative absolute error 88.3177 % |
| 20:58:55 - trees.BFTree 20:59:39 - trees.FT | Root relative squared error 93.9777 % Total Number of Instances 6000 |
| 21:00:45 - trees.J48graft 21:02:45 - trees.LADTree 21:03:24 - trees.SimpleCart 21:05:46 - trees.RandomForest | === Detailed Accuracy By Class === |
| 21:06:17 - trees.RandomTree | TP Rate FP Rate Precision Recall F-Measure ROC Area Class 0.763 0.544 0.529 0.763 0.625 0.637 Cease |
| 21:12:43 - trees.LMT | 0.763 0.544 0.529 0.763 0.625 0.637 Cease 0.456 0.237 0.706 0.456 0.554 0.637 close |
| | Weighted Avg. 0.593 0.374 0.627 0.593 0.586 0.637 |
| | === Confusion Matrix === |
| | a b < classified as 2037 633 a = Cease 1812 1518 b = close |
| | c |
| Status OK | Jniversity of Moratuwa, Sri Lanka. |
| Alerando | Electronic Theses & Dissertations |
| BFTree 🥁 V | vww.lib.mrt.ac.lk |

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 59.25% | 31.04 Seconds |

| Classifier | |
|--|---|
| Choose LMT -I -1 -M 15 -W 0.0 | |
| Test options © Use training set O Supplied test set Set | Classifier output [Installment=II] ^ -0.34 + [Installment=v] * 0.5 |
| Cross-validation Folds 10 Percentage split % 66 More options | Time taken to build model: 12.61 seconds === Evaluation on training set === === Summary === |
| (Nom) Status Start Stop Result list (right-click for options) 20:57:11 - trees.J48 20:58:49 - trees.ADTree 20:58:55 - trees.BFTree 20:59:39 - trees.FT 21:00:45 - trees.J48graft 21:02:45 - trees.LADTree | Correctly Classified Instances 4539 75.65 % Incorrectly Classified Instances 1461 24.35 % Kappa statistic 0.5082 Mean absolute error 0.3044 Root mean squared error 0.419 Relative absolute error 61.6239 % Root relative squared error 84.3042 % Total Number of Instances 6000 === Detailed Accuracy By Class === |
| 21:03:24 - trees.SimpleCart 21:05:46 - trees.RandomForest 21:06:17 - trees.RandomTree 21:12:43 - trees.LMT | TP Rate FP Rate Precision Recall F-Measure ROC Area Class 0.738 0.229 0.721 0.738 0.73 0.821 Cease 0.771 0.262 0.786 0.771 0.779 0.821 close Weighted Avg. 0.757 0.247 0.757 0.757 0.757 0.821 === Confusion Matrix === a b < classified as |
| E E | iniversity of Moratuwa, Sri Lanka. lectronic Theses & Dissertations rww.lib.mrt.ac.lk |

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 75.65 % | 12.61 Seconds |

| Classifier | |
|---------------------------------------|---|
| Choose LMT -I -1 -M 15 -W 0.0 | |
| Test options | Classifier output |
| Use training set | Size of the tree : 4826 |
| O Supplied test set Set | |
| Cross-validation Folds 10 | |
| O Percentage split % 66 | Time taken to build model: 86.52 seconds |
| More options | === Evaluation on training set === |
| | === Summary === |
| Nom) Status 🗸 🗸 🗸 | Correctly Classified Instances 4706 78.4333 % |
| | Incorrectly Classified Instances 1294 21.5667 % |
| Start Stop | Kappa statistic 0.5682 |
| tesult list (right-click for options) | Mean absolute error 0.2798 |
| 0:57:11 - trees.J48 | Root mean squared error 0.374 |
| 0:58:49 - trees.ADTree | Relative absolute error 56.6426 % |
| 0:58:55 - trees.BFTree | Root relative squared error 75.2614 % |
| 0:59:39 - trees.FT | Total Number of Instances 6000 |
| 1:00:45 - trees.J48graft | |
| 1:02:45 - trees.LADTree | === Detailed Accuracy By Class === |
| 1:03:24 - trees.SimpleCart | |
| 1:05:46 - trees.RandomForest | TP Rate FP Rate Precision Recall F-Measure ROC Area Class |
| 1:06:17 - trees.RandomTree | 0.813 0.239 0.732 0.813 0.77 0.879 Cease |
| 1:12:43 - trees.LMT | 0.761 0.187 0.836 0.761 0.797 0.879 close |
| | Weighted Avg. 0.784 0.21 0.789 0.784 0.785 0.879 |
| | Confusion Matrix |
| | a b < classified as |
| | a b $<$ classified as 2172 498 a = Cease |
| | $796\ 2534$ b = close |
| | /96 2534 D = CT036 |
| | |
| | |
| | < |
| Status in T | |
| OK | University of Moratuwa, Sri Lanka. |
| S ATTA 2 | ************************************** |
| | Electronic Theses & Dissertations |
| Alancia | |
| 48 🛛 🚟 🗤 | www.lib.mrt.ac.lk |
| | TT TT ALCO ALL COULD |

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 78.4% | 86.52 Seconds |

| Test options | Classifier output |
|---|---|
| | Classifier output |
| Use training set | Size of the tree : 5684 |
| O Supplied test set Set | |
| O Cross-validation Folds 10 | Time taken to build model: 98.1 seconds |
| O Percentage split % 66 | lime taken to bulla model: 98.1 Seconds |
| More options | === Evaluation on training set === |
| | === Summary === |
| (Nom) Status | Correctly Classified Instances 4706 78.4333 % |
| | Incorrectly Classified Instances 1294 21.5667 % |
| Start Stop | Kappa statistic 0.5682 |
| Result list (right-click for options) | Mean absolute error 0.2798 |
| 20:57:11 - trees.J48 | Root mean squared error 0.374 |
| 20:58:49 - trees.ADTree | Relative absolute error 56.6426 % |
| 20:58:55 - trees.BFTree | Root relative squared error 75.2614 % |
| 20:59:39 - trees.FT | Total Number of Instances 6000 |
| 21:00:45 - trees.J48graft 21:02:45 - trees.LADTree | |
| 21:03:24 - trees.SimpleCart | === Detailed Accuracy By Class === |
| 21:05:46 - trees.RandomForest | TP Rate FP Rate Precision Recall F-Measure ROC Area Class |
| 21:06:17 - trees.RandomTree | 0.813 0.239 0.732 0.813 0.77 0.879 Ceas |
| 21:12:43 - trees.LMT | 0.761 0.187 0.836 0.761 0.797 0.879 clos |
| | Weighted Avg. 0.784 0.21 0.789 0.784 0.785 0.879 |
| | |
| | === Confusion Matrix === |
| | a b < classified as |
| | 2172 498 a = Cease |
| | 796 2534 b = close |
| | |
| | |
| | < |
| | Iniversity of Moratuwa, Sri Lanka. |
| itatus DK | miversity of moratuwa, SH Lanka. |
| | Electronic Theses & Dissertations |
| | veelone theses of prostantons |

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 78.4% | 98.1 Seconds |

| Classifier | | | | | | | |
|---|---|-----------|--------------------------|-------|-------|--|--|
| Choose LMT -I -1 -M 15 -W 0. | 0 | | | | | | |
| Test options | Classifier output | | | | | | |
| Use training set | #Processed examples: 199524 | | | | | | |
| O Supplied test set Set | #Ratio e/n: 2494.05 | | | | | | |
| O Cross-validation Folds 10 | Time taken to build model: 5.35 sec | anda | | | | | |
| O Percentage split % 66 | Time taken to build model. 5.55 sec | onus | | | | | |
| More options | === Evaluation on training set === === Summary === | | | | | | |
| (Nom) Status | Correctly Classified Instances | 3486 | 58.1 | ş | | | |
| Start Stop | Incorrectly Classified Instances | 2514 | 41.9 | 8 | | | |
| Start Stop | Kappa statistic | 0.1851 | | | | | |
| Result list (right-click for options) | Mean absolute error | 0.4405 | | | | | |
| 20:57:11 - trees.J48 | Root mean squared error | 0.468 | | | | | |
| 20:58:49 - trees.ADTree | Relative absolute error | 89.1866 % | | | | | |
| 20:58:55 - trees.BFTree | Root relative squared error | 94.1653 % | | | | | |
| 20:59:39 - trees.FT | Total Number of Instances | 6000 | | | | | |
| 21:00:45 - trees. J48graft | | | | | | | |
| 21:02:45 - trees.LADTree 21:03:24 - trees.SimpleCart | === Detailed Accuracy By Class === | | | | | | |
| 21:05:46 - trees.RandomForest | | | | | | | |
| 21:06:17 - trees.RandomTree | | | call F-Measure | | | | |
| 21:12:43 - trees.LMT | 0.736 0.543 | | .736 0.61 | 0.020 | Cease | | |
| | 0.457 0.264 Weighted Avg. 0.581 0.388 | | .457 0.548 .581 0.575 | 0.625 | close | | |
| | Weighted Avg. 0.301 0.305 | 0.011 0 | .301 0.373 | 0.025 | | | |
| | === Confusion Matrix === | | | | | | |
| | a b < classified as | | | | | | |
| | 1965 705 a = Cease | | | | | | |
| And an | 1809 1521 b = close | | | | | | |
| a station | University of Moratuwa, Sri Lanka. | | | | | | |
| (363) | Electronic Theses & Dissertations | | | | | | |
| | Dischonic Theses & Dissentations | | | | | | |
| Status OK | www.lib.mrt.ac.lk | | | | | | |

LAD Tree

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 58.1% | 5.35 Seconds |

| Classifier | | | | | | |
|--|---|--|--|--|--|--|
| Choose LMT -I -1 -M 15 -W 0.0 | | | | | | |
| Test options Use training set Supplied test set | Classifier output [Accual value=v] * 0.03 + [Monthly Income=II] * 0.09 | | | | | |
| Cross-validation Folds 10 Percentage split % 66 | Time taken to build model: 89.46 seconds | | | | | |
| More options | === Evaluation on training set === === Summary === | | | | | |
| (Nom) Status | Correctly Classified Instances 3516 58.6 % Incorrectly Classified Instances 2484 41.4 % Kappa statistic 0.1925 | | | | | |
| Result list (right-click for options) | Mean absolute error 0.4391 | | | | | |
| 20:57:11 - trees.J48 20:58:49 - trees.ADTree 20:58:55 - trees.BFTree 20:59:39 - trees.FT 21:00:45 - trees.J48graft | Root mean squared error 0.4684 Relative absolute error 88.8885 % Root relative squared error 94.2469 % Total Number of Instances 6000 | | | | | |
| 21:02:45 - trees.LADTree 21:03:24 - trees.SimpleCart | === Detailed Accuracy By Class === | | | | | |
| 21:05:46 - trees.RandomForest 21:06:17 - trees.RandomTree 21:12:43 - trees.LMT | TP Rate FP Rate Precision Recall F-Measure ROC Area Class 0.726 0.526 0.525 0.726 0.61 0.634 Ceas 0.474 0.274 0.683 0.474 0.559 0.634 closs Weighted Avg. 0.586 0.386 0.613 0.586 0.582 0.634 | | | | | |
| | === Confusion Matrix === a b < classified as 1939 731 a = Cease 1753 1577 b = close | | | | | |
| ок 🜔 Е | Aniversity of Moratuwa, Sri Lanka. | | | | | |
| LMT 😻 W | ww.lib.mrt.ac.lk | | | | | |

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 58.6% | 89.46 Seconds |

| Classifier | | | | | | |
|--|--|--|--|--|--|--|
| Choose LMT -I -1 -M 15 -W 0.0 | | | | | | |
| Test options | Classifier output | | | | | |
| Use training set | Montniy income = v : Cease (0/0) | | | | | |
| ○ Supplied test set Set | Size of the tree : 10900 | | | | | |
| | | | | | | |
| Cross-validation Folds 10 | Time taken to build model: 0.07 seconds | | | | | |
| O Percentage split % 66 | | | | | | |
| More options | === Evaluation on training set === === Summary === | | | | | |
| (Nom) Status | Correctly Classified Instances 5019 83.65 % | | | | | |
| Start Stop | Incorrectly Classified Instances 981 16.35 % Kappa statistic 0.6757 | | | | | |
| Result list (right-click for options) | Kappa statistic 0.6757 Mean absolute error 0.1892 | | | | | |
| 20:57:11 - trees. J48 | Root mean squared error 0.3076 | | | | | |
| 20:58:49 - trees.ADTree | Relative absolute error 38.304 % | | | | | |
| 20:58:55 - trees.BFTree | Root relative squared error 61.8904 % | | | | | |
| 20:59:39 - trees.FT | Total Number of Instances 6000 | | | | | |
| 21:00:45 - trees.J48graft | | | | | | |
| 21:02:45 - trees.LADTree | === Detailed Accuracy By Class === | | | | | |
| 21:03:24 - trees.SimpleCart | | | | | | |
| 21:05:46 - trees.RandomForest | TP Rate FP Rate Precision Recall F-Measure ROC Area Class | | | | | |
| 21:06:17 - trees.RandomTree | 0.92 0.23 0.762 0.92 0.834 0.941 Cease | | | | | |
| 21:12:43 - trees.LMT | 0.77 0.08 0.923 0.77 0.839 0.941 close | | | | | |
| | Weighted Avg. 0.837 0.147 0.851 0.837 0.837 0.941 | | | | | |
| | === Confusion Matrix === | | | | | |
| | a b < classified as | | | | | |
| | 2456 214 a = Cease | | | | | |
| | $767\ 2563\ b = close$ | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| status University of Moratuwa, Sri Lanka. | | | | | | |
| OK SATA | · · · · · · · · · · · · · · · · · · · | | | | | |
| | Electronic Theses & Dissertations | | | | | |
| and the second sec | Lieurona Theses & Dissertations | | | | | |
| RandomTre | iomTreess www.lib.mrt.ac.lk | | | | | |
| Validolli 1166 | W W W.HO.HILLUVILL | | | | | |

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 83.65% | 0.07 Seconds |

| Classifier | | | | | | | |
|--|--|--|--|--|--|--|--|
| Choose LMT -I -1 -M 15 -W 0.0 | | | | | | | |
| Test options | Classifier output | | | | | | |
| Use training set Supplied test set Set | Size of the Tree: 13 | | | | | | |
| O Cross-validation Folds 10 | Time taken to build model: 12.02 seconds | | | | | | |
| O Percentage split % 66 | | | | | | | |
| More options | === Evaluation on training set === === Summary === | | | | | | |
| (Nom) Status | ✓ Correctly Classified Instances 3612 60.2 % | | | | | | |
| Start Stop | Incorrectly Classified Instances 2388 39.8 % Kappa statistic 0.2105 | | | | | | |
| Result list (right-click for options) | Mean absolute error 0.4346 | | | | | | |
| 20:57:11 - trees. 148 | Root mean squared error 0.4661 | | | | | | |
| 20:58:49 - trees.ADTree | Relative absolute error 87.976 % | | | | | | |
| 20:58:55 - trees.BFTree | Root relative squared error 93.7957 % | | | | | | |
| 20:59:39 - trees.FT | Total Number of Instances 6000 | | | | | | |
| 21:00:45 - trees.J48graft | | | | | | | |
| 21:02:45 - trees.LADTree | === Detailed Accuracy By Class === | | | | | | |
| 21:03:24 - trees.SimpleCart | | | | | | | |
| 21:05:46 - trees.RandomForest | TP Rate FP Rate Precision Recall F-Measure ROC Area Class | | | | | | |
| 21:06:17 - trees.RandomTree | 0.657 0.442 0.544 0.657 0.595 0.651 Cease | | | | | | |
| 21:12:43 - trees.LMT | 0.558 0.343 0.67 0.558 0.609 0.651 close | | | | | | |
| | Weighted Avg. 0.602 0.387 0.614 0.602 0.603 0.651 | | | | | | |
| | === Confusion Matrix === | | | | | | |
| | a b < classified as 1753 917 a = Cease 1471 1859 b = close | | | | | | |
| line 1 | University of Manaturna, Spi Lapla | | | | | | |
| University of Moratuwa, Sri Lanka. | | | | | | | |
| Status ((O)) Electronic Theses & Dissertations | | | | | | | |
| ok Dissertations | | | | | | | |
| www.lib.mrt.ac.lk | | | | | | | |
| Constitution of American | | | | | | | |

SimpleCart

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 60.2 % | 12.02 Seconds |

| Classifier | | | | | | | | | |
|---|-------------|--|---|---|--|----------------|----------------|--------|-------------------------|
| Choose LMT -I -1 -1 | M 15 -W 0.0 | | | | | | | | |
| Test options Use training set Supplied test set Cross-validation Fol | Set | Classifier output | econda | | | | | | |
| O Percentage split More options. | % 66 | === Evaluation === Summary === | on traini | | | | | | |
| (Nom) Status | v | Correctly Class | | | 5019 981 | | 83.65 16.35 | 8 8 | |
| StartStopKajResult list (right-click for options)Mei20:57:11 - trees.J48Roi20:58:49 - trees.ADTreeRoi20:58:55 - trees.BFTreeRoi20:59:39 - trees.FTToi21:00:45 - trees.J48graftToi | | Kappa statistic Mean absolute error Root mean squared error Relative absolute error Root relative squared error Total Number of Instances === Detailed Accuracy By Class === | | | 0.66 0.25 0.32 51.47 65.79 6000 | 43 7 6 % | 10.00 | • | |
| 21:05:46 - trees.RandomFo 21:06:17 - trees.RandomTr 21:12:43 - trees.LMT | | Weighted Avg. | 0.826 0.845 0.837 atrix === - classif a = Ceas | 0.155 0.174 0.166 = fied as | 0.858 | 0.826 | | 0.939 | Class Cease close |
| Status OK |)) El | niversity of ectronic T ww.lib.mrt | heses | & Dis | 1 | | | | |

| Correctly Classified Instances | Time Taken to Build the Model |
|--------------------------------|-------------------------------|
| 83.65 % | 5.42 Seconds |