Here a short description of how total PLT(SVM) algorithm takes decision based on other algorithms(PL,PT,OL,OT) is described.

We can derive PLT classifier based on other classifiers as below:

If any of the four classifiers PL,PT,OL,OT fails then PLT classifier will fail.

If all of the four classifiers PL,PT,OL,OT classify accurately then PLT classifier will classify accurately.

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| **Stages of algorithm while correctly classified** |
| **File Name:** 5 - Copy (20).xml |
| **Output:**  shihab@ubuntu:~$ ./scripts/compileLBJ lbj/PLTclassifier.lbj  Note: src/myDocumentReader.java uses unchecked or unsafe operations.  Note: Recompile with -Xlint:unchecked for details.  Generating code for PLclassifier\_featuresExtractor  Generating code for PTclassifier\_featuresExtractor  Generating code for PL\_PTclassifier\_featuresExtractor  Generating code for OLclassifier\_featuresExtractor  Generating code for OTclassifier\_featuresExtractor  Generating code for OL\_OTclassifier\_featuresExtractor  Generating code for OTHER\_featuresExtractor  Generating code for Label  Generating code for Lebel\_PL  Generating code for Lebel\_PT  Generating code for Lebel\_OL  Generating code for Lebel\_OT  Generating code for PLclassifier  Generating code for PTclassifier  Generating code for OTclassifier  Generating code for OLclassifier  Generating code for PLTclassifier$$1  Generating code for PLTclassifier  Compiling generated code  Note: lbjsrc/shihab/PLTclassifier$$1.java uses unchecked or unsafe operations.  Note: Recompile with -Xlint:unchecked for details.  Training OLclassifier  iter 1 act 2.689e+04 pre 2.674e+04 delta 2.021e-01 f 3.050e+04 |g| 2.662e+05 CG 1  cg reaches trust region boundary  iter 2 act 9.229e+02 pre 8.894e+02 delta 3.570e-01 f 3.606e+03 |g| 1.462e+04 CG 2  cg reaches trust region boundary  iter 3 act 7.108e+02 pre 6.369e+02 delta 4.848e-01 f 2.683e+03 |g| 3.802e+03 CG 2  cg reaches trust region boundary  iter 4 act 4.502e+02 pre 3.780e+02 delta 6.141e-01 f 1.972e+03 |g| 5.130e+03 CG 4  iter 5 act 1.535e+02 pre 1.439e+02 delta 6.141e-01 f 1.522e+03 |g| 2.704e+03 CG 3  iter 6 act 5.571e+01 pre 5.354e+01 delta 6.141e-01 f 1.368e+03 |g| 1.110e+03 CG 4  Testing OLclassifier  Label Precision Recall F1 LCount PCount  ------------------------------------------------  0 100.000 100.000 100.000 1 1  ------------------------------------------------  Accuracy 100.000 - - - 1  Writing OLclassifier  Training PLclassifier  iter 1 act 1.595e+04 pre 1.579e+04 delta 8.210e-01 f 3.050e+04 |g| 9.807e+04 CG 3  cg reaches trust region boundary  iter 2 act 1.737e+03 pre 2.599e+03 delta 6.420e-01 f 1.455e+04 |g| 7.246e+03 CG 4  cg reaches trust region boundary  iter 3 act 1.972e+03 pre 1.876e+03 delta 7.089e-01 f 1.281e+04 |g| 1.060e+04 CG 4  Testing PLclassifier  Label Precision Recall F1 LCount PCount  ------------------------------------------------  0 100.000 100.000 100.000 1 1  ------------------------------------------------  Accuracy 100.000 - - - 1  Writing PLclassifier  Training PTclassifier  iter 1 act 1.703e+04 pre 1.685e+04 delta 9.443e-01 f 3.050e+04 |g| 9.476e+04 CG 3  cg reaches trust region boundary  iter 2 act 2.917e+03 pre 2.967e+03 delta 1.115e+00 f 1.347e+04 |g| 7.071e+03 CG 3  cg reaches trust region boundary  iter 3 act 1.591e+03 pre 1.468e+03 delta 1.343e+00 f 1.055e+04 |g| 4.749e+03 CG 5  Testing PTclassifier  Label Precision Recall F1 LCount PCount  ------------------------------------------------  0 100.000 100.000 100.000 1 1  ------------------------------------------------  Accuracy 100.000 - - - 1  Writing PTclassifier  Training OTclassifier  iter 1 act 2.953e+04 pre 2.934e+04 delta 2.009e-01 f 3.050e+04 |g| 2.939e+05 CG 1  iter 2 act 5.823e+02 pre 5.610e+02 delta 2.009e-01 f 9.707e+02 |g| 1.925e+04 CG 2  iter 3 act 6.525e+01 pre 5.697e+01 delta 2.009e-01 f 3.885e+02 |g| 3.448e+03 CG 2  cg reaches trust region boundary  iter 4 act 3.785e+01 pre 2.800e+01 delta 3.261e-01 f 3.232e+02 |g| 8.606e+02 CG 3  cg reaches trust region boundary  iter 5 act 3.739e+01 pre 3.031e+01 delta 4.570e-01 f 2.854e+02 |g| 7.680e+02 CG 3  iter 6 act 1.313e+01 pre 1.292e+01 delta 4.570e-01 f 2.480e+02 |g| 4.737e+02 CG 5  iter 7 act 9.314e-01 pre 9.197e-01 delta 4.570e-01 f 2.348e+02 |g| 1.100e+02 CG 3  Testing OTclassifier  Label Precision Recall F1 LCount PCount  ------------------------------------------------  0 100.000 100.000 100.000 1 1  ------------------------------------------------  Accuracy 100.000 - - - 1  Writing OTclassifier  Training PLTclassifier  iter 1 act 1.370e+04 pre 1.362e+04 delta 2.529e-01 f 3.050e+04 |g| 2.406e+05 CG 2  cg reaches trust region boundary  iter 2 act 3.691e+03 pre 3.683e+03 delta 3.869e-01 f 1.680e+04 |g| 2.377e+04 CG 2  cg reaches trust region boundary  iter 3 act 3.420e+03 pre 3.351e+03 delta 5.334e-01 f 1.311e+04 |g| 2.036e+04 CG 3  Testing PLTclassifier  Label Precision Recall F1 LCount PCount  ------------------------------------------------  0 100.000 100.000 100.000 1 1  ------------------------------------------------  Accuracy 100.000 - - - 1  Writing PLTclassifier  Compiling generated code  shihab@ubuntu:~$ |
| **Explanation:**  Here all PL,PT,OL and OT SVMs classified the file correctly(Green Marked). That’s why PLT classifier correctly classified the file( Orange Marked ) |

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| **Stages of algorithm while misclassified** |
| **File Name:** 2 - Copy (35).xml |
| **Output:**  shihab@ubuntu:~$ ./scripts/compileLBJ lbj/PLTclassifier.lbj  Note: src/myDocumentReader.java uses unchecked or unsafe operations.  Note: Recompile with -Xlint:unchecked for details.  Generating code for PLclassifier\_featuresExtractor  Generating code for PTclassifier\_featuresExtractor  Generating code for PL\_PTclassifier\_featuresExtractor  Generating code for OLclassifier\_featuresExtractor  Generating code for OTclassifier\_featuresExtractor  Generating code for OL\_OTclassifier\_featuresExtractor  Generating code for OTHER\_featuresExtractor  Generating code for Label  Generating code for Lebel\_PL  Generating code for Lebel\_PT  Generating code for Lebel\_OL  Generating code for Lebel\_OT  Generating code for PLclassifier  Generating code for PTclassifier  Generating code for OTclassifier  Generating code for OLclassifier  Generating code for PLTclassifier$$1  Generating code for PLTclassifier  Compiling generated code  Note: lbjsrc/shihab/PLTclassifier$$1.java uses unchecked or unsafe operations.  Note: Recompile with -Xlint:unchecked for details.  Training OLclassifier  iter 1 act 2.689e+04 pre 2.674e+04 delta 2.021e-01 f 3.050e+04 |g| 2.662e+05 CG 1  cg reaches trust region boundary  iter 2 act 9.229e+02 pre 8.894e+02 delta 3.570e-01 f 3.606e+03 |g| 1.462e+04 CG 2  cg reaches trust region boundary  iter 3 act 7.108e+02 pre 6.369e+02 delta 4.848e-01 f 2.683e+03 |g| 3.802e+03 CG 2  cg reaches trust region boundary  iter 4 act 4.502e+02 pre 3.780e+02 delta 6.141e-01 f 1.972e+03 |g| 5.130e+03 CG 4  iter 5 act 1.535e+02 pre 1.439e+02 delta 6.141e-01 f 1.522e+03 |g| 2.704e+03 CG 3  iter 6 act 5.571e+01 pre 5.354e+01 delta 6.141e-01 f 1.368e+03 |g| 1.110e+03 CG 4  Testing OLclassifier  Label Precision Recall F1 LCount PCount  ------------------------------------------------  0 100.000 100.000 100.000 1 1  ------------------------------------------------  Accuracy 100.000 - - - 1  Writing OLclassifier  Training PLclassifier  iter 1 act 1.595e+04 pre 1.579e+04 delta 8.210e-01 f 3.050e+04 |g| 9.807e+04 CG 3  cg reaches trust region boundary  iter 2 act 1.737e+03 pre 2.599e+03 delta 6.420e-01 f 1.455e+04 |g| 7.246e+03 CG 4  cg reaches trust region boundary  iter 3 act 1.972e+03 pre 1.876e+03 delta 7.089e-01 f 1.281e+04 |g| 1.060e+04 CG 4  Testing PLclassifier  Label Precision Recall F1 LCount PCount  ---------------------------------------------  0 0.000 0.000 0.000 0 1  1 0.000 0.000 0.000 1 0  ---------------------------------------------  Accuracy 0.000 - - - 1  Writing PLclassifier  Training PTclassifier  iter 1 act 1.703e+04 pre 1.685e+04 delta 9.443e-01 f 3.050e+04 |g| 9.476e+04 CG 3  cg reaches trust region boundary  iter 2 act 2.917e+03 pre 2.967e+03 delta 1.115e+00 f 1.347e+04 |g| 7.071e+03 CG 3  cg reaches trust region boundary  iter 3 act 1.591e+03 pre 1.468e+03 delta 1.343e+00 f 1.055e+04 |g| 4.749e+03 CG 5  Testing PTclassifier  Label Precision Recall F1 LCount PCount  ---------------------------------------------  0 0.000 0.000 0.000 1 0  1 0.000 0.000 0.000 0 1  ------------------------------------------- --  Accuracy 0.000 - - - 1  Writing PTclassifier  Training OTclassifier  iter 1 act 2.953e+04 pre 2.934e+04 delta 2.009e-01 f 3.050e+04 |g| 2.939e+05 CG 1  iter 2 act 5.823e+02 pre 5.610e+02 delta 2.009e-01 f 9.707e+02 |g| 1.925e+04 CG 2  iter 3 act 6.525e+01 pre 5.697e+01 delta 2.009e-01 f 3.885e+02 |g| 3.448e+03 CG 2  cg reaches trust region boundary  iter 4 act 3.785e+01 pre 2.800e+01 delta 3.261e-01 f 3.232e+02 |g| 8.606e+02 CG 3  cg reaches trust region boundary  iter 5 act 3.739e+01 pre 3.031e+01 delta 4.570e-01 f 2.854e+02 |g| 7.680e+02 CG 3  iter 6 act 1.313e+01 pre 1.292e+01 delta 4.570e-01 f 2.480e+02 |g| 4.737e+02 CG 5  iter 7 act 9.314e-01 pre 9.197e-01 delta 4.570e-01 f 2.348e+02 |g| 1.100e+02 CG 3  Testing OTclassifier  Label Precision Recall F1 LCount PCount  ------------------------------------------------  0 100.000 100.000 100.000 1 1  ------------------------------------------------  Accuracy 100.000 - - - 1  Writing OTclassifier  Training PLTclassifier  iter 1 act 1.370e+04 pre 1.362e+04 delta 2.529e-01 f 3.050e+04 |g| 2.406e+05 CG 2  cg reaches trust region boundary  iter 2 act 3.691e+03 pre 3.683e+03 delta 3.869e-01 f 1.680e+04 |g| 2.377e+04 CG 2  cg reaches trust region boundary  iter 3 act 3.420e+03 pre 3.351e+03 delta 5.334e-01 f 1.311e+04 |g| 2.036e+04 CG 3  Testing PLTclassifier  Label Precision Recall F1 LCount PCount  ---------------------------------------------  0 0.000 0.000 0.000 1 0  1 0.000 0.000 0.000 0 1  ---------------------------------------------  Accuracy 0.000 - - - 1  Writing PLTclassifier  Compiling generated code  shihab@ubuntu:~$ |
| **Explanation:**  Here OL and OT SVMs classified the file correctly(Green Marked). But PL and PT SVMs classified the file incorrectly(Red Marked).That’s why PLT classifier incorrectly classified the file( Red Marked ) |