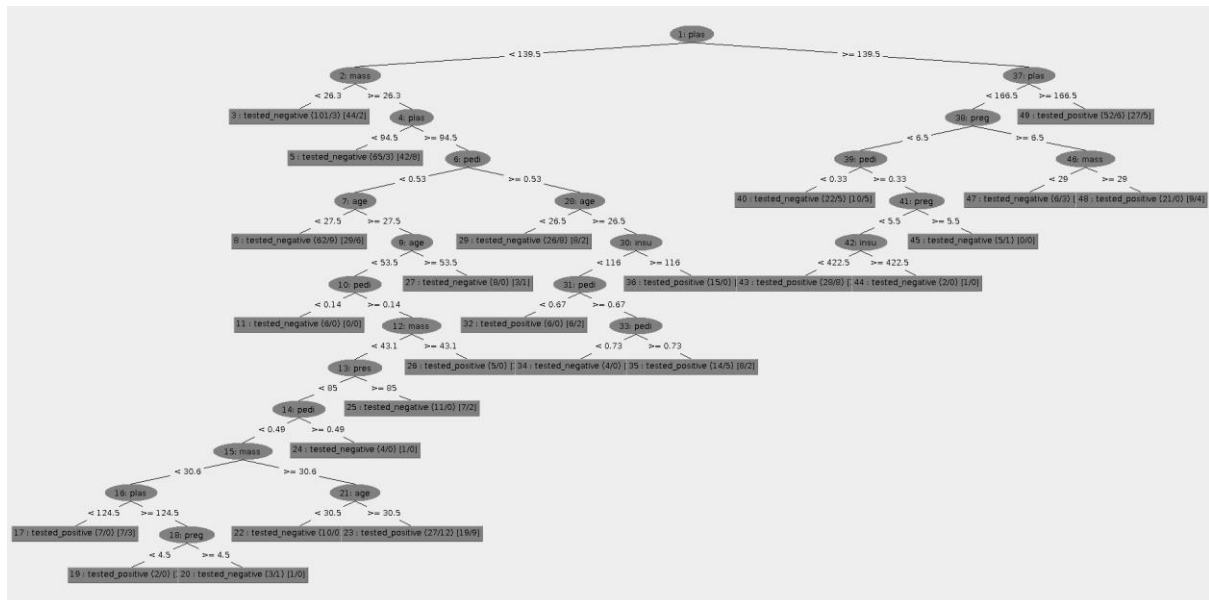Considering the diabetes.arff dataset,
REP Tree with 10 cross-validation folds

=== Run information ===
Scheme:weka.classifiers.trees.REPTree -M 2 -V 0.001 -N 3 -S 1 -L -1
Relation: pima_diabetes
Instances: 768
Attributes: 9
        preg
        plas
        pres
        skin
        insu
        mass
        pedi
        age
        class
Test mode:10-fold cross-validation

=== Classifier model (full training set) ===
REPTree
============
plas < 139.5
| mass < 26.3 : tested_negative (101/3) [44/2]
| mass >= 26.3
| | plas < 94.5 : tested_negative (65/3) [42/8]
| | plas >= 94.5
| | | pedi < 0.53
| | | | age < 27.5 : tested_negative (62/9) [29/6]
| | | | age >= 27.5
| | | | | age < 53.5
| | | | | | pedi < 0.14 : tested_negative (6/0) [0/0]
| | | | | | pedi >= 0.14
| | | | | | | mass < 43.1
| | | | | | | | pres < 85

```
| | | | | | | | | pedi < 0.49
| | | | | | | | | | mass < 30.6
| | | | | | | | | | | plas < 124.5 : tested_positive (7/0) [7/3]
| | | | | | | | | | | plas >= 124.5
| | | | | | | | | | | | preg < 4.5 : tested_positive (2/0) [1/0]
| | | | | | | | | | | | preg >= 4.5 : tested_negative (3/1) [1/0]
| | | | | | | | | | mass >= 30.6
| | | | | | | | | | | age < 30.5 : tested_negative (10/0) [3/0]
| | | | | | | | | | | age >= 30.5 : tested_positive (27/12) [19/9]
| | | | | | | | | pedi >= 0.49 : tested_negative (4/0) [1/0]
| | | | | | | | pres >= 85 : tested_negative (11/0) [7/2]
| | | | | | | mass >= 43.1 : tested_positive (5/0) [1/1]
| | | | | age >= 53.5 : tested_negative (8/0) [3/1]
| | | pedi >= 0.53
| | | | age < 26.5 : tested_negative (26/8) [8/2]
| | | | age >= 26.5
| | | | | insu < 116
| | | | | | pedi < 0.67 : tested_positive (6/0) [6/2]
| | | | | | pedi >= 0.67
| | | | | | | pedi < 0.73 : tested_negative (4/0) [3/0]
| | | | | | | pedi >= 0.73 : tested_positive (14/5) [8/2]
| | | | | insu >= 116 : tested_positive (15/0) [12/8]
plas >= 139.5
| plas < 166.5
| | preg < 6.5
| | | pedi < 0.33 : tested_negative (22/5) [10/5]
| | | pedi >= 0.33
| | | | preg < 5.5
| | | | | insu < 422.5 : tested_positive (28/8) [13/6]
| | | | | insu >= 422.5 : tested_negative (2/0) [1/0]
| | | | preg >= 5.5 : tested_negative (5/1) [0/0]
| | preg >= 6.5
| | | mass < 29 : tested_negative (6/3) [1/0]
| | | mass >= 29 : tested_positive (21/0) [9/4]
| plas >= 166.5 : tested_positive (52/6) [27/5]

Size of the tree : 49

Time taken to build model: 0.05 seconds

=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances        578               75.2604 %
Incorrectly Classified Instances      190               24.7396 %
Kappa statistic                  0.438
Mean absolute error              0.3272
Root mean squared error            0.4289
Relative absolute error          71.9842 %
Root relative squared error        89.9782 %
Total Number of Instances          768

=== Detailed Accuracy By Class ===
          TP Rate  FP Rate  Precision  Recall  F-Measure  ROC Area  Class
          0.846    0.422    0.789      0.846   0.817      0.766     tested_negative
          0.578    0.154    0.668      0.578   0.62       0.766     tested_positive
Weighted Avg.  0.753    0.328    0.747      0.753   0.748      0.766
```
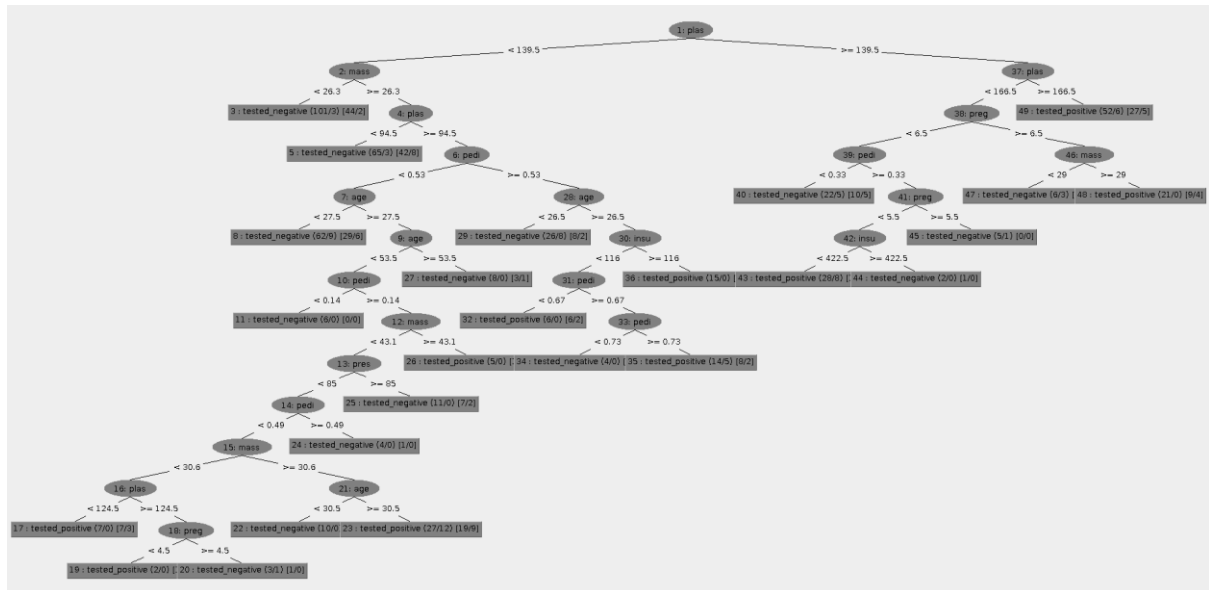
=== Confusion Matrix ===

```
   a   b   <-- classified as
 423  77 |   a = tested_negative
 113 155 |   b = tested_positive
```

REP Tree with 20 cross-validation folds

=== Run information ===

Scheme:weka.classifiers.trees.REPTree -M 2 -V 0.001 -N 3 -S 1 -L -1

Relation: pima_diabetes

Instances: 768

Attributes: 9

       preg

       plas

       pres

       skin

       insu

       mass

       pedi

       age

       class

Test mode:20-fold cross-validation

=== Classifier model (full training set) ===

REPTree

============

```
plas < 139.5
|   mass < 26.3 : tested_negative (101/3) [44/2]
|   mass >= 26.3
|   |   plas < 94.5 : tested_negative (65/3) [42/8]
|   |   plas >= 94.5
|   |   |   pedi < 0.53
|   |   |   |   age < 27.5 : tested_negative (62/9) [29/6]
|   |   |   |   age >= 27.5
|   |   |   |   |   age < 53.5
|   |   |   |   |   |   pedi < 0.14 : tested_negative (6/0) [0/0]
|   |   |   |   |   |   pedi >= 0.14
|   |   |   |   |   |   |   mass < 43.1
|   |   |   |   |   |   |   |   pres < 85
|   |   |   |   |   |   |   |   |   pedi < 0.49
```
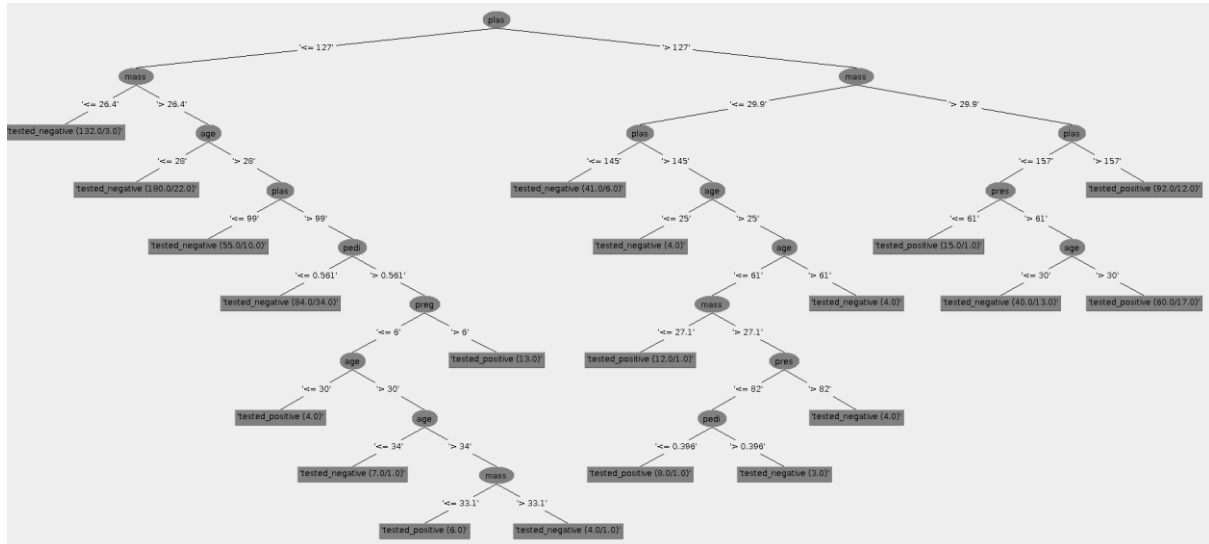
```
|  |  |  |  |  |  |  |  |  |    mass < 30.6
|  |  |  |  |  |  |  |  |  |  |    plas < 124.5 : tested_positive (7/0) [7/3]
|  |  |  |  |  |  |  |  |  |  |    plas >= 124.5
|  |  |  |  |  |  |  |  |  |  |  |   preg < 4.5 : tested_positive (2/0) [1/0]
|  |  |  |  |  |  |  |  |  |  |  |   preg >= 4.5 : tested_negative (3/1) [1/0]
|  |  |  |  |  |  |  |  |  |  |    mass >= 30.6
|  |  |  |  |  |  |  |  |  |  |    age < 30.5 : tested_negative (10/0) [3/0]
|  |  |  |  |  |  |  |  |  |  |    age >= 30.5 : tested_positive (27/12) [19/9]
|  |  |  |  |  |  |  |  |    pedi >= 0.49 : tested_negative (4/0) [1/0]
|  |  |  |  |  |  |  |   pres >= 85 : tested_negative (11/0) [7/2]
|  |  |  |  |  |  |   mass >= 43.1 : tested_positive (5/0) [1/1]
|  |  |  |  |   age >= 53.5 : tested_negative (8/0) [3/1]
|  |  |   pedi >= 0.53
|  |  |  |   age < 26.5 : tested_negative (26/8) [8/2]
|  |  |  |   age >= 26.5
|  |  |  |  |   insu < 116
|  |  |  |  |  |   pedi < 0.67 : tested_positive (6/0) [6/2]
|  |  |  |  |  |   pedi >= 0.67
|  |  |  |  |  |   pedi < 0.73 : tested_negative (4/0) [3/0]
|  |  |  |  |  |   pedi >= 0.73 : tested_positive (14/5) [8/2]
|  |  |  |  |   insu >= 116 : tested_positive (15/0) [12/8]
plas >= 139.5
|  plas < 166.5
|  |  preg < 6.5
|  |  |  pedi < 0.33 : tested_negative (22/5) [10/5]
|  |  |  pedi >= 0.33
|  |  |  |  preg < 5.5
|  |  |  |  |  insu < 422.5 : tested_positive (28/8) [13/6]
|  |  |  |  |  insu >= 422.5 : tested_negative (2/0) [1/0]
|  |  |  |  preg >= 5.5 : tested_negative (5/1) [0/0]
|  |  preg >= 6.5
|  |  |  mass < 29 : tested_negative (6/3) [1/0]
|  |  |  mass >= 29 : tested_positive (21/0) [9/4]
|  plas >= 166.5 : tested_positive (52/6) [27/5]

Size of the tree : 49

Time taken to build model: 0.02 seconds

=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances        556               72.3958 %
Incorrectly Classified Instances      212               27.6042 %
Kappa statistic                  0.3741
Mean absolute error              0.3336
Root mean squared error            0.4393
Relative absolute error          73.3897 %
Root relative squared error        92.1634 %
Total Number of Instances          768

=== Detailed Accuracy By Class ===
         TP Rate  FP Rate  Precision  Recall  F-Measure  ROC Area  Class
          0.822    0.459    0.77      0.822   0.795      0.757     tested_negative
          0.541    0.178    0.62      0.541   0.578      0.757     tested_positive
Weighted Avg.  0.724    0.361    0.717     0.724   0.719      0.757

=== Confusion Matrix ===
```

```
   a   b   <-- classified as
 411  89 |   a = tested_negative
 123 145 |   b = tested_positive
```
Both REP Trees produce the same decision tree as the algorithm is the same. The accuracy of classification is better in 10-fold REP tree (75.26%) compared to 20-fold REP tree (73.39%).

J48 with 10 cross-validation folds

=== Run information ===
Scheme:weka.classifiers.trees.J48 -C 0.25 -M 2
Relation: pima_diabetes
Instances: 768
Attributes: 9
         preg
         plas
         pres
         skin
         insu
         mass
         pedi
         age
         class
Test mode:10-fold cross-validation

=== Classifier model (full training set) ===
J48 pruned tree
----
plas <= 127
| mass <= 26.4: tested_negative (132.0/3.0)
| mass > 26.4
| | age <= 28: tested_negative (180.0/22.0)
| | age > 28
| | | plas <= 99: tested_negative (55.0/10.0)
| | | plas > 99
| | | | pedi <= 0.561: tested_negative (84.0/34.0)
| | | | pedi > 0.561
| | | | | preg <= 6
| | | | | | age <= 30: tested_positive (4.0)
| | | | | | age > 30

```
|  |  |  |  |  |  |  age <= 34: tested_negative (7.0/1.0)
|  |  |  |  |  |  |  age > 34
|  |  |  |  |  |  |  |  mass <= 33.1: tested_positive (6.0)
|  |  |  |  |  |  |  |  mass > 33.1: tested_negative (4.0/1.0)
|  |  |  |  |  preg > 6: tested_positive (13.0)
plas > 127
|  mass <= 29.9
|  |  plas <= 145: tested_negative (41.0/6.0)
|  |  plas > 145
|  |  |  age <= 25: tested_negative (4.0)
|  |  |  age > 25
|  |  |  |  age <= 61
|  |  |  |  |  mass <= 27.1: tested_positive (12.0/1.0)
|  |  |  |  |  mass > 27.1
|  |  |  |  |  |  pres <= 82
|  |  |  |  |  |  |  pedi <= 0.396: tested_positive (8.0/1.0)
|  |  |  |  |  |  |  pedi > 0.396: tested_negative (3.0)
|  |  |  |  |  |  pres > 82: tested_negative (4.0)
|  |  |  |  age > 61: tested_negative (4.0)
|  mass > 29.9
|  |  plas <= 157
|  |  |  pres <= 61: tested_positive (15.0/1.0)
|  |  |  pres > 61
|  |  |  |  age <= 30: tested_negative (40.0/13.0)
|  |  |  |  age > 30: tested_positive (60.0/17.0)
|  |  plas > 157: tested_positive (92.0/12.0)
```

Number of Leaves: 20
Size of the tree: 39
Time taken to build model: 0.02 seconds

=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances   567   73.8281 %
Incorrectly Classified Instances   201   26.1719 %
Kappa statistic   0.4164
Mean absolute error   0.3158
Root mean squared error   0.4463
Relative absolute error   69.4841 %
Root relative squared error   93.6293 %
Total Number of Instances   768

=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
	0.814	0.403	0.79	0.814	0.802	0.751	tested_negative
	0.597	0.186	0.632	0.597	0.614	0.751	tested_positive
Weighted Avg.	0.738	0.327	0.735	0.738	0.736	0.751	

=== Confusion Matrix ===
```
  a   b   <-- classified as
 407  93 |   a = tested_negative
 108 160 |   b = tested_positive
```

The J48 tree produces a much simpler tree compared to REP Tree but the accuracy is 73.83% which is lower than the REP Tree with same number of cross-validation folds. The

accuracy of classification of REP Tree is usually expected to be higher than that of J48, as REP Tree uses reduced-error pruning in addition to the C4.5 algorithm used by J48 Tree.