```
Python 3.5.2 |Anaconda 4.2.0 (64-bit)| (default, Jul  5 2016, 11:41:13) [MSC v.1900 64 bit
(AMD64)]
Type "copyright", "credits" or "license" for more information.


In [13]: runfile('C:/Users/torres/Documents/GitHub/autoML-multiData/autoML.py',
wdir='C:/Users/torres/Documents/GitHub/autoML-multiData')
Reloaded modules: DeIdentify, DistanceFn, Model, FuseData, RandomizedSearchCluster, TimeSeries,
Experts, Data, Image, ClusterWrapper
Converting file to features
Dataset 'data.csv': (2985, 154)
        Column names: ['age=17', 'age=18', 'age=19', 'age=20', 'age=21', 'age=22', 'age=23',
'age=24', 'age=25', 'age=26', 'age=27', 'age=28', 'age=29', 'age=30', 'age=31', 'age=32',
'age=33', 'age=34', 'age=35', 'age=36', 'age=37', 'age=38', 'age=39', 'age=40', 'age=41',
'age=42', 'age=43', 'age=44', 'age=45', 'age=46', 'age=47', 'age=48', 'age=49', 'age=50',
'age=51', 'age=52', 'age=53', 'age=54', 'age=55', 'age=56', 'age=57', 'age=58', 'age=59',
'age=60', 'age=61', 'age=62', 'age=63', 'age=64', 'age=65', 'age=66', 'age=67', 'age=68',
'age=69', 'age=70', 'age=71', 'age=72', 'age=73', 'age=74', 'age=75', 'age=76', 'age=77',
'age=78', 'age=79', 'age=81', 'age=90', 'education=10th', 'education=11th', 'education=12th',
'education=1st-4th', 'education=5th-6th', 'education=7th-8th', 'education=9th', 'education=Assoc-
acdm', 'education=Assoc-voc', 'education=Bachelors', 'education=Doctorate', 'education=HS-grad',
'education=Masters', 'education=Preschool', 'education=Prof-school', 'education=Some-college',
'marital-status=Divorced', 'marital-status=Married-AF-spouse', 'marital-status=Married-civ-
spouse', 'marital-status=Married-spouse-absent', 'marital-status=Never-married', 'marital-
status=Separated', 'marital-status=Widowed', 'native-country=Cambodia', 'native-country=Canada',
'native-country=China', 'native-country=Columbia', 'native-country=Cuba', 'native-
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country=England', 'native-country=France', 'native-country=Germany', 'native-country=Greece',
'native-country=Guatemala', 'native-country=Haiti', 'native-country=Holand-Netherlands', 'native-
country=Honduras', 'native-country=Hong', 'native-country=Hungary', 'native-country=India',
'native-country=Ireland', 'native-country=Italy', 'native-country=Jamaica', 'native-
country=Japan', 'native-country=Laos', 'native-country=Mexico', 'native-country=Nicaragua',
'native-country=Peru', 'native-country=Philippines', 'native-country=Poland', 'native-
country=Portugal', 'native-country=Puerto-Rico', 'native-country=Scotland', 'native-
country=South', 'native-country=Taiwan', 'native-country=Trinadad&Tobago', 'native-
country=United- States', 'native-country=Vietnam', 'native-country=Yugoslavia', 'occupation=Adm-
clerical', 'occupation=Armed-Forces', 'occupation=Craft-repair', 'occupation=Exec-managerial',
'occupation=Farming-fishing', 'occupation=Handlers-cleaners', 'occupation=Machine-op-inspct',
'occupation=Other-service', 'occupation=Priv-house-serv', 'occupation=Prof-specialty',
'occupation=Protective-serv', 'occupation=Sales', 'occupation=Tech-support',
'occupation=Transport-moving', 'race=Amer-Indian-Eskimo', 'race=Asian-Pac-Islander',
'race=Black', 'race=Other', 'race=White', 'sex=Female', 'sex=Male', 'workclass=Federal-gov',
'workclass=Local- gov', 'workclass=Private', 'workclass=Self-emp-inc', 'workclass=Self-emp-not-
inc', 'workclass=State-gov', 'workclass=Without-pay']
        Target name: salary-class
        Target type: cat
        Target classes: ['<=50K' '>50K']
        Target encoding: [0 1]
        Row 1: [ 0.  0.  0. ...,  1.  0.  0.] -> 1
        Row -1: [ 0.  0.  0. ...,  0.  0.  0.] -> 0
GradientBoost
Time to fit 3 instances of GradientBoost: 70.02s
AdaBoost
Time to fit 3 instances of AdaBoost: 10.09s
ExtraTrees
Time to fit 3 instances of ExtraTrees: 0.20s
LogisticRegression
Time to fit 3 instances of LogisticRegression: 4.13s
GaussianNB
Time to fit 3 instances of GaussianNB: 0.31s
DecisionTree
Time to fit 3 instances of DecisionTree: 0.31s
RandomForest
Time to fit 3 instances of RandomForest: 1.37s
SGD
```

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 Time to fit 3 instances of SGD: 0.31s
 LDA
 Time to fit 3 instances of LDA: 0.48s
 KNeighbors
 Time to fit 3 instances of KNeighbors: 2.36s
 QDA
 Time to fit 3 instances of QDA: 0.47s
 Fitting GradientBoost (n_iterations=5, max_model_time=130s)
    Number of iterations: 5, Elapsed time: 60.16s
 Fitting AdaBoost (n_iterations=38, max_model_time=130s)
    Number of iterations: 38, Elapsed time: 102.52s
 Fitting ExtraTrees (n_iterations=100, max_model_time=130s)
    Number of iterations: 100, Elapsed time: 5.65s
 Fitting LogisticRegression (n_iterations=95, max_model_time=130s)
    Number of iterations: 95, Elapsed time: 47.26s
 Fitting GaussianNB (n_iterations=100, max_model_time=130s)
    Number of iterations: 100, Elapsed time: 9.20s
 Fitting DecisionTree (n_iterations=100, max_model_time=130s)
    Number of iterations: 100, Elapsed time: 15.72s
 Fitting LDA (n_iterations=100, max_model_time=130s)
    Number of iterations: 100, Elapsed time: 12.59s
 Fitting SGD (n_iterations=100, max_model_time=130s)
    Number of iterations: 100, Elapsed time: 9.62s
 Fitting RandomForest (n_iterations=100, max_model_time=130s)
    Number of iterations: 100, Elapsed time: 51.76s
 Fitting KNeighbors (n_iterations=100, max_model_time=130s)
    Number of iterations: 100, Elapsed time: 50.43s
 Fitting QDA (n_iterations=100, max_model_time=130s)
 Skipping QDA due to error: SVD did not converge

        Number of models: 10
        Models: ['ExtraTrees: 0.813922', 'LogisticRegression: 0.811245', 'SGD: 0.809906',
'KNeighbors: 0.805890', 'LDA: 0.805890', 'RandomForest: 0.805890', 'AdaBoost: 0.803213',
'GradientBoost: 0.793842', 'DecisionTree: 0.787149', 'GaussianNB: 0.772423']

 Ensemble Confusion Matrix (based on majority votes of top 5 models):
 [[527  35]
  [104  81]]
              precision    recall  f1-score   support

           0       0.84      0.94      0.88       562
           1       0.70      0.44      0.54       185

 avg / total       0.80      0.81      0.80       747
```