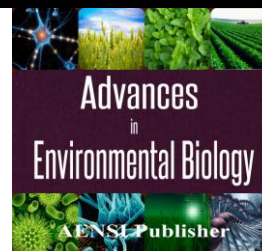




AENSI Journals

Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/AEB/>

Using Test Ensemble Quality for Analysts' Profit Equity Forecasts

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ARTICLE INFO

Article history:

Received 2 April 2014

Received in revised form

13 May 2014

Accepted 28 June 2014

Available online 23 July 2014

Keywords:

ensembles, prediction.

ABSTRACT

In this paper we ensembles consisting of multiple classifiers used for member classifiers, and are rewarded based on their predictive performance. In the research were used 11 inputs that involve Cash, Short-Term Investments, Notes Receivable, Inventory, Spare Parts, Inventory Stock and Other Inventory, Advance Payment, Long-Term Assets, Notes Payable, Prepaid, Long-Term Liability that applied for prediction profit equity.

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To Cite This Article: Zinat Ansari and Yaghub Gholami., Using Test Ensemble Quality for Analysts' Profit Equity Forecasts. *Adv. Environ. Biol.*, 8(12), 135-137, 2014

INTRODUCTION

In recent years, a great deal of interest in the data mining community has been generated by ensemble classifiers. These are predictive models that combine the predictions of a collection of individual classifiers, such as decision trees or artificial neural networks. Popular method such as Boosting, Bagging and Stacking differ in the ways that individual predictors are constructed. Recently many researchers have combined the predictions of multiple classifiers to produce a better classifier and prediction, an ensemble, and often reported improved performance (Breiman, 1996; Bauer and Kohavi, 1999; Wolpert, `1992). Bagging (Breiman, 1996) and Boosting (Freund and Schapire, 1996; Schapire 1990) are the most popular methods for creating accurate ensembles. The data needed for analysis are gathered from audited financial statements and decisions are taken in annual general meetings. This enables the main part of the data to be collected from the database that belongs to the Islamic Research Management Center of the Tehran Exchange Market, and the remaining data are gathered from the third version of Rahavard Novin software.

MATERIAL AND METHOD

Material:

In the study area used 12 characteristics that is following:

Method:

Usually cannot evaluate the predictive quality of an ensemble based on its performance on training data. Ensembles tend to "overtrain," meaning they produce overly optimistic estimates of their predictive power. This means the result of resubLoss for classification (resubLoss for regression) usually indicates lower error than you get on new data.

To obtain a better idea of the quality of an ensemble, use one of these methods:

- Evaluate the ensemble on an independent test set (useful when you have a lot of training data).
- Evaluate the ensemble by cross validation (useful when you don't have a lot of training data).
- Evaluate the ensemble on out-of-bag data (useful when you create a bagged ensemble with fitensemble).

the program is the following:

```
cvpart = cvpartition(Y, 'holdout');
```

```
Xtrain = X(training(cvpart),:);
```

```
Ytrain = Y(training(cvpart),:);
```

```
Xtest = X(test(cvpart),:);
```

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```

Ytest = Y(test(cvpart),:);
bag = fitensemble(Xtrain,Ytrain,'Bag','Tree',...
    'type','classification')
    
```

Table 1: input data.

Elements	Notes receivable	Inventory	Inventory stock and other inventory	Advance payment	Long-term assets	Notes payable	prepaid	spare parts	Cash	Long-term liability	Short-term investments	equity
Maximum	5253206	688701	2542277	2521124	17363330	5695291	3139402	9726510	1182705	3001470	3564611	5253206
Minimum	3885	0	0	39	54030	16278	3068	0	900	0	-3868050	3885
Average	1261087	120072	636372	326940	4689123	1478423	704671	1653372	214590	368339	270927	1261087
STDEV	1399529	163515	623930	655760	4879249	1763770	791798	2447987	308493	759892	1794244	1399529

Results:

The results of the research is show in Figure 1 to Figure 3.

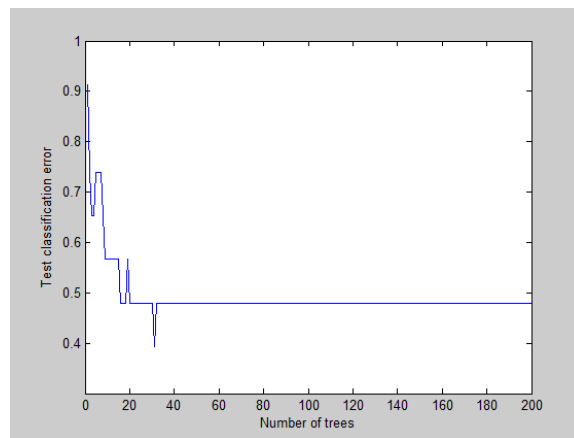


Fig. 1: Evaluate the ensemble on an independent test set.

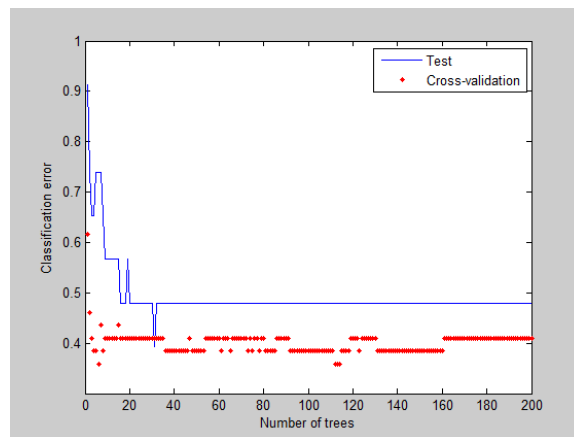


Fig. 2: Evaluate the ensemble by cross validation.

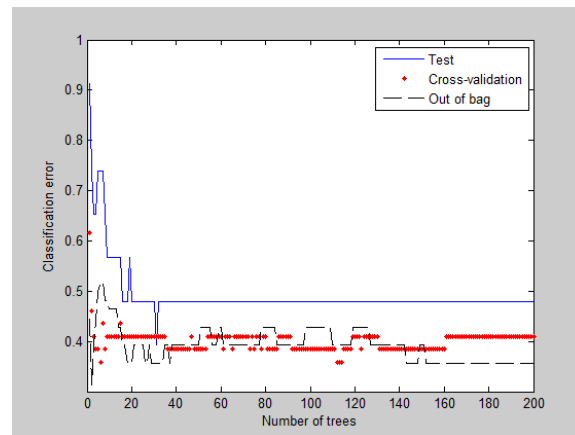


Fig. 3: Evaluate the ensemble on out-of-bag data.

Conclusion:

In the research were used 11 inputs that involve Cash (Short-Term Investments (Notes Receivable, Inventory, Spare Parts, Inventory Stock and Other Inventory, Advance Payment, Long-Term Assets, Notes Payable, Prepaid, Long-Term Liability that applied for prediction profit equity. For prediction of data used fit ensemble method. According to results, the result of fit ensemble is an ensemble object, suitable for making predictions on new data.

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