# Title: Elasticsearch benchmark

Elasticsearch was queried for test dataset and particularly for leads which were mergable. Test set was created as per [documentation](https://confluence.freshworks.com/x/zRVQD). Non mergable records were left out as they were giving near perfect results.

1. This is currently treated as a binary classification.
2. Primary leads were searched for account id 21 for duplicates. Label for mergeable leads is 1.
3. If secondary lead id was found then label classified as 1.
4. Confusion matrix, recall, precision are calculated.
5. Exact ES queries can be found here <https://confluence.freshworks.com/x/wxZQD>

Caveats

* Rank when searching in ES is not useful measure with current dataset because
  + Results ranked above paired secordary can be true duplicates
  + Not feasible to compare it with other ES models

#### **Base result** (ES1)

Name is matched exactly.

Confusion matrix [[5391 0] [ 626 753]]

Precision [0.89 1. ]

#### Recall [1. 0.54]

fscore [0.94 0.70]

Support [5391 1379]

#### Company name match last name (ES2)

Exact name matching and exact last\_name match with company\_name

Confusion matrix [[5391 0][ 122 1257]]  
Precision [0.97 1. ]  
Recall [1. 0.91]  
fscore [0.98 0.95]  
Support [5391 1379]

Account id - 53524

Confusion matrix [[7707 0] [1418 3262]]  
Precision [0.84460274 1. ]  
Recall [1. 0.69700855]  
fscore [0.9157557 0.82145555]  
Support [7707 4680]

Account id - 56025

Confusion matrix [[8407 0][ 103 1999]]  
Precision [0.98789659 1. ]  
Recall [1. 0.95099905]  
fscore [0.99391145 0.97488417]  
Support [8407 2102]

#### Refined (ES3)

('Account id', '53524')

('Confusion matrix', array([[7859,    0],[ 271, 4241]]))

('Precision', array([0.96666667, 1.        ]))

('Recall', array([1.        , 0.93993794]))

('fscore', array([0.98305085, 0.96903919]))

('Support', array([7859, 4512]))

('Account id', '56025')

('Confusion matrix', array([[7254,    0],

       [ 245, 1607]]))

('Precision', array([0.96732898, 1.        ]))

('Recall', array([1.        , 0.86771058]))

('fscore', array([0.98339321, 0.92917028]))

('Support', array([7254, 1852]))

('Account id', '70700')

('Confusion matrix', array([[2824,    0],

       [ 418,  306]]))

('Precision', array([0.87106724, 1.        ]))

('Recall', array([1.        , 0.42265193]))

('fscore', array([0.93109133, 0.59417476]))

('Support', array([2824,  724]))

('Account id', '8302')

('Confusion matrix', array([[2526,    0], [ 288,  348]]))

('Precision', array([0.89765458, 1.        ]))

('Recall', array([1.        , 0.54716981]))

('fscore', array([0.94606742, 0.70731707]))

('Support', array([2526,  636]))

('Account id', '69198')

('Confusion matrix', array([[192,   0],[  5,  39]]))

('Precision', array([0.97461929, 1.        ]))

('Recall', array([1.        , 0.88636364]))

('fscore', array([0.98714653, 0.93975904]))

('Support', array([192,  44]))