



گزارش تمرین چهارم یادگیری ماشین

نام : حامد خشه چی

شماره دانشجویی : ۹۷۳۳۴۹۴

جدول زیر را پر کنید.

| Best word of | Class1    | Class2      | Class3   | Class4       | Class5      | Class6   |
|--------------|-----------|-------------|----------|--------------|-------------|----------|
| 1            | Graphics  | Forsale     | Autos    | Encryption   | Rutgers     | Guns     |
| 2            | Ompass    | Misc        | Rec      | Key          | Athos       | Politics |
| 3            | op        | Computer    | Car      | Crypt        | Christian   | Gun      |
| 4            | Polygon   | Sale        | Cars     | Sci          | Od          | Ifas     |
| 5            | Raphics   | Shipping    | Dealer   | Security     | Esus        | Gnv      |
| 6            | Animation | Music       | Engine   | Org          | Religion    | Firearms |
| 7            | Mage      | Sunysb      | Vw       | Privacy      | Soc         | Ufl      |
| 8            | Cols      | Clone       | Cactus   | Eff          | Hedrick     | Talk     |
| 9            | Rows      | Condition   | Cdac     | Escrow       | Aramis      | Weapons  |
| 10           | Au        | Oit         | Ole      | Technology   | Igor        | Firearm  |
| 11           | Acsc      | Unc         | Aturn    | Lipper       | Pproved     | Utk      |
| 12           | Int       | Pc          | W        | Cryptography | Hristians   | Weapon   |
| 13           | Row       | Marketplace | Tires    | Government   | Hrist       | Ulowell  |
| 14           | Image     | Gibbs       | Ntegra   | Keys         | Hristianity | Iftccu   |
| 15           | Points    | Sking       | Fuel     | Answers      | Truth       | Utkvm    |
| 16           | Eality    | Ba          | Kocrsv   | Enforcement  | Faith       | Laws     |
| 17           | Raf       | Ale         | Brandeis | Hip          | Hristian    | Police   |
| 18           | Irtual    | Pchang      | Pockets  | Dministation | Ible        | Crime    |
| 19           | Color     | 96          | Boyle    | Secure       | Dziuxsolim  | Defense  |
| 20           | ys        | sbscs       | radar    | data         | church      | Arms     |

graphics', 'ompass', 'op', 'polygon', 'raphics', 'animation', 'mage', 'cols', 'rows', 'au', 'acsc', 'int', 'row', '']  
['image', 'points', 'eality', 'raf', 'irtual', 'color', 'ys

forsale', 'misc', 'computers', 'sale', 'shipping', 'music', 'sunysb', 'clone', 'condition', 'oit', 'unc', 'pc', '']  
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autos', 'rec', 'car', 'cars', 'dealer', 'engine', 'vw', 'cactus', 'cdac', 'ole', 'aturn', 'W', 'tires', 'ntegra', 'fuel', '']  
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encryption', 'key', 'crypt', 'sci', 'security', 'org', 'privacy', 'eff', 'escrow', 'technology', 'lipper', '']  
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rutgers', 'athos', 'christian', 'od', 'esus', 'religion', 'soc', 'hedrick', 'aramis', 'igor', 'pproved', 'hristians', '']  
['hrist', 'hristianity', 'truth', 'faith', 'hristian', 'ible', 'dziuxsolim', 'church

guns', 'politics', 'gun', 'ifas', 'gnv', 'firearms', 'ufl', 'talk', 'weapons', 'firearm', 'utk', 'weapon', 'ulowell', ']  
['iftccu', 'utkvm', 'laws', 'police', 'crime', 'defense', 'arms

## خروجی های ما بوده اند برای هر کلاس

که توسط نوشتن رگولار اکسپرشن رویرو به دست آمده اند

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(?!\\d)[<>(),|*-.?${}!:'"@"]| [<>()$,.-?|*'\':@"] (?!\\d)|\\s+
```

که یعنی هر چی به جز وایت اسپیس ها و علامات خاص بود جدا کن و به ما بده که کلمات اند که فایل وکا نیز بر اساس همین ها به دست آمده و دقت نیو ما و وکا هردو یک بوده است

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خروجی classifier naïve bayes برای داده های آموزشی (خروجی نرم افزار weka)

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Classifier: NaiveBayes

est options

☐ Use training set

☒ Supplied test set Set...

☐ Cross-validation Folds 10

☐ Percentage split % 66

More options...

(Nom) classes

Start Stop

result list (right-click for options)

22:21:14 - bayes.NaiveBayes

22:22:12 - bayes.NaiveBayes

Classifier output

Time taken to build model: 0 seconds

=== Evaluation on test set ===

Time taken to test model on supplied test set: 0.1 seconds

=== Summary ===

|                                  |          |           |
|----------------------------------|----------|-----------|
| Correctly Classified Instances   | 598      | 99.6667 % |
| Incorrectly Classified Instances | 2        | 0.3333 %  |
| Kappa statistic                  | 0.996    |           |
| Mean absolute error              | 0.0012   |           |
| Root mean squared error          | 0.0244   |           |
| Relative absolute error          | 0.4373 % |           |
| Root relative squared error      | 6.5559 % |           |
| Total Number of Instances        | 600      |           |

=== Detailed Accuracy By Class ===

|               | TP Rate | FP Rate | Precision | Recall | F-Measure | MCC   | ROC Area | PRC Area | Class |
|---------------|---------|---------|-----------|--------|-----------|-------|----------|----------|-------|
| 1.000         | 0.000   | 1.000   | 1.000     | 1.000  | 1.000     | 1.000 | 1.000    | 1.000    | 1     |
| 1.000         | 0.004   | 0.980   | 1.000     | 0.990  | 0.998     | 1.000 | 1.000    | 1.000    | 2     |
| 0.980         | 0.000   | 1.000   | 0.980     | 0.990  | 0.988     | 1.000 | 1.000    | 1.000    | 3     |
| 1.000         | 0.000   | 1.000   | 1.000     | 1.000  | 1.000     | 1.000 | 1.000    | 1.000    | 4     |
| 1.000         | 0.000   | 1.000   | 1.000     | 1.000  | 1.000     | 1.000 | 1.000    | 1.000    | 5     |
| 1.000         | 0.000   | 1.000   | 1.000     | 1.000  | 1.000     | 1.000 | 1.000    | 1.000    | 6     |
| Weighted Avg. | 0.997   | 0.001   | 0.997     | 0.997  | 0.997     | 0.996 | 1.000    | 1.000    |       |

=== Confusion Matrix ===

|     | a   | b  | c   | d   | e   | f | <-- classified as |
|-----|-----|----|-----|-----|-----|---|-------------------|
| 100 | 0   | 0  | 0   | 0   | 0   | 0 | a = 1             |
| 0   | 100 | 0  | 0   | 0   | 0   | 0 | b = 2             |
| 0   | 2   | 98 | 0   | 0   | 0   | 0 | c = 3             |
| 0   | 0   | 0  | 100 | 0   | 0   | 0 | d = 4             |
| 0   | 0   | 0  | 0   | 100 | 0   | 0 | e = 5             |
| 0   | 0   | 0  | 0   | 0   | 100 | 0 | f = 6             |

tatus

OK Log x0

خروجی classifier naïve bayes برای داده های تست (خروجی نرم افزار weka)

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Classifier: NaiveBayes

Test options:

- ☐ Use training set
- ☒ Supplied test set
- ☐ Cross-validation Folds: 10
- ☐ Percentage split %: 66
- 

Result list (right-click for options):

22:21:14 - bayes.NaiveBayes

Classifier output:

```

Kappa statistic      1
Mean absolute error  0
Root mean squared error  0
Relative absolute error  0.0013 %
Root relative squared error  0.0085 %
Total Number of Instances  90

=== Detailed Accuracy By Class ===

      TP Rate  FP Rate  Precision  Recall  F-Measure  MCC  ROC Area  PRC Area  Cla
1.000  0.000  1.000  1.000  1.000  1.000  1.000  1.000  1
1.000  0.000  1.000  1.000  1.000  1.000  1.000  1.000  2
1.000  0.000  1.000  1.000  1.000  1.000  1.000  1.000  3
1.000  0.000  1.000  1.000  1.000  1.000  1.000  1.000  4
1.000  0.000  1.000  1.000  1.000  1.000  1.000  1.000  5
1.000  0.000  1.000  1.000  1.000  1.000  1.000  1.000  6
Weighted Avg.  1.000  0.000  1.000  1.000  1.000  1.000  1.000  1.000

=== Confusion Matrix ===

  a  b  c  d  e  f  <-- classified as
15  0  0  0  0  0 | a = 1
 0 15  0  0  0  0 | b = 2
 0  0 15  0  0  0 | c = 3
 0  0  0 15  0  0 | d = 4
 0  0  0  0 15  0 | e = 5
 0  0  0  0  0 15 | f = 6

```

Status: OK

Log

و برای نوشتن کد از فایل کمکی استفاده کردم که یعنی من هم مقدار موثر را طبق همان فرمول حساب می کنم. که بیشترین تکرار در خود که در باقی نیست باشد!