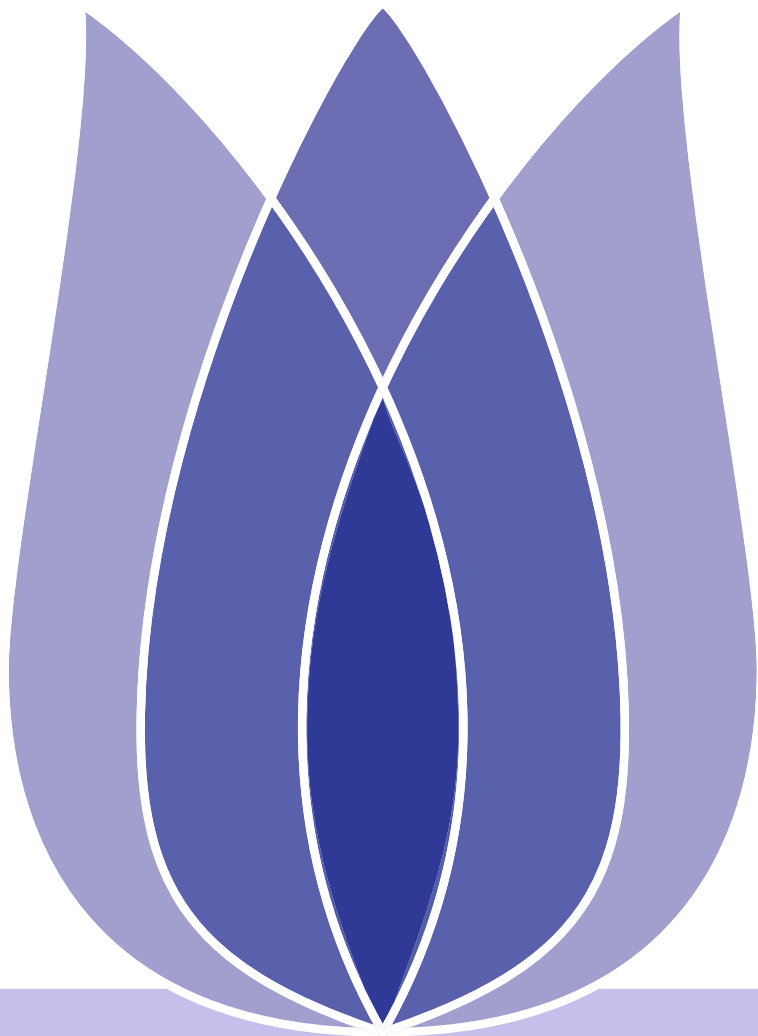


FLIP01 MIDTERM PRESENTATION

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Problem Statement



Problem Definition

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Some of our strongest geographic and cultural associations are tied to a region’s local foods. This playground competitions asks you to predict the category of a dish’s cuisine given a list of its ingredients.



Data Set

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■ train data

Table 1: The head of the train data

| | cuisine | id | igredients |
|---|-------------|-------|---|
| 0 | greek | 10259 | [romaine lettuce, black olives, grape tomatoes... |
| 1 | southern_us | 25693 | [plain flour, ground pepper, salt, tomatoes, g... |
| 2 | filipino | 20130 | [eggs, pepper, salt, mayonaise, cooking oil, g... |
| 3 | indian | 22213 | [water, vegetable oil, wheat, salt] |
| 4 | indian | 13162 | [black pepper, shallots, cornflour, cayenne pe... |

■ Display the data set

Table 2: The head of the test data

| | id | igredients |
|---|-------|---|
| 0 | 18009 | [baking powder, eggs, all-purpose flour, raisi... |
| 1 | 28583 | [sugar, egg yolks, corn starch, cream of tarta... |
| 2 | 41580 | [sausage links, fennel bulb, fronds, olive oil... |
| 3 | 29752 | [meat cuts, file powder, smoked sausage, okra,... |
| 4 | 35687 | [ground black pepper, salt, sausage casings, l... |



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Text feature extraction



CountVectorizer

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By using CountVectorizer to transform the text data to be the word frequency matrix. And we can use `toarray` to help us.

The output example:

```
array([[0,0,0,...0,0,0],
       [0,0,0,...0,0,0],
       [0,0,0,...0,0,0],
       ...
       [0,0,0,...0,0,0],
       [0,0,0,...0,0,0],
       [0,0,0,...0,0,0]],
      )
```




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Modeling



Modeling

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- problem analysis

This is a text classification problem. Machine learning has many ways to solve text classification problems.

- Random forest

- SVM



Random forest

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- Divide training data and test data
- Do a model training
- Model evaluation
- Model prediction



SVM

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- Divide training data and test data
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The score of Random forest and SVM

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Table 3: The score of 2 model

| | model | score |
|---|---------------|-------|
| 1 | Random forest | 0.71 |
| 2 | SVM | 0.79 |



Forecasting

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By using the above model, the prediction classification results can be obtained.

The output is:

```
array(['southern_us', 'southern_us', 'italian', ..., 'italian', 'southern_us', 'mexican'], dtype=object)
```



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Conclusion



Conclusion

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Text feature extraction Using the CountVectorizer and TfidfVectorizer to help us process the text data.If the text data is Chinese, you can use jieba for word segmentation.

Modeling There are many ways to deal with text classification in machine learning Can be appropriately selected on combination with the problem.

Prospecting I woule like to select multiple models for comparison later.For example, Naive Bayes, there are some deep learning methods (RNN, CNN)



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