|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Experiment | Fold | Accuracy | Correct | Total |
| 1 | 1 | 74.16% | 1581 | 2132 |
|  | 2 | 74.81% | 1595 | 2132 |
|  | 3 | 73.78% | 1573 | 2132 |
|  | 4 | 75.05% | 1600 | 2132 |
|  | 5 | 74.55% | 1591 | 2134 |
| Average of accuracy | | 74.47% | | |
| 2 | 1 | 74.14% | 1580 | 2131 |
|  | 2 | 74.81% | 1595 | 2132 |
|  | 3 | 73.86% | 1574 | 2131 |
|  | 4 | 74.95% | 1598 | 2132 |
|  | 5 | 74.59% | 1591 | 2133 |
| Average of accuracy | | 74.47% | | |
| 3 | 1 | 74.53% | 1589 | 2132 |
|  | 2 | 75.09% | 1601 | 2132 |
|  | 3 | 74.72% | 1593 | 2132 |
|  | 4 | 75.84% | 1617 | 2132 |
|  | 5 | 75.73% | 1616 | 2134 |
| Average of accuracy | | 75.182% | | |
| 4 | 1 | 84.01% | 1791 | 2131 |
|  | 2 | 83.30% | 1776 | 2132 |
|  | 3 | 82.08% | 1750 | 2131 |
|  | 4 | 82.97% | 1770 | 2132 |
|  | 5 | 82.38% | 1758 | 2133 |
| Average of accuracy | | 82.95% | | |

1. Which condition gives the best result?

Experment 4 with Top 2000 words, no Word Stemming, Normalized Freq gives the best result.

2. What conclusions can you make?

From the experiment, we can observe:

1. Word stemming gives no help to the final result.
2. To some extent,TF-IDF helps impove the result, but time consumes much more than others

3) Filtering top 2000 words significantly improves the final result.

The conclusion is:

In supervised learning problems, feature selection is very important.

3. Which features are more useful and why do you think so?

The frequency of the words that appear in the document.

4. Examine the sentences that are classified wrongly. Why do you think that they are classified

wrongly?

Compare to testing file with the ouput file, the sentences that are classified wrongly are likely to contain the neutral or even positive words. They are marked -1 in testing file, but get positive value in the output file.