自然语言处理及应用
实验报告

名称	
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1. 实验要求

2. 实验环境

3. 实验思路

4. 实验结果

5. 实验总结

```cpp
#include <iostream>
#include <cstring>
using namespace std;
const int N = 1e4 + 10;
char s1[N], s2[N];
int dp[N][N], op[N][N], w[3];
string optName[] = { "none", "del", "add", "chg" }, nowString;
int delta = 0;
void df(int i, int j, int o) {
    if (op[i][j] == 0) df(i - 1, j - 1, 0);
    else if (op[i][j] == 1) df(i - 1, j, 1);
    else if (op[i][j] == 2) df(i, j - 1, 2);
    else if (op[i][j] == 3) df(i - 1, j - 1, 3);
    if (o != 0) {
        if (o == 1) nowString.erase(i + delta, 1), delta--;
        else if (o == 2) nowString.insert(i + delta, 1, s2[j]), delta++;
        else nowString[i + delta] = s2[j];
        cout << optName[o] << ": " << nowString << '\n';
    }
}
signed main() {
    memset(dp, 127, sizeof(dp));
    memset(op, -1, sizeof(op));
    cin >> s1 >> s2;
    cin >> w[0] >> w[1] >> w[2];
```

```
26      int len1 = strlen(s1), len2 = strlen(s2);
27      for (int i = 0; i <= max(len1, len2); i++) dp[0][i] = i * w[1],
    ↪   dp[i][0] = i * w[0];
28      for (int i = 1; i <= len1; i++) {
29          for (int j = 1; j <= len2; j++) {
30              if (s1[i - 1] == s2[j - 1]) {
31                  op[i][j] = 0;
32                  dp[i][j] = dp[i - 1][j - 1];
33                  continue;
34              }
35              int tmp[] = { dp[i - 1][j], dp[i][j - 1], dp[i - 1][j - 1] },
    ↪   mn = 1e9, mnId;
36              for (int k = 0; k < 3; k++) {
37                  if (tmp[k] < mn) {
38                      mn = tmp[k] + w[k];
39                      mnId = k;
40                  }
41              }
42              dp[i][j] = mn;
43              op[i][j] = mnId + 1;
44          }
45      }
46      printf("minimal weight: %d\n", dp[len1][len2]);
47      nowString = string(s1);
48      cout << "s1:  " << nowString << '\n';
49      df(len1, len2, 0);
50      system("pause");
51      return 0;
52  }
53
54  #if 0
55  输入
56  sdfghnbf
57  srtggnf
58  2 3 2
59  输出
60  minimal weight : 8
```

```
s1 : sdfghnbf
chg : srfghnbf
chg : srtghnbf
chg : srtggnbf
del : srtggnf
结果中 del 表示删除字符,add 表示添加字符,chg 表示替换字符
#endif
```

```
    #include<iostream>;
```