

Online C Compiler - Programiz

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Programiz C Online Compiler

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main.c

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```
1 #include <stdio.h>
2 #include <string.h>
3 #include <stdlib.h>
4 #include <ctype.h>
5 #define MAX_TEXT 1000
6 #define MAX_RESULTS 10
7 #define ALPHABET_SIZE 26
8 const char *english_order = "ETAOINSHRDLCLUMWFGYPBVKJXQZ";
9 typedef struct {
10     char letter;
11     int count;
12 } Frequency;
13 int compareFreq(const void *a, const void *b) {
14     return ((Frequency *)b)->count - ((Frequency *)a)->count;
15 }
16 void countFrequencies(char *text, Frequency freq[]) {
17     for (int i = 0; i < ALPHABET_SIZE; i++) {
18         freq[i].letter = 'A' + i;
19         freq[i].count = 0;
20     }
21     for (int i = 0; text[i]; i++) {
22         if (isalpha(text[i])) {
23             char ch = toupper(text[i]);
24             freq[ch - 'A'].count++;
```

Output

Clear

Enter the ciphertext (monoalphabetic cipher):
DEEPA

Enter the number of top guesses to show (max 10): 7

Top 7 possible plaintexts (based on frequency analysis):

Option 1:
AEEOT

Option 2:
OTTIA

Option 3:
IAANO

Option 4:
NOOSI

Option 5:
SIIHN

Option 6:
HNNRS

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Clear

Output Clear

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Output

Clear

```
48 plaintext[strlen(ciphertext)] = '\0';
49 }
50 int main() {
51     char ciphertext[MAX_TEXT];
52     int topN;
53     printf("Enter the ciphertext (monoalphabetic cipher):\n");
54     scanf("%s", ciphertext);
55     printf("Enter the number of top guesses to show (max 10): ");
56     scanf("%d", &topN);
57     if (topN > MAX_RESULTS) topN = MAX_RESULTS;
58     Frequency freq[ALPHABET_SIZE];
59     char plaintext[MAX_TEXT];
60     char map[26];
61     countFrequencies(ciphertext, freq);
62     printf("\nTop %d possible plaintexts (based on frequency analysis):\n",
        topN);
63     for (int i = 0; i < topN; i++) {
64         buildMapping(freq, map, i);
65         applyMapping(ciphertext, plaintext, map);
66         printf("\nOption %d: %s\n", i + 1, plaintext);
67     }
68     return 0;
69 }
70
```

Option 1:
AEEOT

Option 2:
OTTIA

Option 3:
IAANO

Option 4:
NOOSI

Option 5:
SIIHN

Option 6:
HNNRS

Option 7:
RSSDH

=== Code Execution Successful ===

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