main.c

Run

Output

Clear

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <ctype.h>

#define MAX_LEN 2048
#define ALPHABET_SIZE 26
#define MAX_GUESSES 10

// English frequency order from most to least common
const char english_freq[] = "ETAOINSHRDLCUMWFGYPBVKJXQZ";

typedef struct {
    char plaintext[MAX_LEN];
    int score;
} Guess;
```

```
Enter ciphertext:
ZPV BSF BO JODSFEJCMF DPEFS

Top 10 guesses based on frequency analysis:

Guess #1:
CHL ATE AS NSOTEINRDE OHIET

Guess #2:
URC OAT OH SHIATNSDLT IRNTA

Guess #3:
MDU IOA IR HRNOASHLCA NDSAO

Guess #4:
WLM NIO ND RDSIOHRCUO SLHOI

Guess #5:
```

main.c

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```
78      count_frequency(ciphertext, freq);
79      sort_by_frequency(freq, sorted);
80
81      printf("\nTop %d guesses based on frequency
            analysis:\n\n", MAX_GUESSES);
82      for (int i = 0; i < MAX_GUESSES; i++) {
83          generate_mapping(sorted, map, i); //
                slight shifts to simulate variation
84          apply_mapping(ciphertext, guesses[i]
                .plaintext, map);
85          guesses[i].score = 0; // basic scoring
                could be added
86          printf("Guess #%d:\n%s\n\n", i + 1,
                guesses[i].plaintext);
87      }
88
89      return 0;
90  }
```

```
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```