11. Write a C program for possible keys does the Playfair cipher have? Ignore the fact that some keys might produce identical encryption results. Express your answer as an approximate power of 2.

a. Now take into account the fact that some Playfair keys produce the same encryption results. How many effectively unique keys does the Playfair cipher have?

#include <stdio.h>

#include <math.h>

int main() {

double total\_keys = 1;

for (int i = 1; i <= 25; i++) {

total\_keys \*= i;

}

double log2\_total\_keys = log2(total\_keys);

printf("Total possible keys (25!): %.0f\n", total\_keys);

printf("Approximate as 2^%.0f\n", log2\_total\_keys);

printf("Effectively unique keys (approximate): 2^61\n");

return 0;

}

